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Appendix A.1

Transportation Network Study

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Technical Memorandum
Transportation Network Study

Date: January 2025 **Project No.:** 300058817.0000

Project Name: Bridge and Transportation Network Study for Bridges 2-WG, 3-E, 5-E & 7-E

Client Name: Township of Centre Wellington

Submitted To: Andrew Dawson, P.Eng.

Submitted By: Sameem Raheemi, B.Sc., MUP

Reviewed By: Alvaro Almuina, P.Eng., M.Eng., PMP, DCE

1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) has been retained by the Township of Centre Wellington (Township) to complete a Bridge and Transportation Network Study for Bridges 2-WG, 3-E, 5-E, and 7-E, which are located in close proximity to one another in the southeast quadrant of the Township. Due to their severely deteriorated condition, these structures have had load limitations applied or have been closed to vehicular traffic.

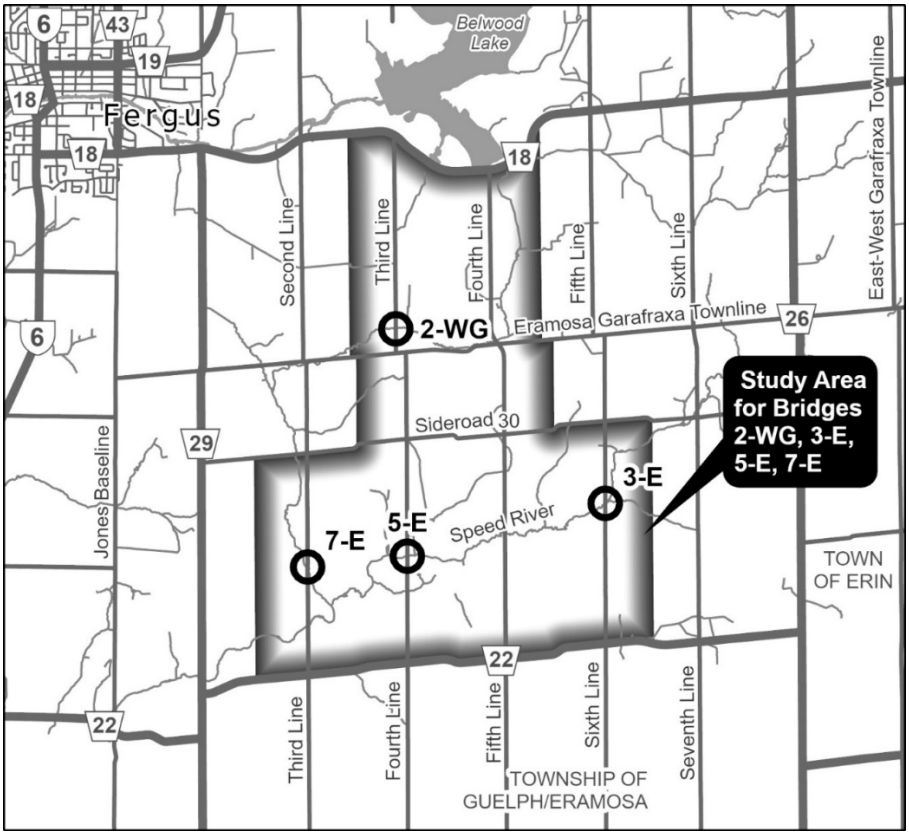
The Township has recognized the impact of numerous closed structures on the local community's overall connectivity and initiated this study to evaluate each structure's role in the overall transportation network and consider improvements to some or all of the subject bridges to improve connectivity within the Study Area. This memo presents the results of a technical review of the road continuity and alignment within the influence areas of the four bridges.

The four bridges are in the southeast quadrant of the Township of Centre Wellington, near Fergus. Their locations are:

- **Bridge 2-WG**: On Third Line (Garafraxa), 340 m north of Eramosa-Garafraxa Townline.
- **Bridge 3-E**: On Sixth Line (Eramosa), 1.9 km north of Wellington Road 22.
- **Bridge 5-E**: On Fourth Line (Eramosa), 1.5 km north of Wellington Road 22.
- **Bridge 7-E**: On Third Line (Eramosa), 1.5 km north of Wellington Road 22.

The location of the four bridges is illustrated in Figure 1.

Figure 1: Study Area and the Location of Four Bridges



2.0 Existing Conditions

2.1 Land Use

The four bridges are located in the Township's southeastern quadrant, primarily a rural community. The existing land use designation identified by the County Official Plan includes mainly agricultural land, green land, and core green land with some industrial and recreational uses present. The network of roads in this quadrant mainly serves the agricultural farmlands and connects them to the neighbouring Towns of Alma, Salem, Elora, and Fergus. The land use map of the study area is shown in Figure 2.

Figure 2: Land Use Map of the Study Area



2.2 Road Network and Traffic Volumes

The existing road network is described in Table 1 below. Several of the roads in the Study Area do not have posted speed limits. These unposted roadways may technically be considered to have statutory speed limits of 80 km/h in accordance with the Highway Traffic Act (located outside of built-up areas). This is because the roadways are narrow and gravel-surfaced with vertical curves that may have sight lines below the minimum requirement for an 80 km/h posted speed.

Table 1: Study Area Roadways

Roadway	General Description
Wellington Road 29	Wellington Road 29 (CR 29) is a north-south asphalt arterial road under the County's jurisdiction. It has a posted speed limit of 80 km/hr and a two-lane rural cross-section with no sidewalks. CR 29 provides and serves high volumes of traffic including truck traffic. As a major roadway, it is designed for safety, efficiency, and convenience to move people and goods at reasonably high speeds.
Second Line (Eramosa)	Second Line is a north-south gravel local road under the jurisdiction of the Township. Second Line within the study area (from Wellington Road 18 to Eramosa Garafraxa Townline) consists of a two-lane rural cross-section with no sidewalks. No posted speed limit is present for this road within the study area, so an assumed unposted speed of 80 km/h has been used for this study. Second Line serves local traffic and provides access to individual properties.
Third Line (Garafraxa)	Third Line is a north-south gravel local road under the jurisdiction of the Township. Third Line within the study area (from Eramosa Garafraxa Townline to Wellington Road 22) consists of a two-lane rural cross-section with no sidewalks. No posted speed limit is present for this road within the study area, so an assumed unposted speed of 80 km/h has been used for this study. Third Line serves local traffic and provides access to individual properties. Bridge 7-E is located on the Third Line.
Third Line (Eramosa)	Third Line is a north-south gravel local road under the jurisdiction of the Township. Third Line within the study area (from Wellington Road 18 to Eramosa Garafraxa Townline) consists of a two-lane rural cross-section with no sidewalks. No posted speed limit is present for this road within the study area, so an assumed unposted speed of 80 km/h has been used for this study. Third Line serves local traffic and provides access to individual properties. Bridge 2-WG is located on Third Line.
Fourth Line (Garafraxa)	Fourth Line is a north-south gravel local road under the jurisdiction of the Township. The Fourth Line within the study area (from Eramosa Garafraxa Townline to Wellington Road 22) consists of a two-lane rural cross-section with no sidewalks. No posted speed limit is present for this road within the study area, so an assumed unposted speed of 80 km/h has been used for this study. Fourth Line serves local traffic and provides access to individual properties. Bridge 5-E is located on the Fourth Line. Fourth Line is proposed to be improved to an arterial standard.
Fourth Line (Eramosa)	Fourth Line is a north-south paved local road under the jurisdiction of the Township. Fourth Line within the study area (from Wellington Road 18 to Eramosa Garafraxa Townline) consists of a two-lane rural cross-section with no sidewalks. It has a posted speed limit of 80 km/h except for a 650 m segment north of Eramosa Garafraxa Townline which has a posted speed limit of 60 km/h. Fourth Line serves local traffic and provides access to individual properties.

Roadway	General Description
Fifth Line (Garafraxa)	Fifth Line is a north-south paved local road under the jurisdiction of the Township. The Fifth Line within the study area (from Eramosa Garafraxa Townline to Wellington Road 22) consists of a two-lane rural cross-section with no sidewalks. It has a posted speed limit of 80 km/h except for a 450 m segment south of Eramosa Garafraxa Townline which has a posted speed limit of 60 km/h. Fifth Line serves local traffic and provides access to individual properties.
Fifth Line (Eramosa)	Fifth Line is a north-south paved local road under the jurisdiction of the Township. The Fifth Line within the study area (from Wellington Road 18 to Eramosa Garafraxa Townline) consists of a two-lane rural cross-section with no sidewalks. It has a posted speed limit of 50 km/h. Fifth Line serves local traffic and provides access to individual properties.
Sixth Line (Garafraxa)	Sixth Line is a north-south gravel local road under the jurisdiction of the Township. Sixth Line within the study area (from Eramosa Garafraxa Townline to Wellington Road 22) consists of a two-lane rural cross-section with no sidewalks. It has an assumed unposted speed limit of 80 km/h. Sixth Line serves local traffic and provides access to individual properties. Bridge 3-E is located on the Sixth Line.
Sixth Line (Eramosa)	Sixth Line is a north-south paved local road under the jurisdiction of the Township. Sixth Line within the study area (from Wellington Road 18 to Eramosa Garafraxa Townline) consists of a two-lane rural cross-section with no sidewalks. It has a posted speed limit of 80 km/h except for a 2 km segment north of Eramosa Garafraxa Townline which has a posted speed limit of 50 km/h. Sixth Line serves local traffic and provides access to individual properties.
Seventh Line (Garafraxa)	Seventh Line is a north-south gravel local road under the jurisdiction of the Township. Seventh Line within the study area (from Eramosa Garafraxa Townline to Wellington Road 22) consists of a two-lane rural cross-section with no sidewalks. It has an assumed unposted speed limit of 80 km/h. Seventh Line serves local traffic and provides access to individual properties.
Wellington Road 26	Wellington Road 26 (CR 26) is a north-south asphalt arterial road under the County's jurisdiction. It has a posted speed limit of 80 km/hr and consists of a two-lane rural cross-section with no sidewalks. CR 26 provides and serves high volumes of traffic including truck traffic. As a major roadway, it is designed for safety, efficiency, and convenience to move people and goods at reasonably high speeds.
Wellington Road 18	Wellington Road 18 (CR 18) is an east-west asphalt arterial road under the County's jurisdiction. The posted speed limit of CR 18 is 70 km/h west of Third Line (Eramosa) and 80 km/h east of it. CR 18 has a two-lane rural cross-section with no sidewalks. CR 18 provides and serves high volumes of traffic including truck traffic. As a major roadway, it is designed for safety, efficiency, and convenience to move people and goods at reasonably high speeds.

Roadway	General Description
Eramosa-Garafraxa Townline	Eramosa-Garafraxa Townline (Townline) is an east-west major road under the Township's jurisdiction. It has a paved surface west of Fifth Line Eramosa and a gravel surface east of it with a two-lane rural cross-section with no sidewalks. Townline has an assumed unposted speed limit of 80 km/h. As a major roadway, it is designed for safety, efficiency and convenience to move people and goods at reasonably high speeds.
Sideroad 30	Sideroad 30 is an east-west local gravel road under the Township's jurisdiction. It has a two-lane rural cross-section with no sidewalks. Sideroad 30 has an assumed unposted speed limit of 80 km/h.
Wellington Road 22	Wellington Road 22 (CR 22) is an east-west asphalt arterial road under the County's jurisdiction. CR 22 has a posted speed limit of 50 km/h and has a two-lane rural cross-section with no sidewalks. CR 22 provides and serves high volumes of traffic including truck traffic. As a major roadway, it is designed for safety, efficiency, and convenience to move people and goods at reasonably high speeds.

The existing and proposed road network in the study area is shown in Figure 3.

2.3 Transit

Currently, neither the Township nor the County operates a fixed route transit system. However, the Township is served by the County’s RIDE WELL program. RIDE WELL is an on-demand, publicly funded, rural transit pilot project, offering door-to-door transportation in Wellington County and Guelph. This is a ridesharing service, meaning bookings made at similar times, and in similar locations, will be paired into one vehicle. The Elora and Fergus Downtown Shuttle Program is an initiative designed to enhance transportation accessibility and connectivity within these two communities while helping to alleviate parking constraints. This program involves providing a weekend shuttle service during peak tourism hours (11:00 a.m. – 5:00 p.m.) during the summer months, operating between key locations identified between Elora and Fergus.

2.4 Active Transportation

There is no active transportation (AT) network within the study area to accommodate pedestrians or cyclists. The Centre Wellington Transportation Master Plan proposes the development of an on-road active transportation facility along Wellington Road 29, Fourth Line (Garafraxa), Fifth Line (Eramosa), and Wellington Road 22. The existing and proposed AT network in the study area is shown in Figure 4.

Figure 3: Study Area Road Network

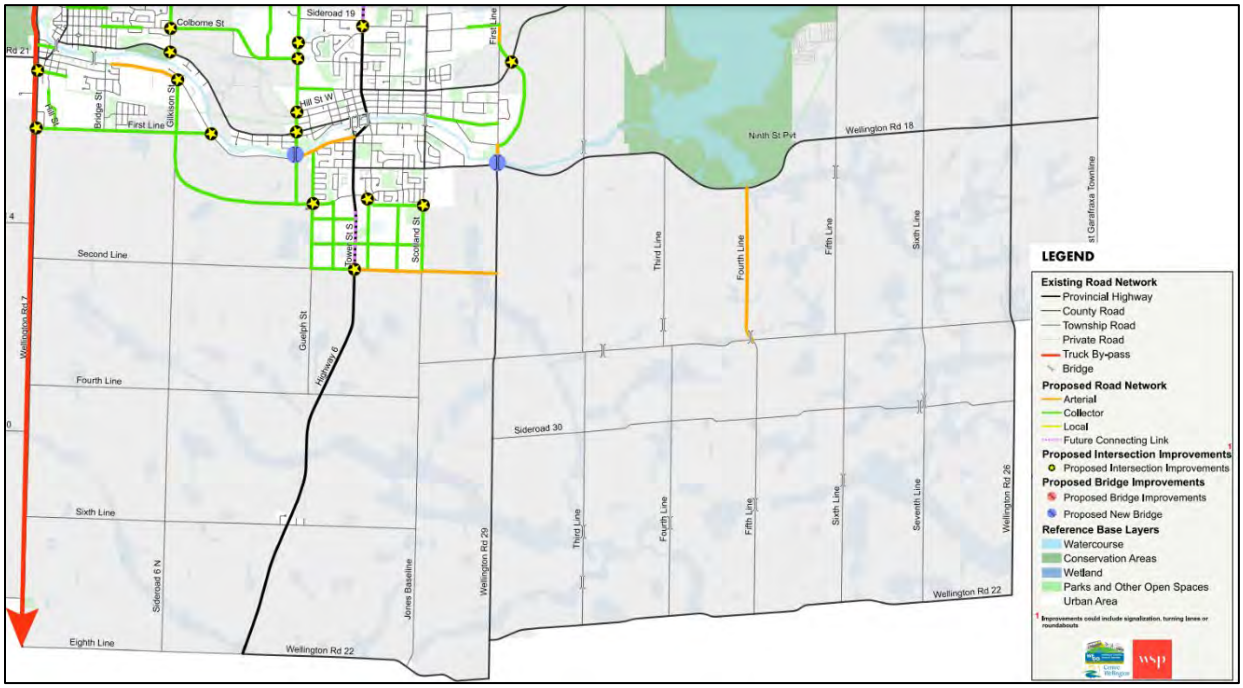
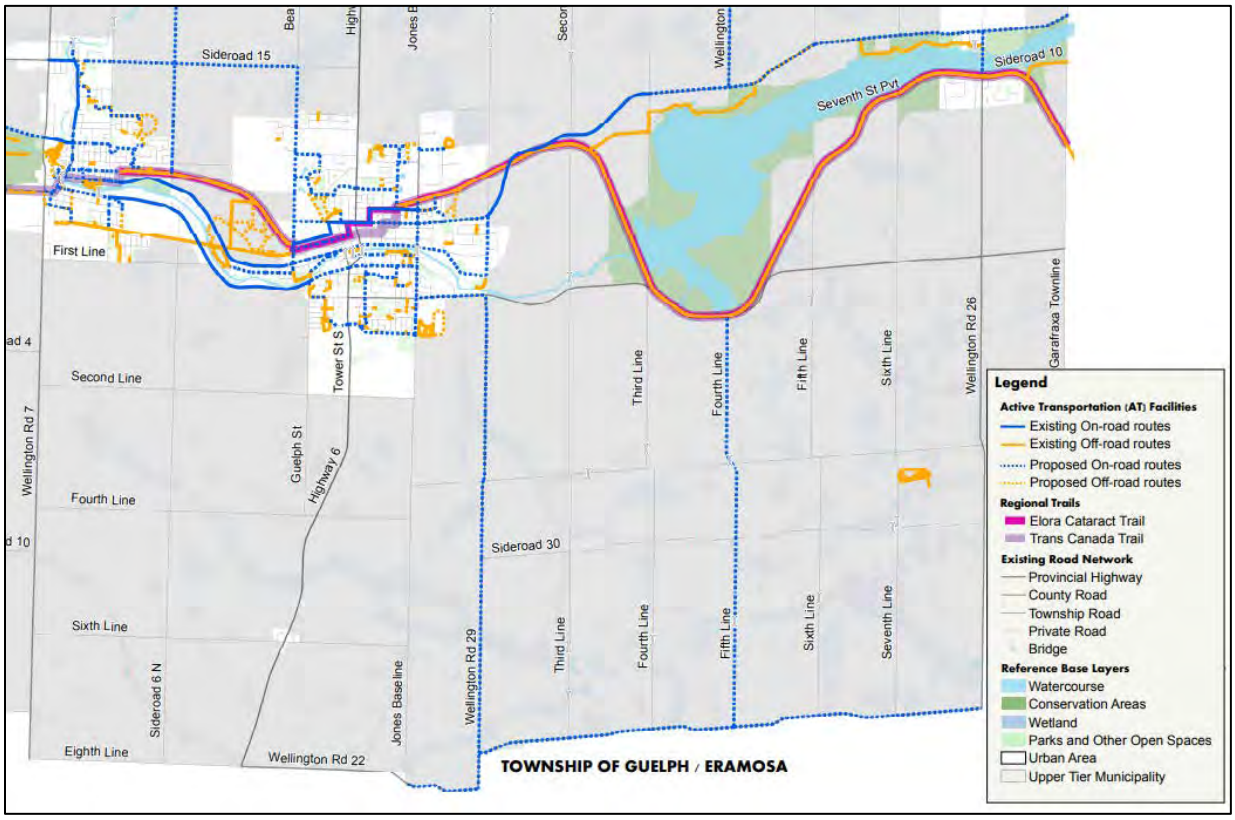


Figure 4: Study Area AT Network



2.5 Truck and Goods / Agricultural Movement

As illustrated in Figure 3, Highway 6 (west of the study area) serves as the primary route facilitating the transportation of goods, both internally and externally, via trucking operations. Notably, it plays a pivotal role in the efficient movement of commercial vehicles coming into Centre Wellington or bypassing it. Wellington Road 7 has been designated as a truck by-pass route. This route has recently been reconstructed and is in good condition. The study area road network experiences trucking operations for moving products of various farmlands, and some industrial and commercial businesses. The transportation of the farmland products rests on light-duty trucks which are the only type of heavy vehicles allowed to use the local roads in the study area.

3.0 Bridge Closure Impact

The four structures being assessed are in the range of 100 years old and have exceeded their typical design life span. Due to their deteriorated state, three structures (3-E, 5-E, and 7-E) have been closed and one structure (2-WG) has been load-restricted to 15 tonnes. It is recognized that these structures once served mainly local residents and agricultural operations, on sections of roadways with low Average Daily Traffic values.

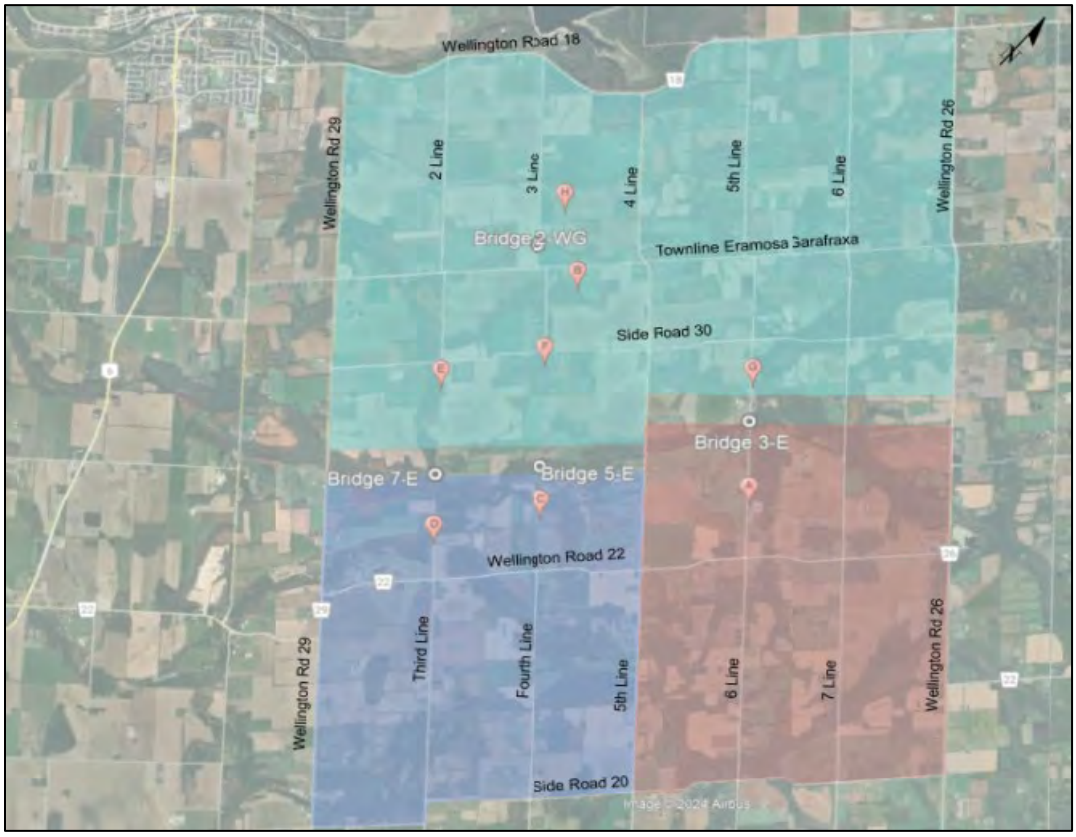
In this section of the technical memorandum, we assess how the closure / reopening of the subject bridges would impact emergency response, travel time, and travel distance. To assess the impact of the bridge closure, the whole southeast quadrant of the Township has been divided into three areas as illustrated in Figure 5. The method adopted for dividing the three areas is based on the location and proximity to either the north or south of the bridges. Travel time is a fundamental measure of transportation, and it is the time required for a transportation mode (vehicles, trucks, buses, persons, etc.) to travel from one point of interest to another on a specific route. Travel time has been used as a measure of efficiency to evaluate transportation facilities and make decisions for future improvements. Travel time is an attribute of travel distance and the speed of the segment of transportation facility.

This study examined the impact of bridge closure and reopening on travel time and travel distance for the following trip types:

- Cross-Community Trips;
- Local Community Trips;
- Emergency Trips; and
- Slow-Moving Vehicle Trips.

For each trip type, an origin-destination matrix was developed and utilized to evaluate differences in travel time and distance under various bridge closure and reopening scenarios.

Figure 5: Study Division and Boundaries



3.1 Cross-Community Trips

The analysis looked at how the bridge closure impacts travel between the locations shown in Figure 5 and major destinations within the proximity of the study area such as Guelph, Erin, Rockwood, Fergus, and Elora. An origin-destination (OD) matrix was created to investigate the impact of bridge closure on various travel patterns. The OD matrix is summarized in Table 2.

Table 2: OD Matrix for Cross-Community Trips

Origin				Destinations	
				Zone	Name
Guelph (Central Station)	Rockwood Conservation Area	Erin (Marc's Grocery)	Guelph (Walmart)	G	Jaybird Ranch
				F	Blue Haven Farm
				E	Residential Home Farm NW 2
				H	Residential Home Farm NW 1
Fergus (Walmart)	Elora (Elora Brewing Company)	Belwood Lake Conservation Area	Fergus (RBC)	A	Herwynen Sawmill
				D	Residential Home Farm SW
				B	Glenarden Farms
				C	Ivy Lane Standard Poodles

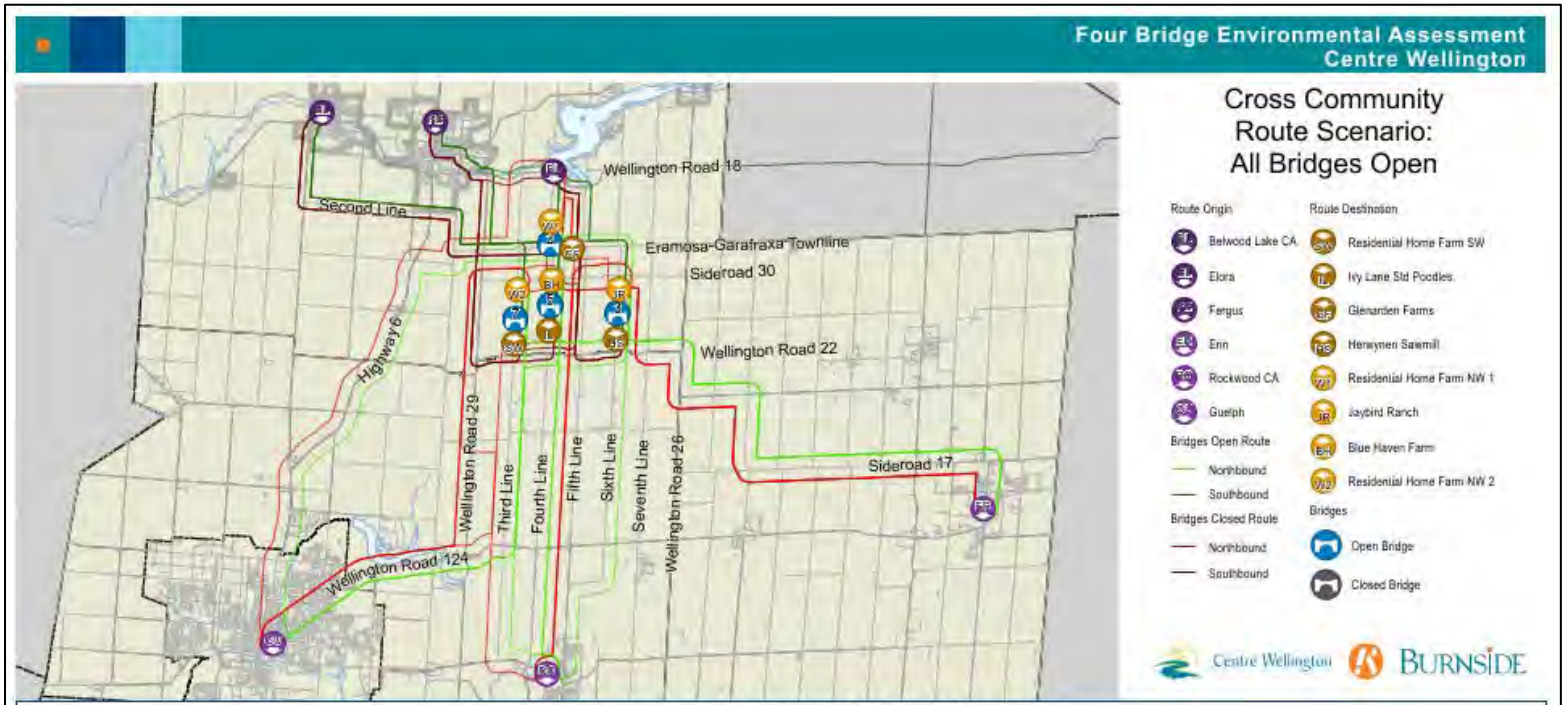
As summarized in Table 2, this assessment looks into trips originating from areas located north of the bridges to the destinations to the south, such as Guelph, Rockwood, and Erin, and trips originating from south of the bridges to the destinations such as Fergus, and Elora.

Two scenarios were considered to evaluate the impact of a bridge closure / reopening on cross-community trips: one where all bridges are closed and another where all bridges are open. For both scenarios, alternate travel routes were analyzed to assess travel time and distance differences. The selected routes between OD pairs, as outlined in Table 2, along with their corresponding travel times and distances for each scenario, are illustrated and summarized in Figure 6.

As illustrated in Figure 6, the bridge closure results in travellers taking detours to reach their OD pairs. The increase in travel time varies between 19 seconds and 5 minutes, depending on the location. Similarly, travel distances are longer with the bridges closed, ranging from 0.4 km to 5.3 km. Locations H and C experience the most significant impact, while Location B is the least affected by the bridge closure.

For all OD scenarios for cross-community travel, it was identified that the preferred route only crosses one of the four bridges being studied. As such, the two scenarios of all bridges open and all bridges closed may be used to determine the impacts of opening / closing individual bridges, or any combination thereof. This study presupposes that all the other bridge structures within the research area (not included within this study) will be maintained in a condition capable of supporting emergency vehicle loads.

Figure 6: Cross-Community Trips



Cross Community- Estimated Time & Routing

		Bridges Open		Bridges Closed		Difference	
Origin	Destination	Time (m:ss)	Distance (Km)	Time (m:ss)	Distance (Km)	Time Difference	Distance Difference
Belwood Lake CA	Home Farm SW	6:05	8.1	8:38	11.5	2:32	3.4
Belwood Lake CA	Ivy Lane Std Poodles	4:38	6.2	8:11	10.9	3:33	4.7
Belwood Lake CA	Glenarden Farms	2:40	3.6	3:40	4.9	1:00	1.3
Belwood Lake CA	Herwynen Sawmill	6:41	8.9	7:48	10.4	1:06	1.5
Elora	Home Farm SW	14:14	17.9	15:06	19.1	0:52	1.2
Elora	Ivy Lane Std Poodles	14:38	18.4	16:44	21.2	2:05	2.8
Elora	Glenarden Farms	12:40	15.8	12:40	15.8	0:00	0.0
Elora	Herwynen Sawmill	17:06	21.7	18:12	23.2	1:06	1.5
Fergus	Home Farm SW	10:44	12.1	11:37	13.2	0:52	1.2
Fergus	Ivy Lane Std Poodles	11:09	12.6	13:15	15.4	2:05	2.8
Fergus	Glenarden Farms	9:10	10	9:10	10	0:00	0.0
Fergus	Herwynen Sawmill	13:14	15.4	14:21	16.9	1:06	1.5

		Bridges Open		Bridges Closed		Difference	
Origin	Destination	Time (m:ss)	Distance (Km)	Time (m:ss)	Distance (Km)	Time Difference	Distance Difference
Erin	Home Farm NW 1	23:06	29.7	26:16	34	3:10	4.2
Erin	Jaybird Ranch	18:55	24.2	20:16	26	1:21	1.8
Erin	Blue Haven Farm	21:30	27.6	21:50	28	0:19	0.4
Erin	Home Farm NW 2	22:23	28.8	23:00	29.6	0:37	0.8
Rockwood CA	Home Farm NW 1	14:10	18.7	19:11	24	5:00	5.3
Rockwood CA	Jaybird Ranch	13:37	16.9	15:17	18.8	1:39	1.9
Rockwood CA	Blue Haven Farm	12:33	16.6	14:44	18.1	2:10	1.5
Rockwood CA	Home Farm NW 2	13:08	17.3	15:52	21	2:44	3.7
Guelph	Home Farm NW 1	19:26	23.8	23:04	28.7	3:38	4.8
Guelph	Jaybird Ranch	20:10	24.5	21:32	26.4	1:22	1.8
Guelph	Blue Haven Farm	18:37	22.5	19:06	23.1	0:28	0.6
Guelph	Home Farm NW 2	17:27	20.9	18:11	21.9	0:43	1.0

3.2 Local Community Trips

This set of analyses examined the impact of bridge closures on local community trips within the study area between the locations illustrated in Figure 5. An OD matrix was developed to assess how bridge closures affect various travel patterns. The matrix was designed to evaluate the impact on travel time and distance when travelling from an origin located south of a bridge to a destination situated north of the same bridge or north of Bridge 2-WG. A summary of the OD matrix is provided in Table 3.

Table 3: OD Matrix for Local Community Trips

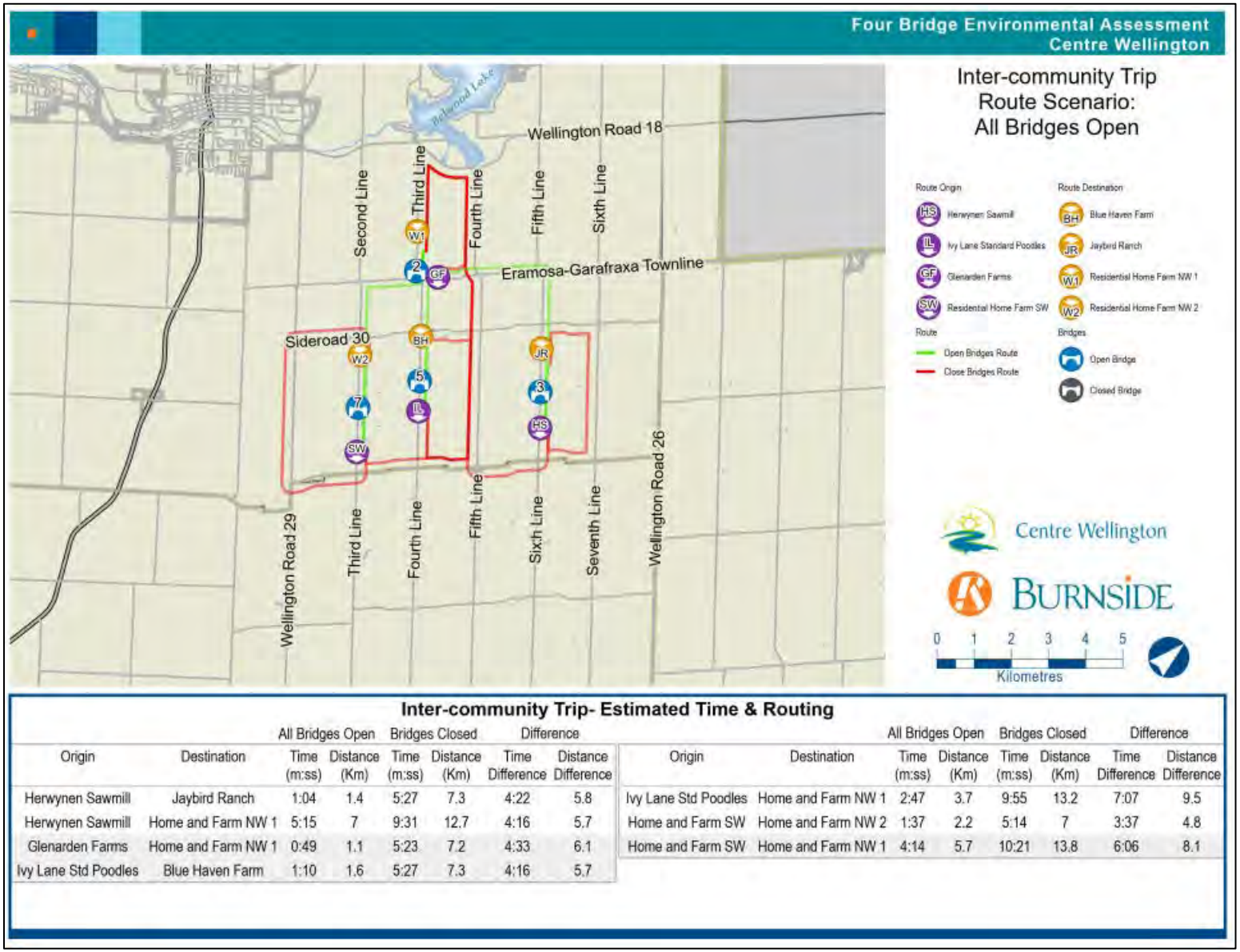
Zone	Origin	Zone	Destination
D	Residential Home Farm SW	H	Residential Home Farm NW 1
		E	Residential Home Farm NW 2
C	Ivy Lane Standard Poodles	H	Residential Home Farm NW 1
		F	Blue Haven Farm
B	Glenarden Farms	H	Residential Home Farm NW 1
A	Herwynen Sawmill	G	Jaybird Ranch
		H	Residential Home Farm NW 1

To evaluate the maximum impacts of bridge closure / reopening on local community trips, two scenarios were considered: one where all bridges are closed and another where all bridges are open. For both scenarios, alternate travel routes were analyzed to assess travel time and distance differences. The selected routes between OD pairs, as outlined in Table 3, along with their corresponding travel times and distances for each scenario, are illustrated and summarized in Figure 7.

As illustrated in Figure 7, a bridge closure results in travellers taking detours to reach their OD pairs. The increase in travel time varies between 3.6 minutes and 7.1 minutes, depending on the location. Similarly, travel distances are longer with the bridges closed, ranging from 4.8 km to 9.5 km.

These maximum impacts of opening / closure may only be recognized with all bridges opened / closed, given that the preferred route crosses over another bridge in the study area in some instances. Therefore, the impacts of specific combinations of fully opened or closed bridges have been further analyzed in Section 4.0 of this report.

Figure 7: Local Community Trips



Inter-community Trip- Estimated Time & Routing

Origin	Destination	All Bridges Open Time (m:ss)	All Bridges Open Distance (Km)	Bridges Closed Time (m:ss)	Bridges Closed Distance (Km)	Difference Time Difference	Difference Distance Difference
Herwynen Sawmill	Jaybird Ranch	1:04	1.4	5:27	7.3	4:22	5.8
Herwynen Sawmill	Home and Farm NW 1	5:15	7	9:31	12.7	4:16	5.7
Glenarden Farms	Home and Farm NW 1	0:49	1.1	5:23	7.2	4:33	6.1
Ivy Lane Std Poodles	Blue Haven Farm	1:10	1.6	5:27	7.3	4:16	5.7
Ivy Lane Std Poodles	Home and Farm NW 1	2:47	3.7	9:55	13.2	7:07	9.5
Home and Farm SW	Home and Farm NW 2	1:37	2.2	5:14	7	3:37	4.8
Home and Farm SW	Home and Farm NW 1	4:14	5.7	10:21	13.8	6:06	8.1

3.3 Emergency Response

Emergency response time is a critical factor in ensuring the safety and well-being of a community. Rapid and effective responses from emergency services, including police, firefighters, and medical care providers, can mean the difference between life and death, injury and recovery, or property loss and preservation. Therefore, understanding how bridge closures can impact emergency response times is crucial.

A robust methodology was employed to evaluate the impact of bridge closures on emergency response times, involving three essential entities: the fire station, hospital, and police station located in Fergus, and the police and fire station located in Rockwood. The approach integrates geographic information system (GIS) technology, transportation analysis, and empirical data to conduct a comprehensive assessment of emergency response times.

The analysis focuses on response times from four pivotal service points to eight strategically chosen locations that represent the broader areas of the Township influenced by bridge closures. Table 4 summarizes the OD matrix for emergency response trips.

Table 4: Origin and Destination Matrix for Emergency Response Trips

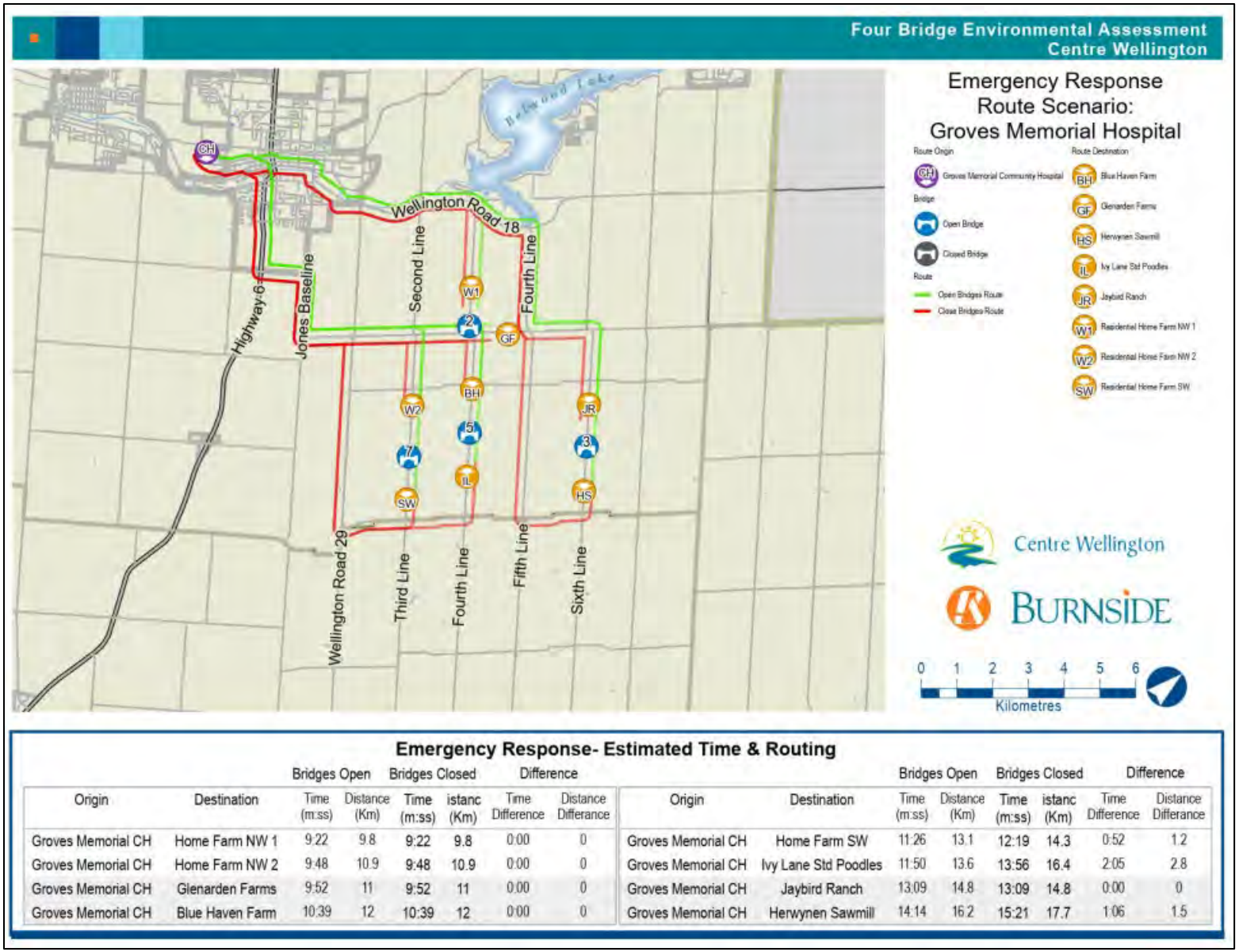
Origin				Destinations	
				Zone	**Name**
Centre Wellington Fire Department - Fergus	OPP - Fergus	Groves Memorial Community Hospital	Guelph Eramosa Fire Station 20	A	Herwynen Sawmill
				B	Glenarden Farms
				C	Ivy Lane Standard Poodles
				D	Residential Home Farm SW
				E	Residential Home Farm NW 2
				F	Blue Haven Farm
				G	Jaybird Ranch
				H	Residential Home Farm NW 1

For the emergency response trips the assessment adopts two scenarios one where all bridges are closed and another where all bridges are open. For all OD scenarios for emergency response, it was identified that the preferred route only crosses one of the four bridges being studied. As such, the two scenarios of all bridges open and all bridges closed may be used to determine the impacts of opening / closing individual bridges, or any combination thereof.

Response times were calculated using GIS software that accounted for the route speed limits and travel distances for both scenarios. This enables the determination of the time required for emergency responders to reach each location under varying bridge accessibility conditions. The response time for the emergency services to reach any of the eight locations is illustrated in Figure 8, Figure 9, Figure 10, and Figure 11.

This study presupposes that all the other bridge structures within the research area (not included within this study) will be maintained in a condition capable of supporting emergency vehicle loads.

Figure 8: Emergency Response – Groves Memorial Community Hospital

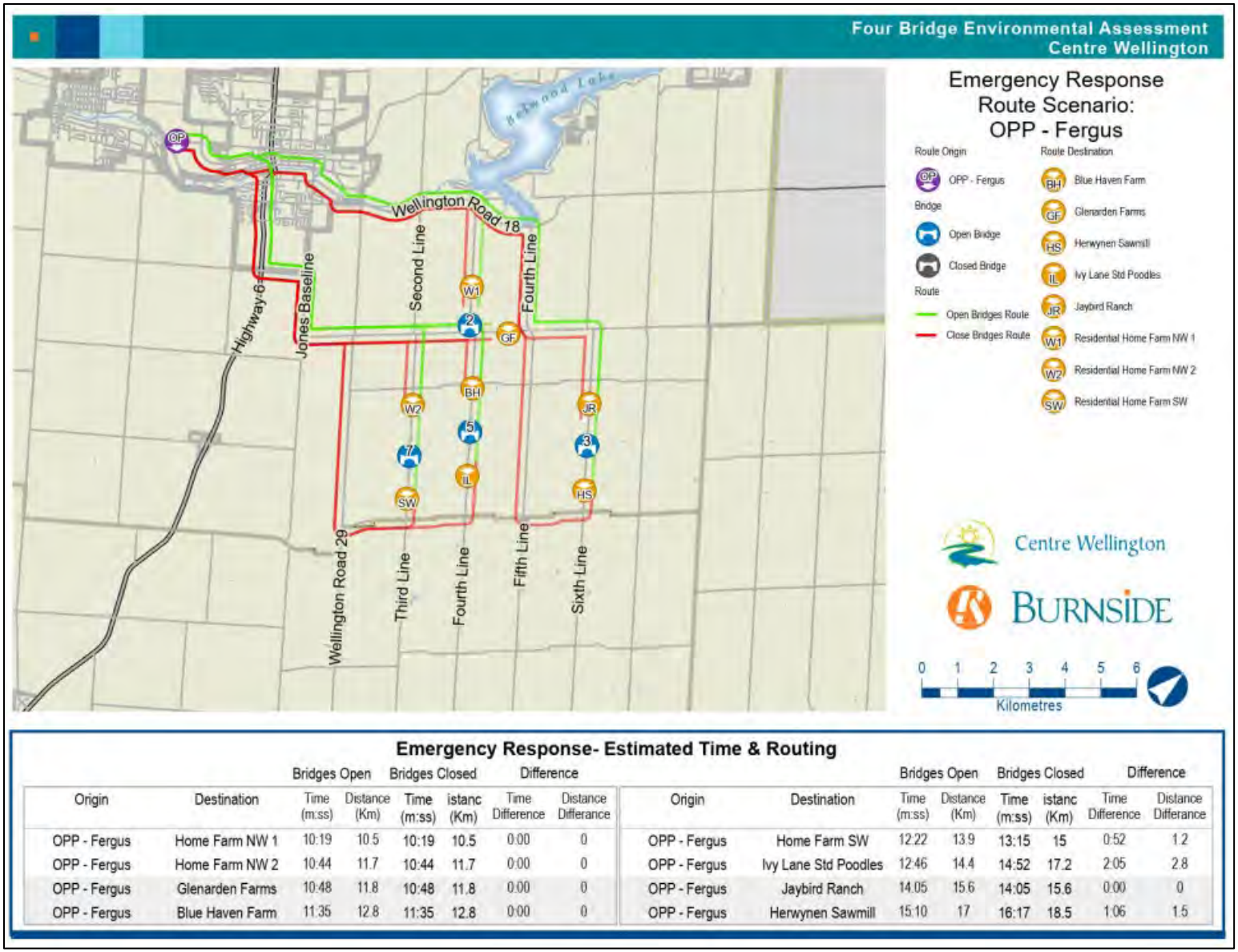


Emergency Response- Estimated Time & Routing

		Bridges Open		Bridges Closed		Difference	
Origin	Destination	Time (m:ss)	Distance (Km)	Time (m:ss)	istanc (Km)	Time Difference	Distance Differance
Groves Memorial CH	Home Farm NW 1	9:22	9.8	9:22	9.8	0:00	0
Groves Memorial CH	Home Farm NW 2	9:48	10.9	9:48	10.9	0:00	0
Groves Memorial CH	Glenarden Farms	9:52	11	9:52	11	0:00	0
Groves Memorial CH	Blue Haven Farm	10:39	12	10:39	12	0:00	0

		Bridges Open		Bridges Closed		Difference	
Origin	Destination	Time (m:ss)	Distance (Km)	Time (m:ss)	istanc (Km)	Time Difference	Distance Differance
Groves Memorial CH	Home Farm SW	11:26	13.1	12:19	14.3	0:52	1.2
Groves Memorial CH	Ivy Lane Std Poodles	11:50	13.6	13:56	16.4	2:05	2.8
Groves Memorial CH	Jaybird Ranch	13:09	14.8	13:09	14.8	0:00	0
Groves Memorial CH	Herwynen Sawmill	14:14	16.2	15:21	17.7	1:06	1.5

Figure 9: Emergency Response - Ontario Provincial Police Fergus

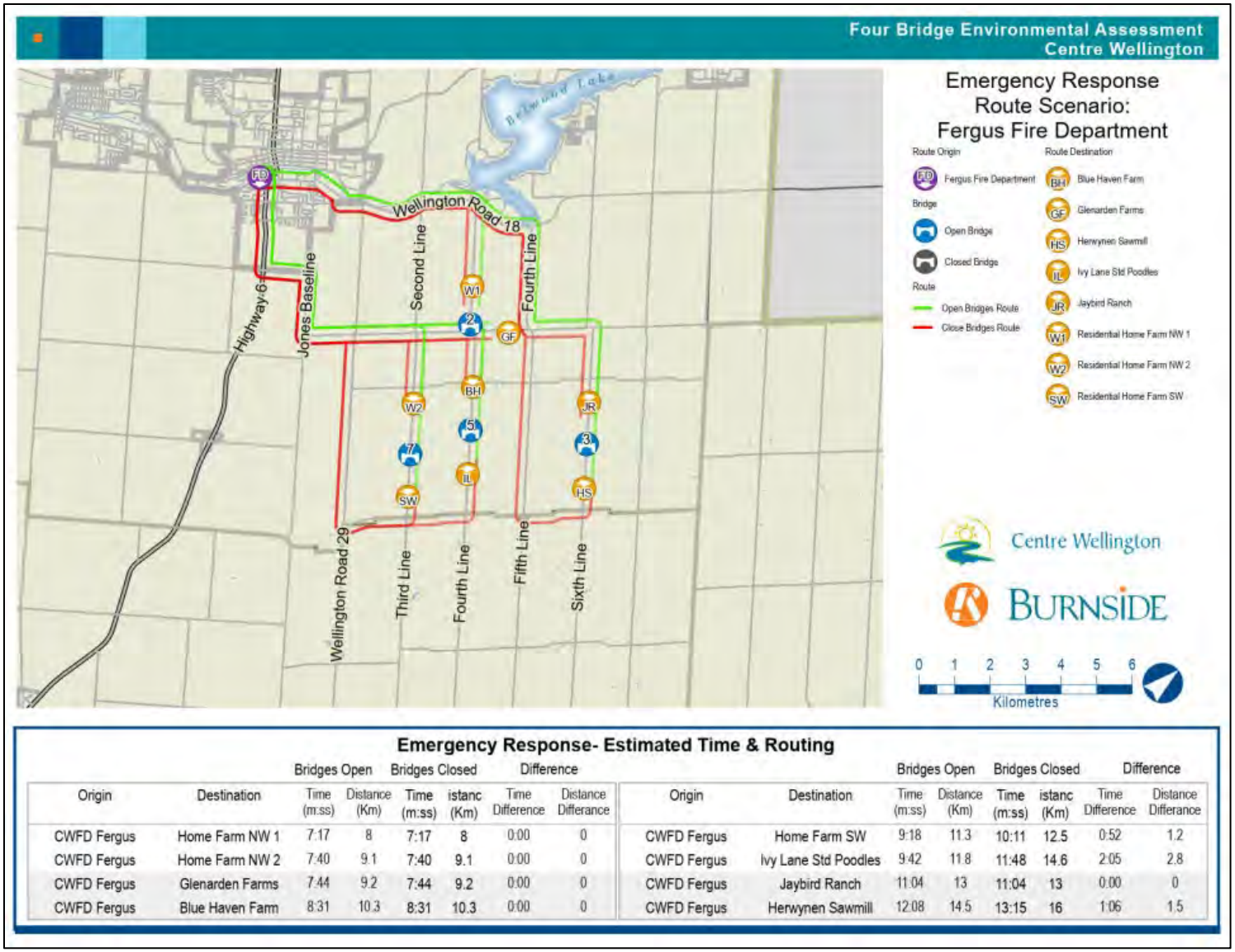


Emergency Response- Estimated Time & Routing

		Bridges Open		Bridges Closed		Difference	
Origin	Destination	Time (m:ss)	Distance (Km)	Time (m:ss)	istanc (Km)	Time Difference	Distance Differance
OPP - Fergus	Home Farm NW 1	10:19	10.5	10:19	10.5	0:00	0
OPP - Fergus	Home Farm NW 2	10:44	11.7	10:44	11.7	0:00	0
OPP - Fergus	Glenarden Farms	10:48	11.8	10:48	11.8	0:00	0
OPP - Fergus	Blue Haven Farm	11:35	12.8	11:35	12.8	0:00	0

		Bridges Open		Bridges Closed		Difference	
Origin	Destination	Time (m:ss)	Distance (Km)	Time (m:ss)	istanc (Km)	Time Difference	Distance Differance
OPP - Fergus	Home Farm SW	12:22	13.9	13:15	15	0:52	1.2
OPP - Fergus	Ivy Lane Std Poodles	12:46	14.4	14:52	17.2	2:05	2.8
OPP - Fergus	Jaybird Ranch	14:05	15.6	14:05	15.6	0:00	0
OPP - Fergus	Herwynen Sawmill	15:10	17	16:17	18.5	1:06	1.5

Figure 10: Emergency Response – Centre Wellington Fire Department Fergus Station

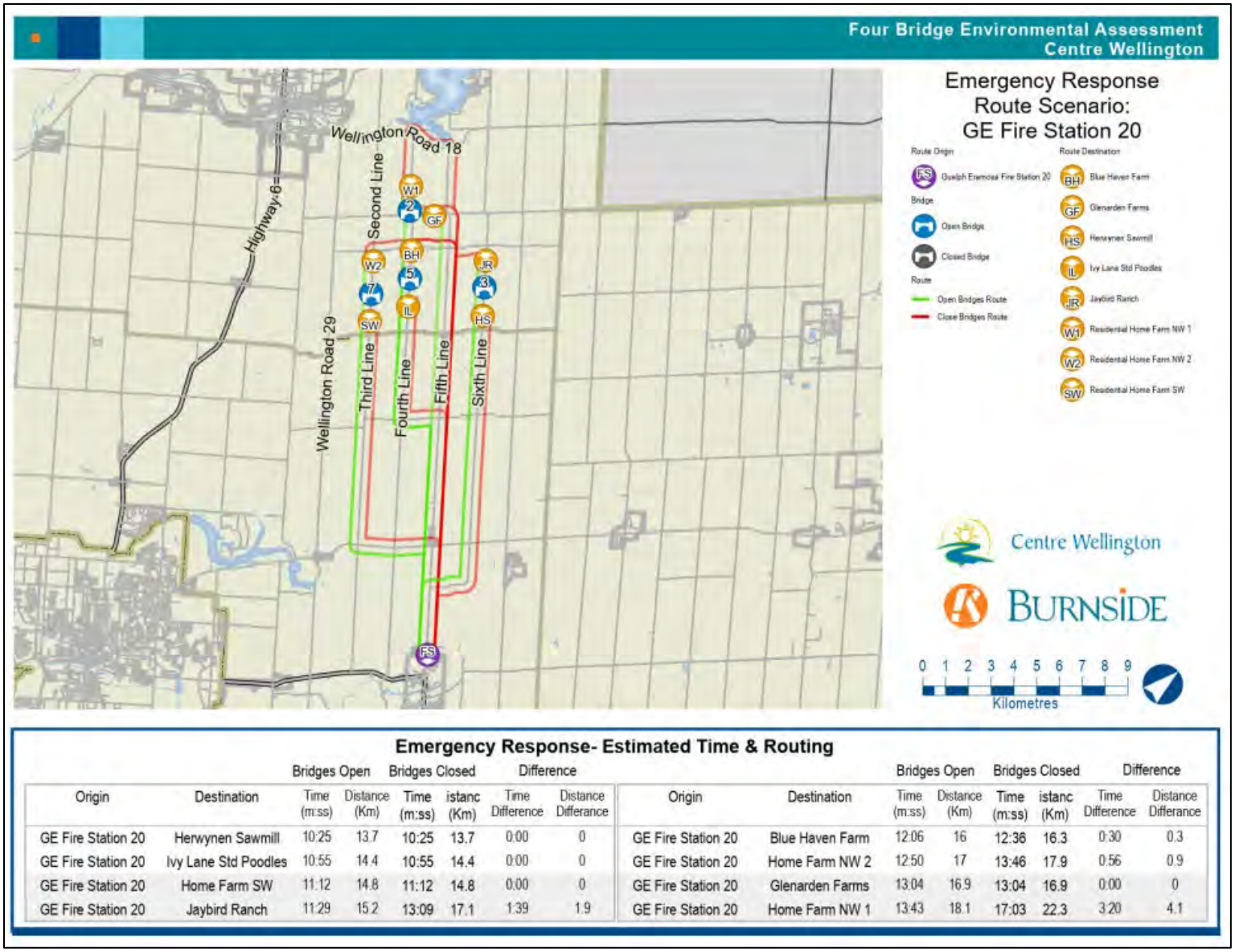


Emergency Response- Estimated Time & Routing

		Bridges Open		Bridges Closed		Difference	
Origin	Destination	Time (m:ss)	Distance (Km)	Time (m:ss)	istanc (Km)	Time Difference	Distance Differance
CWFD Fergus	Home Farm NW 1	7:17	8	7:17	8	0:00	0
CWFD Fergus	Home Farm NW 2	7:40	9.1	7:40	9.1	0:00	0
CWFD Fergus	Glenarden Farms	7:44	9.2	7:44	9.2	0:00	0
CWFD Fergus	Blue Haven Farm	8:31	10.3	8:31	10.3	0:00	0

		Bridges Open		Bridges Closed		Difference	
Origin	Destination	Time (m:ss)	Distance (Km)	Time (m:ss)	istanc (Km)	Time Difference	Distance Differance
CWFD Fergus	Home Farm SW	9:18	11.3	10:11	12.5	0:52	1.2
CWFD Fergus	Ivy Lane Std Poodles	9:42	11.8	11:48	14.6	2:05	2.8
CWFD Fergus	Jaybird Ranch	11:04	13	11:04	13	0:00	0
CWFD Fergus	Herwynen Sawmill	12:08	14.5	13:15	16	1:06	1.5

Figure 11: Emergency Response – Guelph Eramosa Fire Department Rockwood Station



Emergency Response- Estimated Time & Routing

Origin	Destination	Bridges Open Time (m:ss)	Bridges Open Distance (Km)	Bridges Closed Time (m:ss)	Bridges Closed istanc (Km)	Difference Time Difference	Difference Distance Differance
GE Fire Station 20	Herwynen Sawmill	10:25	13.7	10:25	13.7	0:00	0
GE Fire Station 20	Ivy Lane Std Poodles	10:55	14.4	10:55	14.4	0:00	0
GE Fire Station 20	Home Farm SW	11:12	14.8	11:12	14.8	0:00	0
GE Fire Station 20	Jaybird Ranch	11:29	15.2	13:09	17.1	1:39	1.9

Origin	Destination	Bridges Open Time (m:ss)	Bridges Open Distance (Km)	Bridges Closed Time (m:ss)	Bridges Closed istanc (Km)	Difference Time Difference	Difference Distance Differance
GE Fire Station 20	Blue Haven Farm	12:06	16	12:36	16.3	0:30	0.3
GE Fire Station 20	Home Farm NW 2	12:50	17	13:46	17.9	0:56	0.9
GE Fire Station 20	Glenarden Farms	13:04	16.9	13:04	16.9	0:00	0
GE Fire Station 20	Home Farm NW 1	13:43	18.1	17:03	22.3	3:20	4.1

3.3.1 Centre Wellington Groves Memorial Community Hospital: Emergency Department

As illustrated in Figure 8, bridge closures impact emergency response times originating from the Groves Memorial Community Hospital for certain locations. Emergency response times for Locations A, C, and D are longer when the bridges are closed compared to when they are open, with delays ranging from 52 seconds to 2.1 minutes, depending on the location. Similarly, travel distances for these locations increase under bridge closure scenarios, with differences ranging from 1.2 km to 2.8 km. All other locations remain unaffected by the bridge closures.

3.3.2 Centre Wellington Ontario Provincial Police – Fergus

As illustrated in Figure 9, bridge closures impact emergency response times originating from the OPP Police Station in Fergus for certain locations. Emergency response times for Locations A, C, and D are longer when the bridges are closed compared to when they are open, with delays ranging from 52 seconds to 2.1 minutes, depending on the location. Similarly, travel distances for these locations increase under bridge closure scenarios, with differences ranging from 1.2 km to 2.8 km. All other locations remain unaffected by the bridge closures.

3.3.3 Centre Wellington Fire & Rescue – Fergus Station

As illustrated in Figure 10, bridge closures impact firefighting response times originating from the Centre Wellington Fire Department – Fergus Station for certain locations. Emergency response times for Locations A, C, and D are longer when the bridges are closed compared to when they are open, with delays ranging from 52 seconds to 2.1 minutes, depending on the location. Similarly, travel distances for these locations increase under bridge closure scenarios, with differences ranging from 1.2 km to 2.8 km. All other locations remain unaffected by the bridge closures.

3.3.4 Guelph Eramosa Fire Station 20 - Rockwood Station

As illustrated in Figure 11, bridge closures impact firefighting response times originating from the Guelph Eramosa Fire Station 20 - Rockwood Station for certain locations. Emergency response times for Locations E, F, G, and H are longer when the bridges are closed compared to when they are open, with delays ranging from 30 seconds to 3.3 minutes, depending on the location. Similarly, travel distances for these locations increase under bridge closure scenarios, with differences ranging from 0.3 km to 4.1 km. All other locations remain unaffected by the bridge closures. It is important to note that, regardless of bridge closures, response times from the Rockwood Station to the specified locations in the study area are generally longer compared to response times from the Fergus Station. This discrepancy is attributed to the greater distance between the locations listed in Table 1 and the Rockwood Station.

In conclusion, the analysis of emergency response times indicates that bridge closures impact the study area, with the extent of the impact varying by location. When emergency responses originate from any location in Fergus, only Locations A, C, and D are affected. In contrast, when responses originate from the Rockwood Station, Locations E, F, G, and H experience delays. This is due to the extended detours required to navigate between OD pairs when the bridges are closed.

3.4 Slow-Moving Vehicles

This set of analyses examined the impact of bridge closures on local community trips by slow-moving and agricultural vehicles within the study area between the locations illustrated in Figure 5. For the slow-moving vehicles, this set of analyses adopted a 25 km/hr speed limit and prohibited them from using the County Roads. An OD matrix was developed to assess how bridge closures affect various travel patterns. The matrix was designed to evaluate the impact on travel time and distance when traveling from an origin located south of a bridge to a destination situated north of the same bridge or north of Bridge 2-WG. A summary of the OD matrix is provided in Table 5.

Table 5: OD Matrix for Slow-Moving and Agricultural Vehicle Trips

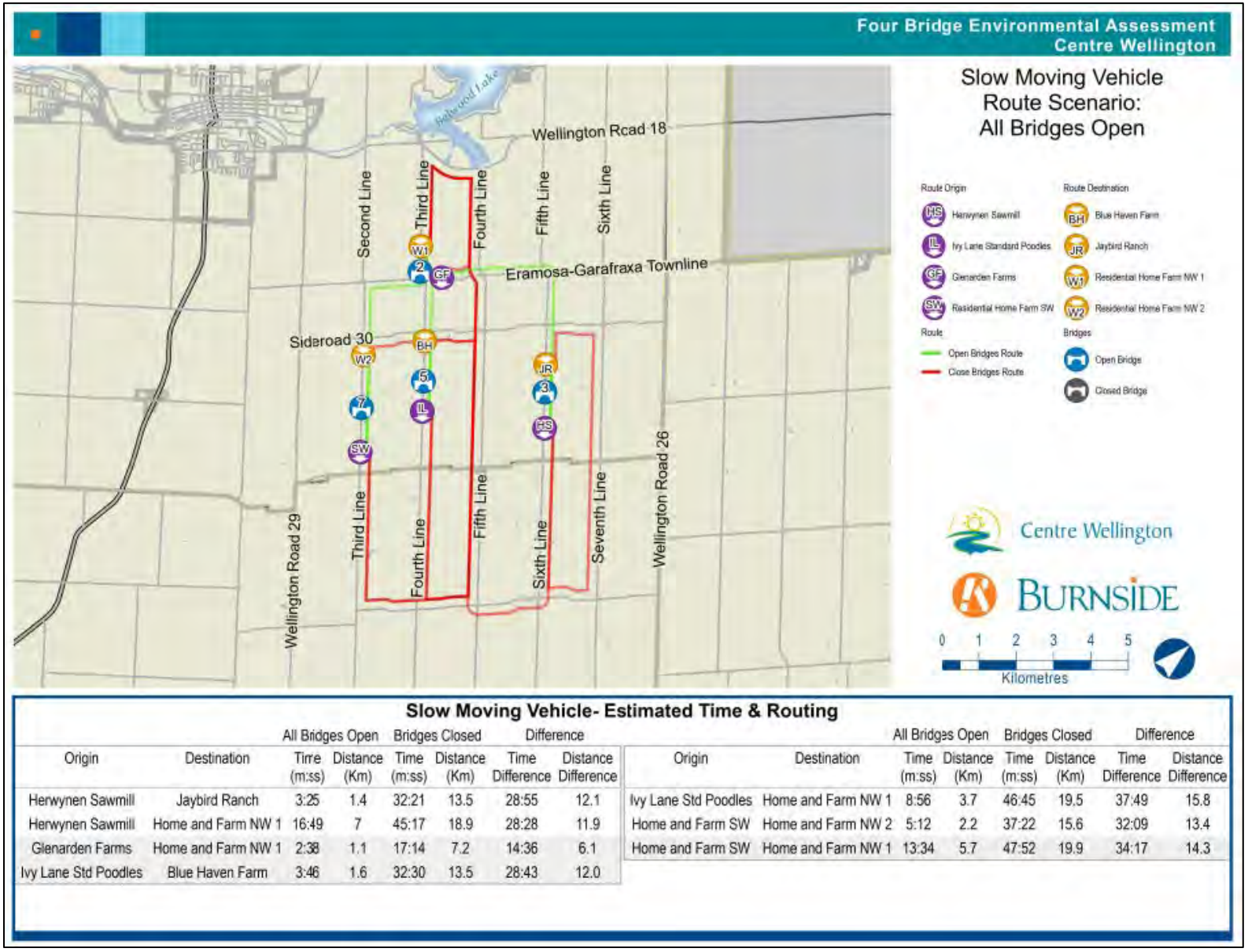
Zone	Origin	Zone	Destination
D	Residential Home Farm SW	H	Residential Home Farm NW 1
		E	Residential Home Farm NW 2
C	Ivy Lane Standard Poodles	H	Residential Home Farm NW 1
		F	Blue Haven Farm
B	Glenarden Farms	H	Residential Home Farm NW 1
A	Herwynen Sawmill	G	Jaybird Ranch
		H	Residential Home Farm NW 1

Two scenarios were considered to evaluate the impact of a bridge closure / reopening on local community trips: one where all bridges are closed and another where all bridges are open. For both scenarios, alternate travel routes were analyzed to assess travel time and distance differences. The selected routes between OD pairs, as outlined in Table 5, along with their corresponding travel times and distances for each scenario, are illustrated and summarized in Figure 12.

As illustrated in Figure 12, the bridge closure results in travellers taking detours to reach their OD pairs. The increase in travel time varies between 14.6 minutes and 37.8 minutes, depending on the location. Similarly, travel distances are longer with the bridges closed, ranging from 6.1 km to 15.8 km.

These maximum impacts of opening / closure may only be recognized with all bridges opened / closed, given that the preferred route crosses over multiple bridges in the study area in some instances. Therefore, the impacts of specific combinations of fully opened or closed bridges have been further analyzed in Section 4.0 of this report.

Figure 12: Slow-Moving Vehicle Trips



Slow Moving Vehicle- Estimated Time & Routing

Origin	Destination	All Bridges Open Time (m:ss)	All Bridges Open Distance (Km)	Bridges Closed Time (m:ss)	Bridges Closed Distance (Km)	Difference Time Difference	Difference Distance Difference
Herwynen Sawmill	Jaybird Ranch	3:25	1.4	32:21	13.5	28:55	12.1
Herwynen Sawmill	Home and Farm NW 1	16:49	7	45:17	18.9	28:28	11.9
Glenarden Farms	Home and Farm NW 1	2:38	1.1	17:14	7.2	14:36	6.1
Ivy Lane Std Poodles	Blue Haven Farm	3:46	1.6	32:30	13.5	28:43	12.0

Origin	Destination	All Bridges Open Time (m:ss)	All Bridges Open Distance (Km)	Bridges Closed Time (m:ss)	Bridges Closed Distance (Km)	Difference Time Difference	Difference Distance Difference
Ivy Lane Std Poodles	Home and Farm NW 1	8:56	3.7	46:45	19.5	37:49	15.8
Home and Farm SW	Home and Farm NW 2	5:12	2.2	37:22	15.6	32:09	13.4
Home and Farm SW	Home and Farm NW 1	13:34	5.7	47:52	19.9	34:17	14.3

4.0 Alternative Solutions

Based on the findings presented in Section 2.0, six alternatives are considered as part of the EA Study to be carefully evaluated, which are outlined below.

- Alternative 1: Do Nothing.
- Alternative 2: All Bridges Closed.
- Alternative 3: All Bridges Open.
- Alternative 4: Opening Bridge 2-WG, 3-E, and 7-E.
- Alternative 5: Opening Bridge 2-WG, 5-E, and 7-E.
- Alternative 6: Opening Bridge 2-WG and 7-E.

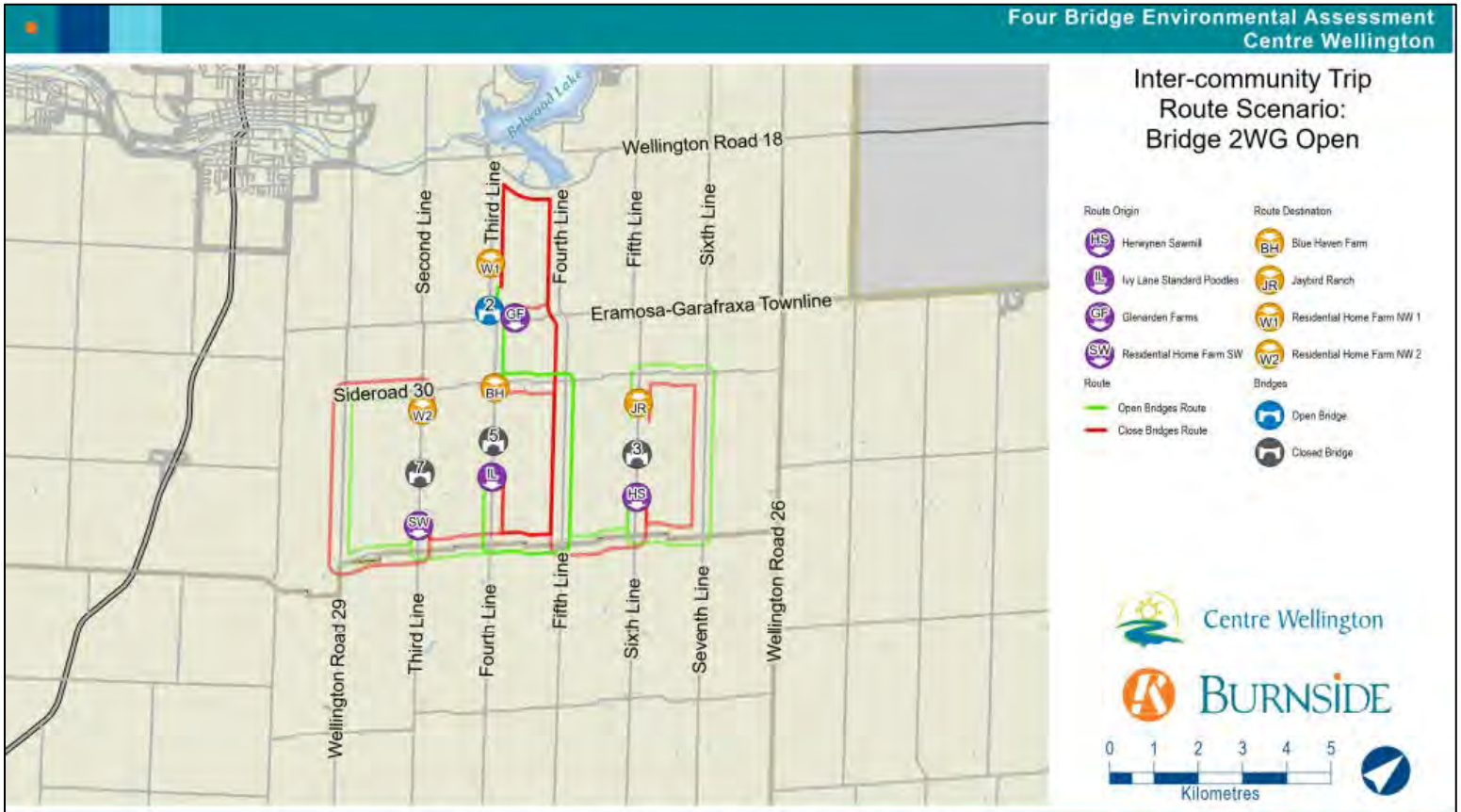
4.1 Alternative 1: Do Nothing

This scenario considers Bridge 2-WG remaining open for public traffic while the other three bridges would remain closed. Bridge 2-WG remaining open would reduce travel time and distance for local community trips and slow-moving vehicles when compared to all bridges being closed. The results for the Cross-Community and Emergency Response impacts have been taken from Figure 6 and Figure 8 through Figure 11, respectively. The associated travel times and distances for local community and slow-moving vehicle trips are provided in Figure 13 and Figure 14 below, respectively. A summary of the results are as follows:

- **Cross-Community Trips:**
  Bridge 2-WG remaining open is projected to reduce travel times by up to 5.0 minutes, depending on the OD pair. The average time savings for the routes analyzed is 2.1 minutes, and the total time savings for routes analyzed is 12.8 minutes. Similarly, travel distances are expected to decrease by up to 7.3 km, with an average of 3.1 km and a total of 18.8 km.
- **Emergency Response:**
  Emergency response from the closest stations (Fergus) are not affected; however, response times are projected to be reduced by up to 3.3 minutes from Rockwood to 15 properties north of the bridge when keeping Bridge 2-WG open.
- **Local Community Trips:**
  Bridge 2-WG remaining open is projected to reduce travel times by up to 4.6 minutes depending on the OD pair. The total time saving for the routes analyzed is 14.1 minutes. Similarly, travel distances are expected to decrease by up to 6.1 km, with a total of 18.7 km.
- **Slow-moving and Agricultural Vehicle Trips:**
  For slow-moving vehicles, Bridge 2-WG remaining open is anticipated to reduce travel times by up to 14.6 minutes, depending on the OD pair. The total time savings for the routes analyzed is 45 minutes. Correspondingly, travel distances will decrease by up to 6.1 km, with a total of 18.7 km.

A close look at the results of individual OD pairs reveals that opening Bridge 2-WG would only reduce travel time and travel distance for trips originating from or destined for locations north of Bridge 2-WG, while trips from other OD pairs will not be impacted by this alternative.

Figure 13: Alternative 1 - Local Community Trips

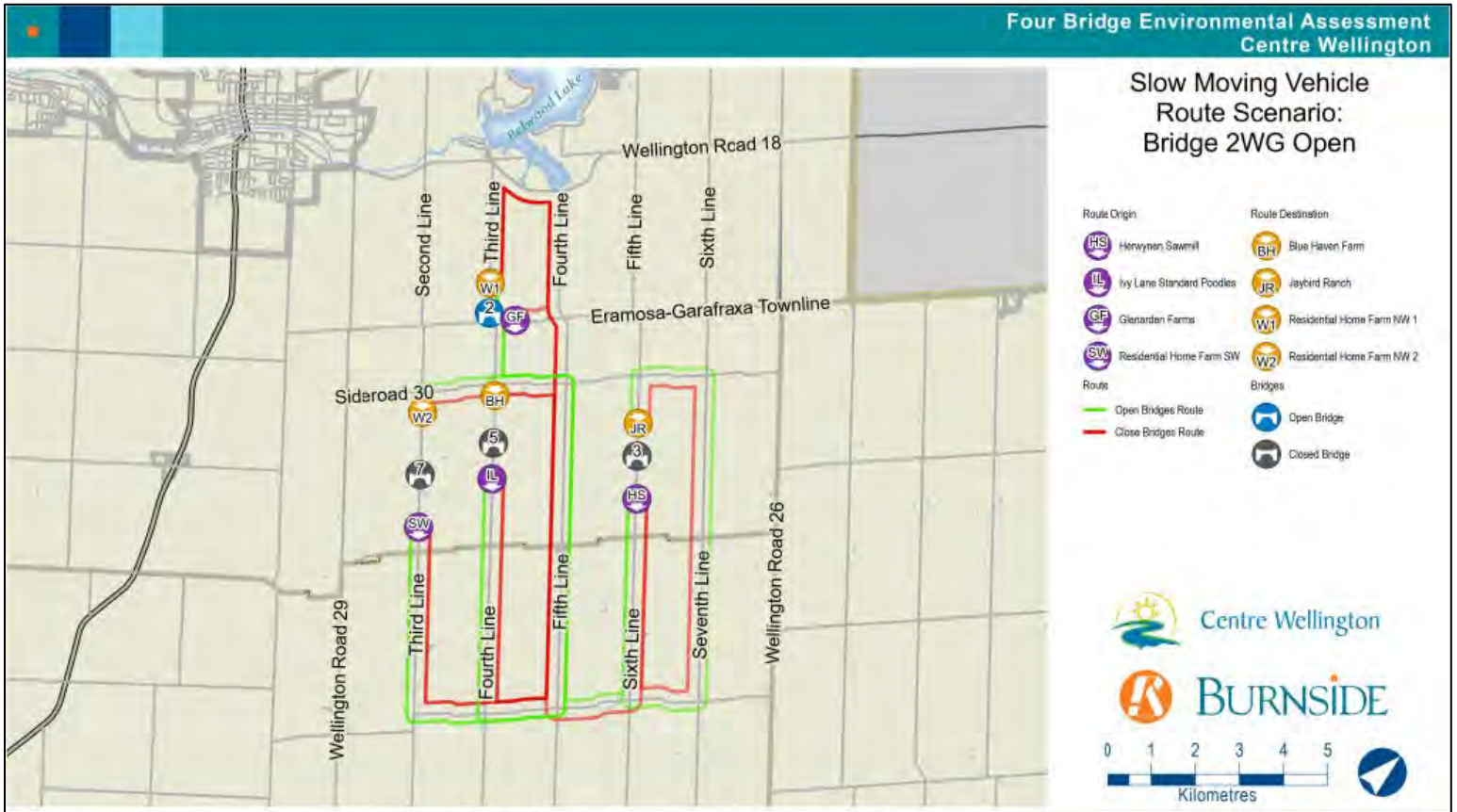


Inter-community Trip- Estimated Time & Routing

Origin	Destination	Bridge 2WG Open Time (m:ss)	Bridge 2WG Open Distance (Km)	Bridges Closed Time (m:ss)	Bridges Closed Distance (Km)	Difference Time	Difference Distance
Herwynen Sawmill	Jaybird Ranch	5:27	7.3	5:27	7.3	0:00	0.0
Herwynen Sawmill	Home and Farm NW 1	6:22	8.5	9:31	12.7	3:09	4.2
Glenarden Farms	Home and Farm NW 1	0:49	1.1	5:23	7.2	4:33	6.1
Ivy Lane Std Poodles	Blue Haven Farm	5:27	7.3	5:27	7.3	0:00	0.0

Origin	Destination	Bridge 2WG Open Time (m:ss)	Bridge 2WG Open Distance (Km)	Bridges Closed Time (m:ss)	Bridges Closed Distance (Km)	Difference Time	Difference Distance
Ivy Lane Std Poodles	Home and Farm NW 1	6:45	9	9:55	13.2	3:09	4.2
Home and Farm SW	Home and Farm NW 2	5:14	7	5:14	7	0:00	0.0
Home and Farm SW	Home and Farm NW 1	7:11	9.6	10:21	13.8	3:09	4.2

Figure 14: Alternative 1 - Slow Moving Vehicle Trips



Slow Moving Vehicle- Estimated Time & Routing

Origin	Destination	Bridge 2WG Open Time (m:ss)	Bridge 2WG Open Distance (Km)	Bridges Closed Time (m:ss)	Bridges Closed Distance (Km)	Difference Time Difference	Difference Distance Difference
Herwynen Sawmill	Jaybird Ranch	32:21	13.5	32:21	13.5	0:00	0.0
Herwynen Sawmill	Home and Farm NW 1	35:10	14.7	45:17	18.9	10:07	4.2
Glenarden Farms	Home and Farm NW 1	2:38	1.1	17:14	7.2	14:36	6.1
Ivy Lane Std Poodles	Blue Haven Farm	32:30	13.5	32:30	13.5	0:00	0.0
Ivy Lane Std Poodles	Home and Farm NW 1	36:38	15.3	46:45	19.5	10:07	4.2
Home and Farm SW	Home and Farm NW 2	37:22	15.6	37:22	15.6	0:00	0.0
Home and Farm SW	Home and Farm NW 1	37:44	15.7	47:52	19.9	10:07	4.2

4.2 Alternative 2: All Bridges Closed

Alternative 2 considers a scenario where all bridges are closed. This scenario serves as the baseline for comparison with other alternatives for travel times and distances detailed throughout this study.

4.3 Alternative 3: All Bridges Open

Alternative 3 considers a scenario where all the bridges would be opened for public traffic. The associated figures outlining travel times and distances for this alternative are provided in Sections 3.1 to 3.4 and are summarized below.

- **Cross-Community Trips:**
  Opening all bridges is projected to reduce travel times by up to 5.0 minutes, depending on the OD pair. The average time savings for the routes analyzed is 1.7 minutes, and the total time savings for routes analyzed is 39.7 minutes. Similarly, travel distances are expected to decrease by up to 7.3 km, with an average of 2.2 km and a total of 52.9 km.
- **Emergency Response:**
  Emergency response from the closest stations are improved by up to 2.1 minutes, depending on OD pair, with an average of 1.9 minutes of improvement to a total of 21 properties at Bridge 3-E, 1.8 minutes of improvements to 28 properties at Bridge 5-E and 0.9 minutes improvement to 18 properties at Bridge 7-E.
- **Local Community Trips:**
  Opening all bridges is projected to reduce travel times by up to 7.1 minutes depending on the OD pair. The total time saving for the routes analyzed is 34.4 minutes. Similarly, travel distances are expected to decrease by up to 9.5 km, with a total of 45.8 km.
- **Slow-moving and Agricultural Vehicle Trips:**
  For slow-moving vehicles, opening all bridges is anticipated to reduce travel times by up to 37.8 minutes, depending on the OD pair. The total time savings for the routes analyzed is 205 minutes. Correspondingly, travel distances will decrease by up to 15.8 km, with a total of 85.4 km.

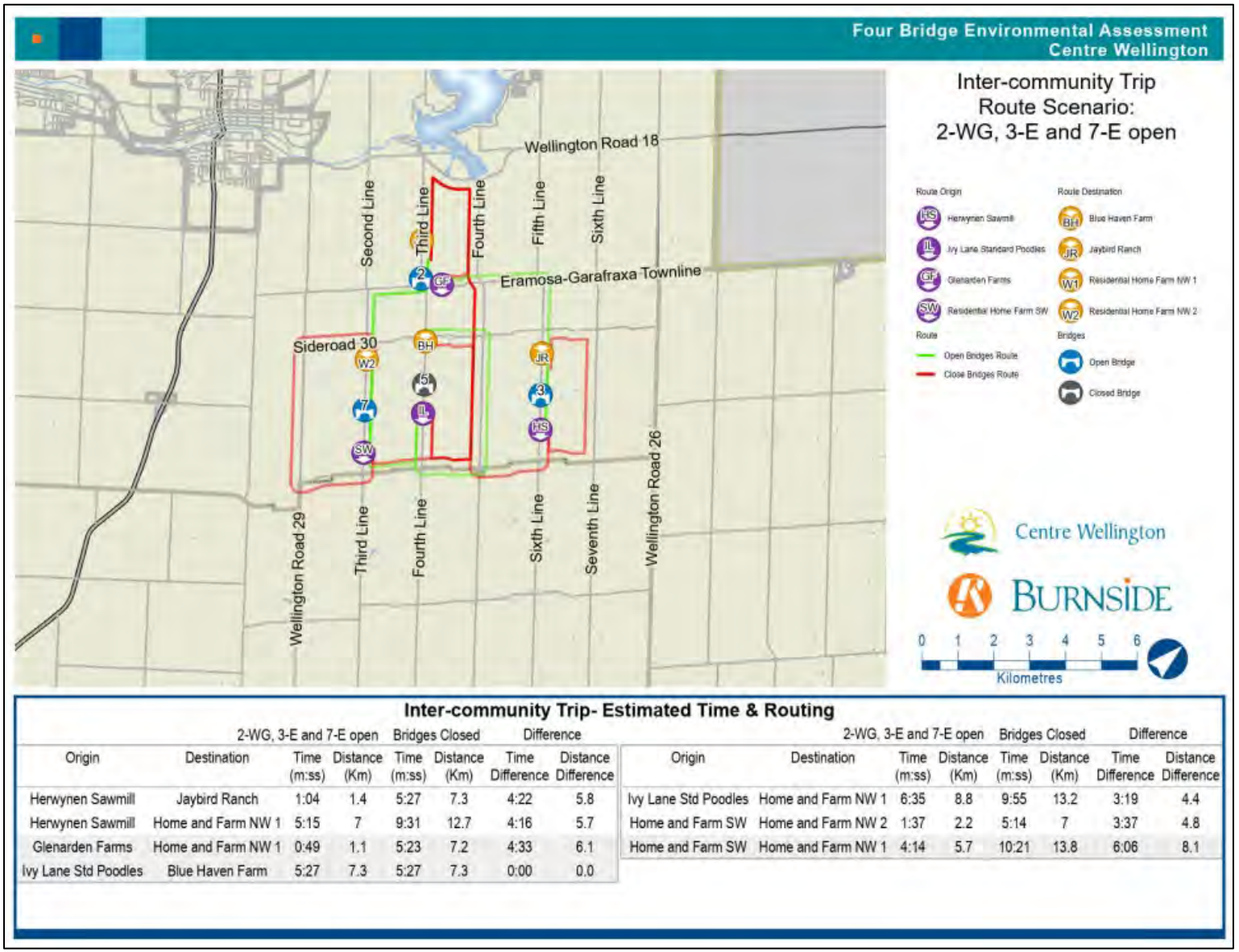
4.4 Alternative 4: Opening Bridge 2-WG, 3-E, and 7-E

Alternative 4 considers a scenario where Bridges 2-WG, 3-E, and 7-E would be opened for public traffic while Bridge 5-E would remain closed. Opening Bridges 2-WG, 3-E, and 7-E would reduce travel time and distance for local community trips and slow-moving vehicles. The results for the Cross-Community and Emergency Response impacts have been taken from Figure 6 and Figure 8 through Figure 11, respectively. The associated travel times and distances for this alternative are illustrated in Figure 15 for local community trips and Figure 16 for slow-moving vehicle trips. A summary of the findings is below:

- **Cross-Community Trips:**
  Opening these three bridges is projected to reduce travel times by up to 5.0 minutes, depending on the OD pair. The average time savings for the routes analyzed is 1.6 minutes, and the total time savings for routes analyzed is 28.9 minutes. Similarly, travel distances are expected to decrease by up to 7.3 km, with an average of 2.2 km and a total of 40.1 km.
- **Emergency Response:**
  Emergency response from the closest stations are improved by up to 1.7 minutes, depending on OD pair, with an average of 1.9 minutes of improvement to a total of 21 properties at Bridge 3-E and 0.9 minutes improvement to 18 properties at Bridge 7-E.
- **Local Community Trips:**
  Opening these three bridges is projected to reduce travel times by up to 4.5 minutes depending on the OD pair. The total time saving for the routes analyzed is 24.3 minutes. Similarly, travel distances are expected to decrease by up to 8.1 km, with a total of 27.6 km.
- **Slow-moving and Agricultural Vehicle Trips:**
  For slow-moving vehicles, opening the three bridges is anticipated to reduce travel times by up to 34.3 minutes, depending on the OD pair. The total time savings for the routes analyzed is 151.2 minutes. Correspondingly, travel distances will decrease by up to 14.2 km, with a total of 85.4 km.

A close look at Figure 15 and Figure 16 reveals that opening Bridges 2-WG, 3-E, and 7-E would reduce travel time and travel distance for all the OD pairs except for the trips between Locations C and F.

Figure 15: Alternative 4 – Local Community Trips

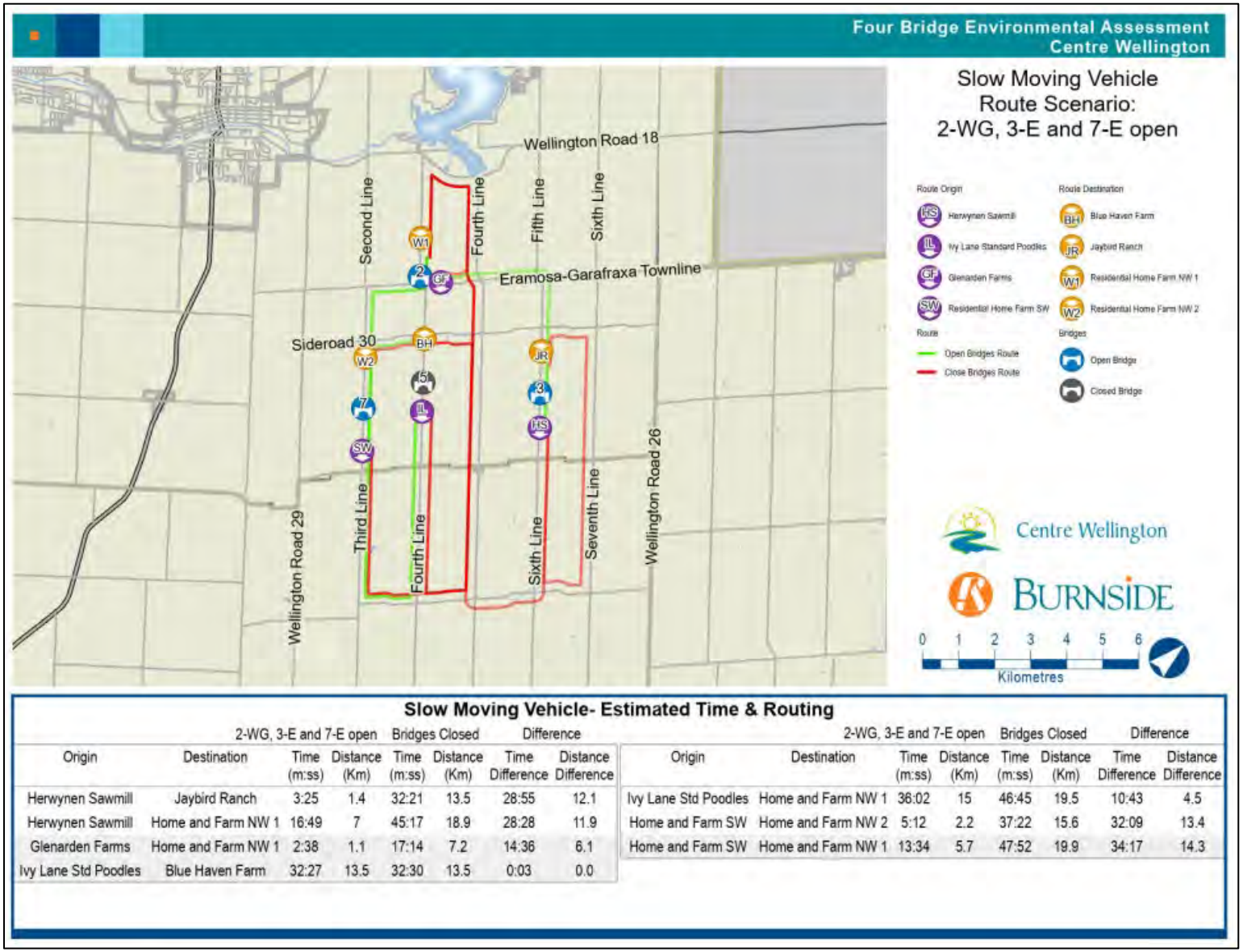


Inter-community Trip- Estimated Time & Routing

Origin	Destination	2-WG, 3-E and 7-E open Time (m:ss)	Distance (Km)	Bridges Closed Time (m:ss)	Distance (Km)	Difference Time Difference	Distance Difference
Herwynen Sawmill	Jaybird Ranch	1:04	1.4	5:27	7.3	4:22	5.8
Herwynen Sawmill	Home and Farm NW 1	5:15	7	9:31	12.7	4:16	5.7
Glenarden Farms	Home and Farm NW 1	0:49	1.1	5:23	7.2	4:33	6.1
Ivy Lane Std Poodles	Blue Haven Farm	5:27	7.3	5:27	7.3	0:00	0.0

Origin	Destination	2-WG, 3-E and 7-E open Time (m:ss)	Distance (Km)	Bridges Closed Time (m:ss)	Distance (Km)	Difference Time Difference	Distance Difference
Ivy Lane Std Poodles	Home and Farm NW 1	6:35	8.8	9:55	13.2	3:19	4.4
Home and Farm SW	Home and Farm NW 2	1:37	2.2	5:14	7	3:37	4.8
Home and Farm SW	Home and Farm NW 1	4:14	5.7	10:21	13.8	6:06	8.1

Figure 16: Alternative 4 – Slow-Moving Vehicle Trips



Slow Moving Vehicle- Estimated Time & Routing

		2-WG, 3-E and 7-E open		Bridges Closed		Difference	
Origin	Destination	Time (m:ss)	Distance (Km)	Time (m:ss)	Distance (Km)	Time Difference	Distance Difference
Herwynen Sawmill	Jaybird Ranch	3:25	1.4	32:21	13.5	28:55	12.1
Herwynen Sawmill	Home and Farm NW 1	16:49	7	45:17	18.9	28:28	11.9
Glenarden Farms	Home and Farm NW 1	2:38	1.1	17:14	7.2	14:36	6.1
Ivy Lane Std Poodles	Blue Haven Farm	32:27	13.5	32:30	13.5	0:03	0.0

		2-WG, 3-E and 7-E open		Bridges Closed		Difference	
Origin	Destination	Time (m:ss)	Distance (Km)	Time (m:ss)	Distance (Km)	Time Difference	Distance Difference
Ivy Lane Std Poodles	Home and Farm NW 1	36:02	15	46:45	19.5	10:43	4.5
Home and Farm SW	Home and Farm NW 2	5:12	2.2	37:22	15.6	32:09	13.4
Home and Farm SW	Home and Farm NW 1	13:34	5.7	47:52	19.9	34:17	14.3

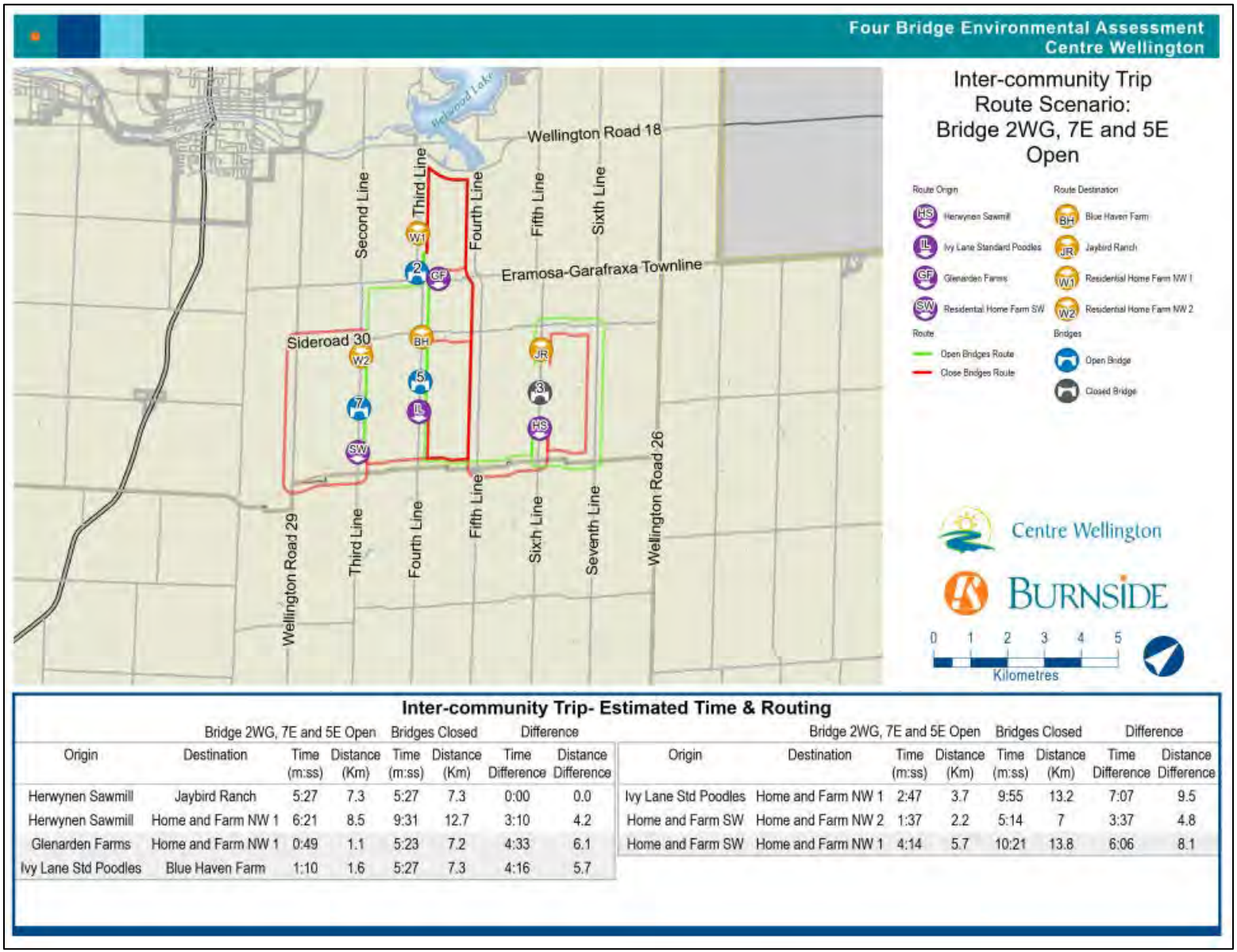
4.5 Alternative 5: Opening Bridge 2-WG, 5-E, and 7-E

Alternative 5 considers a scenario where Bridges 2-WG, 5-E, and 7-E would be opened for public traffic while Bridge 3-E would remain closed. Opening Bridges 2-WG, 5-E, and 7-E would reduce travel time and travel distance both for local community trips and for slow-moving vehicles. The results for the Cross-Community and Emergency Response impacts have been taken from Figure 6 and Figure 8 through Figure 11, respectively. The associated travel times and distances for this alternative are illustrated in Figure 17 for local community trips and Figure 18 for slow-moving vehicle trips. The findings are summarized below:

- **Cross-Community Trips:**
  Opening these three bridges is projected to reduce travel times by up to 5.0 minutes, depending on the OD pair. The average time savings for the routes analyzed is 1.8 minutes, and the total time savings for routes analyzed is 32.0 minutes. Similarly, travel distances are expected to decrease by up to 7.3 km, with an average of 2.4 km and a total of 42.8 km.
- **Emergency Response:**
  Emergency response from the closest stations are improved by up to 2.1 minutes, depending on OD pair, with an average of 1.8 minutes of improvements to 28 properties at Bridge 5-E and 0.9 minutes improvement to 18 properties at Bridge 7-E.
- **Local Community Trips:**
  Opening these three bridges is projected to reduce travel times by up to 7.1 minutes depending on the OD pair. The total time saving for the routes analyzed is 26.9 minutes. Similarly, travel distances are expected to decrease by up to 9.5 km, with a total of 38.4 km.
- **Slow-moving and Agricultural Vehicle Trips:**
  For slow-moving vehicles, opening the three bridges is anticipated to reduce travel times by up to 37.8 minutes, depending on the OD pair. The total time savings for the routes analyzed is 157.5 minutes. Correspondingly, travel distances will decrease by up to 15.8 km, with a total of 65.6 km.

A close look at Figure 17 and Figure 18 reveals that opening Bridges 2-WG, 5-E, and 7-E would reduce travel time and travel distance for all the OD pairs except for the trips between Locations A and G.

Figure 17: Alternative 5 – Local Community Trips

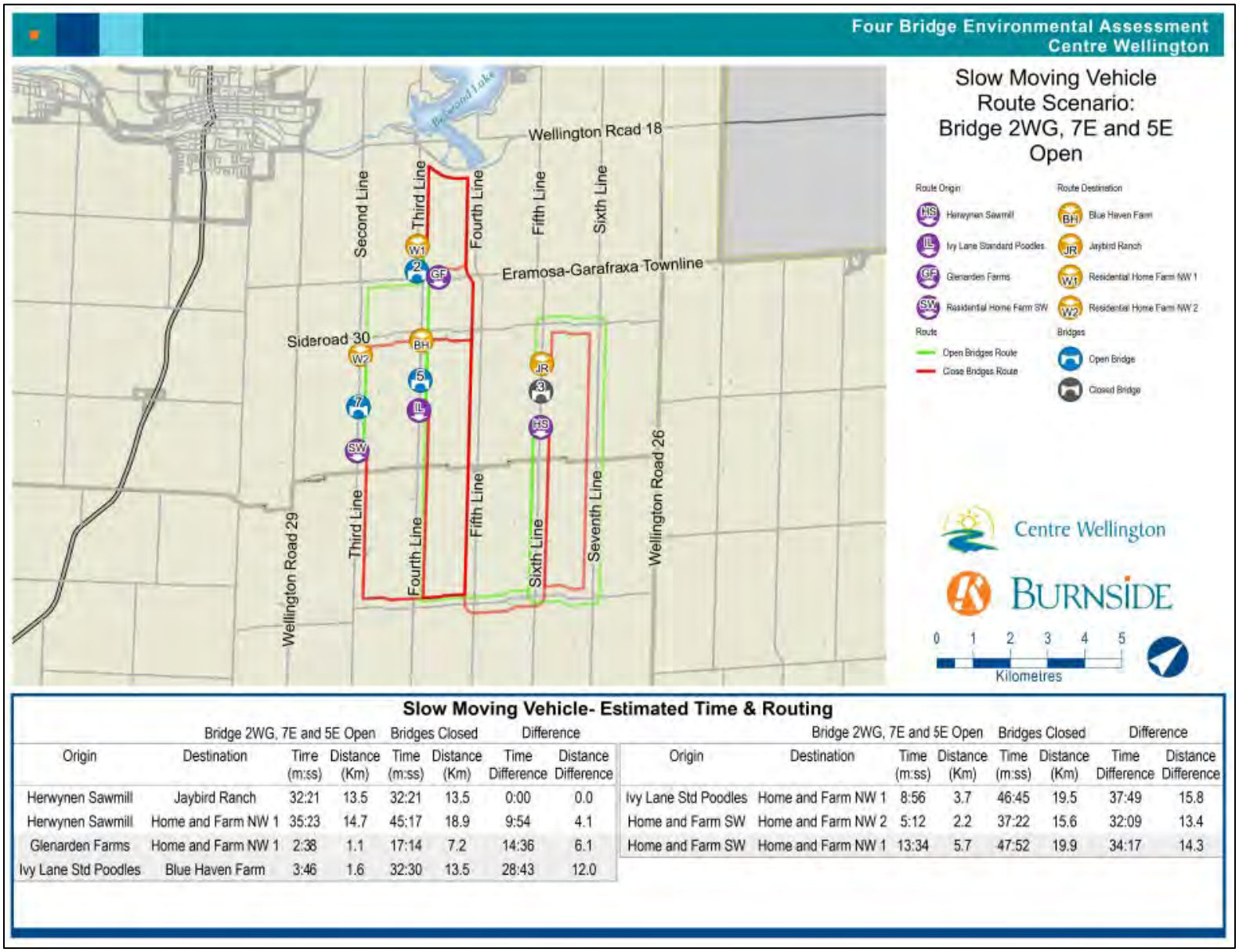


Inter-community Trip- Estimated Time & Routing

Origin	Destination	Bridge 2WG, 7E and 5E Open Time (m:ss)	Bridge 2WG, 7E and 5E Open Distance (Km)	Bridges Closed Time (m:ss)	Bridges Closed Distance (Km)	Difference Time Difference	Difference Distance Difference
Herwynen Sawmill	Jaybird Ranch	5:27	7.3	5:27	7.3	0:00	0.0
Herwynen Sawmill	Home and Farm NW 1	6:21	8.5	9:31	12.7	3:10	4.2
Glenarden Farms	Home and Farm NW 1	0:49	1.1	5:23	7.2	4:33	6.1
Ivy Lane Std Poodles	Blue Haven Farm	1:10	1.6	5:27	7.3	4:16	5.7

Origin	Destination	Bridge 2WG, 7E and 5E Open Time (m:ss)	Bridge 2WG, 7E and 5E Open Distance (Km)	Bridges Closed Time (m:ss)	Bridges Closed Distance (Km)	Difference Time Difference	Difference Distance Difference
Ivy Lane Std Poodles	Home and Farm NW 1	2:47	3.7	9:55	13.2	7:07	9.5
Home and Farm SW	Home and Farm NW 2	1:37	2.2	5:14	7	3:37	4.8
Home and Farm SW	Home and Farm NW 1	4:14	5.7	10:21	13.8	6:06	8.1

Figure 18: Alternative 5 - Slow-Moving Vehicle Trips



Slow Moving Vehicle- Estimated Time & Routing

Origin	Destination	Bridge 2WG, 7E and 5E Open Time (m:ss)	Bridge 2WG, 7E and 5E Open Distance (Km)	Bridges Closed Time (m:ss)	Bridges Closed Distance (Km)	Difference Time Difference	Difference Distance Difference
Herwynen Sawmill	Jaybird Ranch	32:21	13.5	32:21	13.5	0:00	0.0
Herwynen Sawmill	Home and Farm NW 1	35:23	14.7	45:17	18.9	9:54	4.1
Glenarden Farms	Home and Farm NW 1	2:38	1.1	17:14	7.2	14:36	6.1
Ivy Lane Std Poodles	Blue Haven Farm	3:46	1.6	32:30	13.5	28:43	12.0

Origin	Destination	Bridge 2WG, 7E and 5E Open Time (m:ss)	Bridge 2WG, 7E and 5E Open Distance (Km)	Bridges Closed Time (m:ss)	Bridges Closed Distance (Km)	Difference Time Difference	Difference Distance Difference
Ivy Lane Std Poodles	Home and Farm NW 1	8:56	3.7	46:45	19.5	37:49	15.8
Home and Farm SW	Home and Farm NW 2	5:12	2.2	37:22	15.6	32:09	13.4
Home and Farm SW	Home and Farm NW 1	13:34	5.7	47:52	19.9	34:17	14.3

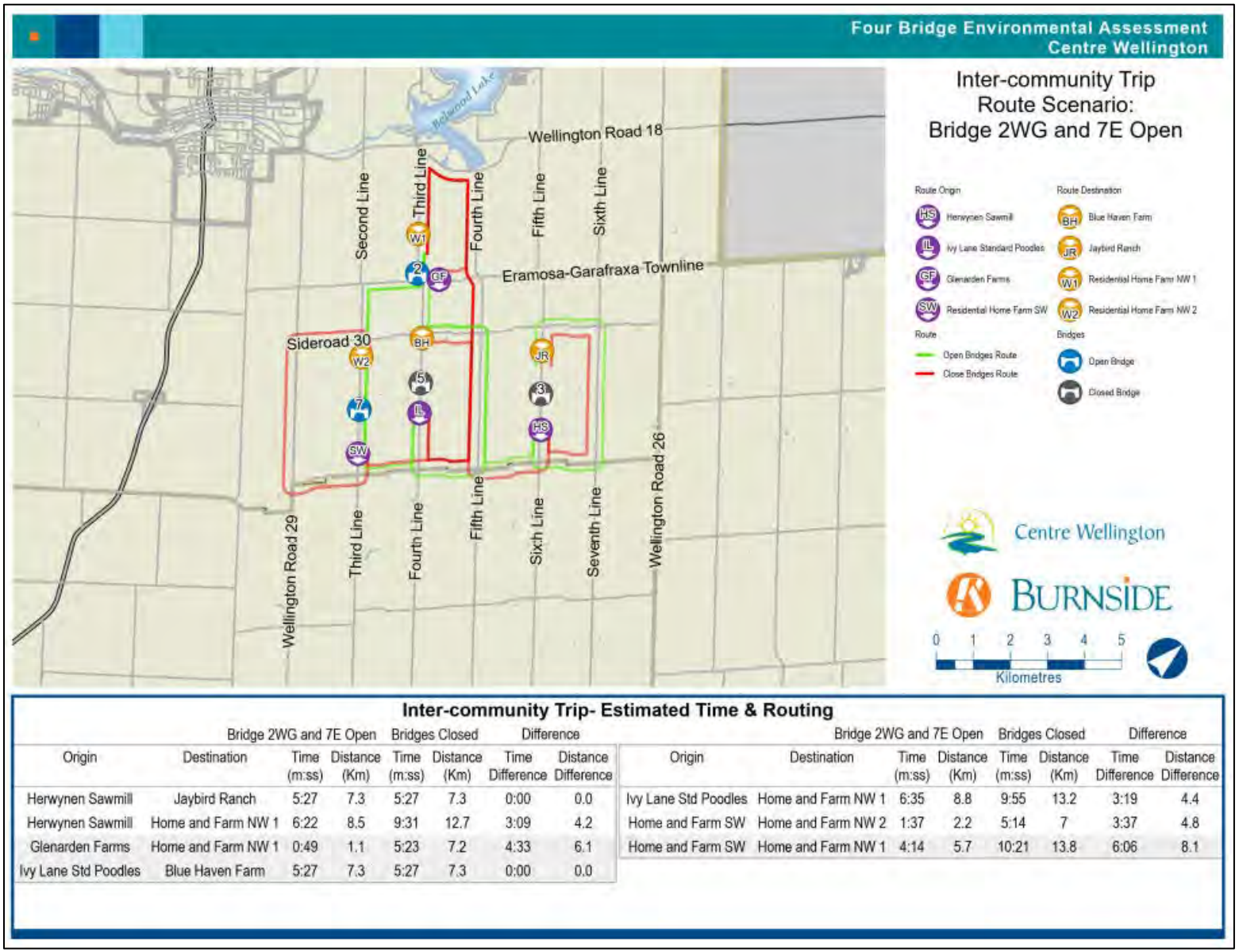
4.6 Alternative 6: Opening Bridge 2-WG and 7-E

Alternative 6 considers a scenario where Bridges 2-WG and 7-E would be opened for public traffic while the other two bridges would remain closed. Opening Bridges 2-WG and 7-E would reduce travel time and travel distance both for local community trips and for slow-moving vehicles. The results for the Cross-Community and Emergency Response impacts have been taken from Figure 6 and Figure 8 through Figure 11, respectively. The associated travel times and distances for this alternative are illustrated in Figure 19 for local community trips and Figure 20 for slow-moving vehicle trips. The findings are summarized below.

- **Cross-Community Trips:**
  Opening these two bridges is projected to reduce travel times by up to 5.0 minutes, depending on the OD pair. The average time savings for the routes analyzed is 1.8 minutes, and the total time savings for routes analyzed is 21.2 minutes. Similarly, travel distances are expected to decrease by up to 7.3 km, with an average of 2.5 km and a total of 30.0 km.
- **Emergency Response:**
  Emergency response from the closest stations are improved by 53 seconds to 8 properties south of Bridge 7-E by opening these two bridges. There are no improvements to properties surrounding Bridge 2-WG.
- **Local Community Trips:**
  Opening these two bridges is projected to reduce travel times by up to 4.6 minutes depending on the OD pair. The total time saving for the routes analyzed is 18.8 minutes. Similarly, travel distances are expected to decrease by up to 8.1 km, with a total of 27.6 km.
- **Slow-moving and Agricultural Vehicle Trips:**
  For slow-moving vehicles, opening the two bridges is anticipated to reduce travel times by up to 34.3 minutes, depending on the OD pair. The total time savings for the routes analyzed is 101.9 minutes. Correspondingly, travel distances will decrease by up to 14.2 km, with a total of 42.4 km.

A close look at Figure 19 and Figure 20 reveals that opening Bridges 2-WG and 7-E would reduce travel time and travel distance for trips originating from or destined for Locations H and D while trips from other OD pairs will not be impacted by this alternative.

Figure 19: Alternative 6 – Local Community Trips

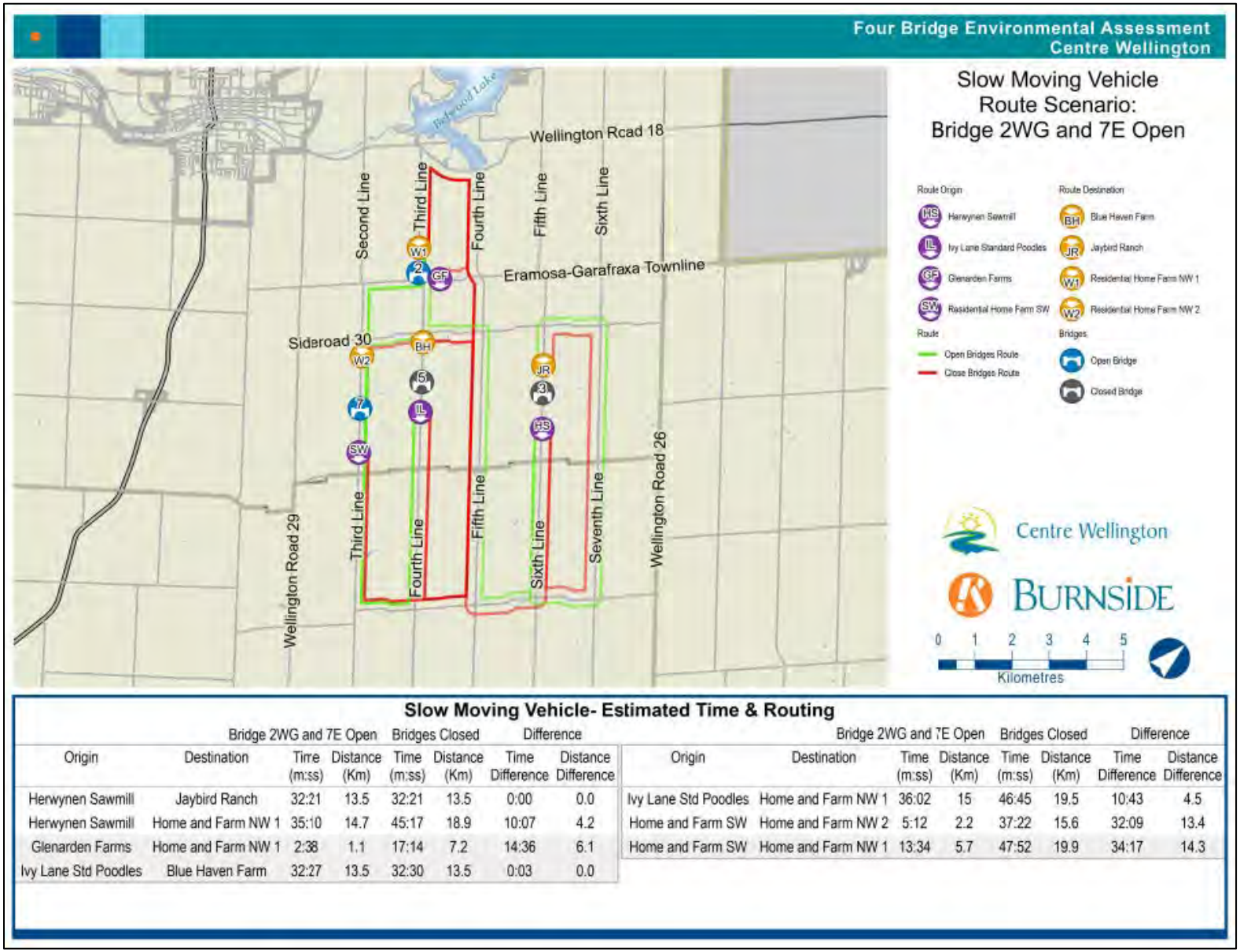


Inter-community Trip- Estimated Time & Routing

Origin	Destination	Bridge 2WG and 7E Open Time (m:ss)	Bridge 2WG and 7E Open Distance (Km)	Bridges Closed Time (m:ss)	Bridges Closed Distance (Km)	Difference Time Difference	Difference Distance Difference
Herwynen Sawmill	Jaybird Ranch	5:27	7.3	5:27	7.3	0:00	0.0
Herwynen Sawmill	Home and Farm NW 1	6:22	8.5	9:31	12.7	3:09	4.2
Glenarden Farms	Home and Farm NW 1	0:49	1.1	5:23	7.2	4:33	6.1
Ivy Lane Std Poodles	Blue Haven Farm	5:27	7.3	5:27	7.3	0:00	0.0

Origin	Destination	Bridge 2WG and 7E Open Time (m:ss)	Bridge 2WG and 7E Open Distance (Km)	Bridges Closed Time (m:ss)	Bridges Closed Distance (Km)	Difference Time Difference	Difference Distance Difference
Ivy Lane Std Poodles	Home and Farm NW 1	6:35	8.8	9:55	13.2	3:19	4.4
Home and Farm SW	Home and Farm NW 2	1:37	2.2	5:14	7	3:37	4.8
Home and Farm SW	Home and Farm NW 1	4:14	5.7	10:21	13.8	6:06	8.1

Figure 20: Alternative 6 - Slow-Moving Vehicle Trips



Slow Moving Vehicle- Estimated Time & Routing

Origin	Destination	Bridge 2WG and 7E Open Time (m:ss)	Bridge 2WG and 7E Open Distance (Km)	Bridges Closed Time (m:ss)	Bridges Closed Distance (Km)	Difference Time Difference	Difference Distance Difference
Herwynen Sawmill	Jaybird Ranch	32:21	13.5	32:21	13.5	0:00	0.0
Herwynen Sawmill	Home and Farm NW 1	35:10	14.7	45:17	18.9	10:07	4.2
Glenarden Farms	Home and Farm NW 1	2:38	1.1	17:14	7.2	14:36	6.1
Ivy Lane Std Poodles	Blue Haven Farm	32:27	13.5	32:30	13.5	0:03	0.0
Ivy Lane Std Poodles	Home and Farm NW 1	36:02	15	46:45	19.5	10:43	4.5
Home and Farm SW	Home and Farm NW 2	5:12	2.2	37:22	15.6	32:09	13.4
Home and Farm SW	Home and Farm NW 1	13:34	5.7	47:52	19.9	34:17	14.3

5.0 Summary

Burnside conducted an examination of the impacts of closure of four bridges located in the southeast quadrant of the Township of Centre Wellington. The land use surrounding the bridges primarily consists of agricultural lands, green lands, and core green lands with some industrial and recreational uses present in the area as well, lacking transit, and active transportation facilities.

To comprehensively assess the impact of bridge closures, six scenarios including all bridges open and all bridges closed were considered. The evaluation was based on a set of origin and destination pairs representing destinations within the study area and the broader study area. The assessment was conducted to understand the impact of bridge closures on various trip types including cross-community trips, local community trips, emergency response, and slow-moving vehicle trips. For the slow-moving vehicles, the analysis adopted a 25 km/hr speed limit and prohibited them from using the County Roads, where applicable. Our findings revealed noticeable impacts on travel time and distance for various OD pairs and routes, summarized as follows:

5.1 Travel Time Impact

- For cross-community trips, the increase in travel time varies up to 5 minutes. Locations H and C experience the most significant impact, while Location B is the least affected by the bridge closure.
- For local community trips, the increase in travel time varies up to 7.1 minutes, depending on the location.
- Emergency response times for Locations A, C, and D are longer when the bridges are closed compared to when they are open, with delays ranging up to 2.1 minutes when emergency trips originate from Fergus. Emergency response times for Locations E, F, G, and H are longer when the bridges are closed compared to when they are open, with delays ranging up to 3.3 minutes when emergency trips originate from Rockwood.
- For slow-moving and agricultural vehicles, the increase in travel time varies up to 37.8 minutes, depending on the location.

5.2 Travel Distance Impact

- For cross-community trips, the travel distances are longer with the bridges closed, ranging up to 5.3 km.
- For local community trips, the travel distances are longer with the bridges closed, ranging up to 9.5 km.
- Emergency response travel distances for the study locations increase under bridge closure scenarios, with differences ranging up to 2.8 km when emergency trips originate from Fergus. Emergency response travel distances for the study locations increase under bridge

closure scenarios, with differences ranging up to 4.2 km when emergency trips originate from Fergus.
- For slow-moving and agricultural vehicles, travel distances are longer with the bridges closed, ranging up to 15.8 km.

The analysis of the various alternatives highlights the significant impact that bridge closures and openings have on local community and slow-moving vehicle trips in the study area. Each alternative demonstrates varying levels of improvement in travel time and distance, depending on the combination of bridges opened. The findings indicate that Alternatives 3, 4, and 5 involving the opening of three or more bridges lead to noticeable reductions in travel delays and travel distances, with specific benefits observed for trips involving slow-moving and agricultural vehicles. Additionally, the analysis underscores the importance of considering not only the total reductions in travel time and distance but also the distribution of these impacts across different OD pairs. Some alternatives provide more localized improvements, benefiting select routes, while others result in more widespread enhancements.

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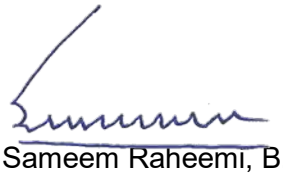

Sameem Raheemi, B.Sc., MUP
Transportation Planner

SR:tc

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Appendix A.2

Technical Memorandum - Existing Geometry & Physical Condition

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Technical Memorandum – Existing Geometry and Physical Conditions

Date: December 17, 2024 **Project No.:** 300058117.0000

Project Name: Bridge and Transportation Network Study for Bridges 2-WG, 3-E, 5-E & 7-E

Client Name: Township of Centre Wellington

Submitted To: Project File Report

Submitted By: Andrew Dawson, P.Eng.

Reviewed By: Matthew Brooks, P.Eng.

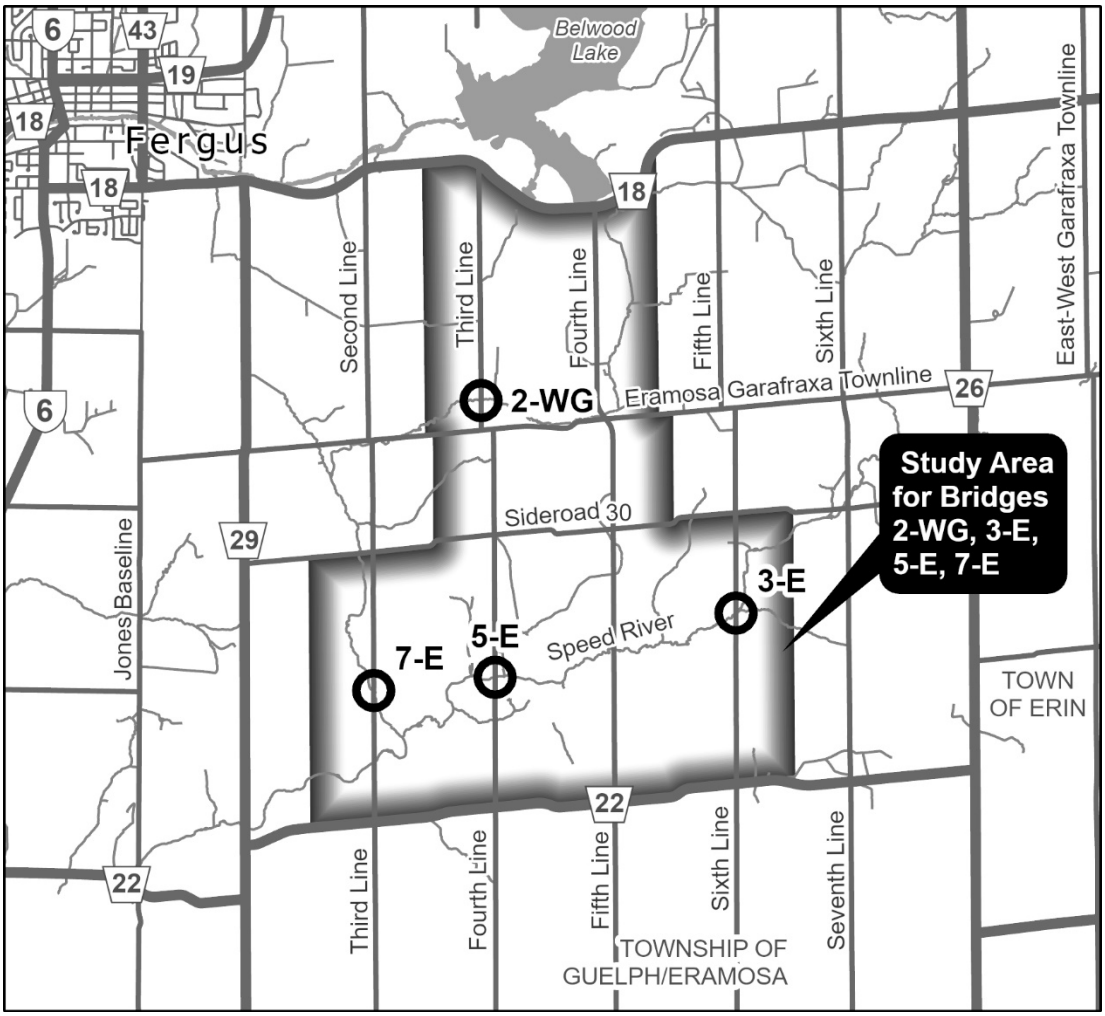
1.0 Context

R.J. Burnside and Associates Limited (Burnside) has been retained by the Township of Centre Wellington (Township) to complete a Bridge and Transportation Network Study for Bridges 2-WG, 3-E, 5-E and 7-E, located in the southeast quadrant of the Township. As part of this study, Burnside has reviewed relevant background information and conducted field investigations to assess the existing conditions of the four bridges, for consideration when analyzing the potential alternatives related to opening or closing each of the bridges.

2.0 Background

The four bridges being reviewed are located in the southeast quadrant of the Township of Centre Wellington, southeast of the community of Fergus, Ontario. These structures were built prior to the amalgamation of the Township of Centre Wellington, which occurred in 1999. Bridge 2-WG is located in the south end of the former Township of West Garafraxa, and Bridges 3-E, 5-E, and 7-E are located in the northeast end of the former Township of Eramosa. The bridges cross the Speed River and its associated tributaries. The location of the bridges is provided in Figure 1 below.

Figure 1: Bridge Locations



These four structures were all constructed circa 1920 and are over 100 years old. At current, a 15-tonne gross vehicle weight load limitation applies to Bridge 2-WG and Bridges 3-E, 5-E and 7-E have been closed to traffic due to their significantly deteriorated state. A summary of the four bridges being evaluated as part of this study is provided in Table 2.

Table 1: Existing Bridge Information

ID	Structure Type	Road Name	Span (m)	Year Built	Year Repaired	Year Closed
2-WG	Half-Through Concrete Girders	Third Line (West Garafraxa)	10.7	1921	N/A	N/A
3-E	'Rainbow' Bowstring Arch	Sixth Line (Eramosa)	13.5	1919	1997	2022
5-E	Half-Through Concrete Girders	Fourth Line (Eramosa)	12.2	1923	1994	2013
7-E	Concrete Through Girders	Third Line (Eramosa)	8.2	1920	N/A	2021

Available record information provided by the Township indicates that rehabilitation work was completed on Bridge 3-E in 1997 to strengthen a floor beam by adding post tensioning. Minor rehabilitation work was completed on Bridge 5-E in 1994, which consisted of the repairs to areas of scoured concrete on the abutments and wingwalls with tremie concrete and the installation of gabion baskets to provide protection against future scour.

3.0 Approach Roadway Geometry

3.1 Driving Platform Width

A summary of the characteristics of the existing roadways on the approaches to the bridges are shown in Table 3 below.

Table 2: Existing Road Geometry & Details

ID	Road Name	Surface Type	Speed Limit	Driving Platform Width	
				Approach	Bridge
2-WG	Third Line West Garafraxa	Gravel	80 km/h (non-posted)	6.0 – 7.0 m	5.5 m +/-
3-E	Sixth Line Eramosa	Gravel	80 km/h (non-posted)	6.0 – 7.0 m	5.0 m +/-
5-E	Fourth Line Eramosa	Gravel	80 km/h (non-posted)	5.5 – 6.5 m	5.6 m +/-
7-E	Third Line Eramosa	Gravel	80 km/h (non-posted)	6.0 – 6.5 m	4.8 m +/-

These structures are located on Low Volume Roads, with Average Annual Daily Traffic (AADT) volumes of less than 400 vehicles per day. Based on Table 2.4.1 of the MTO Structural Manual (see Figure 2 below for excerpt), these driving platform widths fall between the recommended maximum width for a single-lane bridge and the recommended minimum for a two-lane bridge, with the exception of Bridge 7-E which is considered a single-lane bridge by current standards.

Figure 2: Excerpt of Table 2.4.1 from MTO Structural Manual

SECTION 2 - APPENDIX A
GUIDELINES FOR THE DESIGN OF BRIDGES ON LOW VOLUME ROADS

TABLE 2.4-1 - MINIMUM LANE, SHOULDER, AND BRIDGE WIDTHS

AADT	Design Speed (km/h)	# Lanes	Min. Lane Width (m)	Min. Shoulder Width (m)	Min. Bridge Width (m)[1]
≤ 200	≤ 60	1	3.0	0.5	4.0[2,3,4] (4.9 m max)[5]
		2[6]	2.75	0.25	6.0
	≥ 70	2	3.0	0.5	7.0
> 200 and ≤ 400[7]	≤ 40	1	3.0	0.5	4.0[2,3,4] (4.9 m max)[5]
		2[6]	2.75	0.25	6.0
	50 to 60	2	3.0	0.5	7.0
	≥ 70	2	3.3[8]	0.6[8]	7.5[8]

Based on current standards, new bridges are not recommended to be constructed with driving platform widths between 4.9 m and 6.0 m, because they may give the appearance of a two-lane bridge, but not be able to accommodate two opposing vehicles.

It would typically be recommended that single-lane bridges on two-way undivided roads have a means of right-of-way control, with ‘narrow bridge’ and ‘yield to oncoming traffic’ signage recommended at minimum to indicate to bridge users the reduction to one-way traffic over the bridge.

The Township’s standard road cross section consists of 3.35 m through lanes with 1.2 m shoulder. As such, to meet the Township’s typical standard for a two-lane structure, a 9.1 m wide driving platform is required. Given the platform width of the existing structures, these structures would not be considered to meet the minimum requirements for a two-lane structure. Based on the structure types, the existing structures cannot be widened, given that the through-girder barriers or trusses on the exterior edge of the bridge are the main load carrying elements of the structure. To achieve the Township standard, structure replacement would be required at each site.

3.2 Vertical Road Profile and Design Speed

The subject roadways do not have a posted regulatory speed limit. Accordingly, in accordance with the Highway Traffic Act of Ontario, Section 128.1, the statutory speed limit of 80 km/h is applicable. However, general overview of the roadways indicate the available sightlines of the roads have not been designed for such an operating speed based on the existing vertical

profiles. This was confirmed by review of the topographic survey information conducted locally in the immediate vicinity of each bridge. Within the surveyed limits, the applicable design speeds for the existing roads are outlined in Table 4 based on the 2017 TAC Geometric Design Guide for Canadian Roads (TAC GDG) and the associated MTO Design Supplement (October 2023).

Table 3: Existing Road Geometry & Details

Bridge No.	Road Name	Rate of Curvature		Design Speed
		Crest	Sag	
2-WG	Third Line West Garafraxa	12 +/-	18 +/-	60 km/h
3-E	Sixth Line Eramosa	5 – 6 +/-	9 – 10 +/-	40 km/h
5-E	Fourth Line Eramosa	17 – 18 +/-	14 - 15 +/-	50 km/h
7-E	Third Line Eramosa	13 – 15 +/-	18 – 19 +/-	60 km/h

Based on the above findings, the design speed of the road is less than the assumed regulatory posted speed limit. Regulatory Speed Limit signs should be considered by the Township to allow for enforcement of travelled speeds to be within the design speeds which provide adequate sight lines and stopping distances for user safety.

4.0 Physical Condition and Load Limitations

Burnside has completed a review of the current physical condition of the structures based on site visits and background information provided by the Township, including the 2022 Ontario Structure Inspection Manual (OSIM) inspection reports, closure notice reports and record plans of the original and rehabilitation construction works, where available.

All structures have been previously inspected by a structural engineer, which determined that the current degree of deterioration warranted load limitation or closure of the structure to vehicular traffic based on the current state of deterioration. A summary of the current status of load limitation or closure is provided in Table 4 and is further expanded upon in the bridge-specific subsections below.

Table 4: Current Load Limitations

Bridge No.	Current Load Limitations
2-WG	15 Tonne Gross Vehicle Weight
3-E	Closed to Vehicular Traffic
5-E	Closed to Vehicular Traffic
7-E	Closed to Vehicular Traffic

It should also be noted that the vintage of these structures means that they would not have been originally designed to carry the live loads associated with the vehicular loads of current standards. The required live load (truck / vehicle loading) capacities have increased since the time of the original design of the structure. If any of the existing structures are to remain and be rehabilitated, a structural evaluation would be required to confirm the potential capacity of the rehabilitated bridge based on current design standards.

4.1 Bridge 2-WG

Bridge 2-WG is a half-through concrete girder bridge with a clear span between abutments of 10.7 m and an overall width of 6.4 m. A copy of the original design drawings is enclosed in Appendix A. As previously noted, Bridge 2-WG is currently open to traffic but has a 15-tonne gross vehicle weight load limitation based on previous recommendations made by K. Smart Associates Ltd., following their load restriction review assignment completed on behalf of the Township in October 2016. The structure has continued to be monitored by K. Smart Associates Ltd. since the implementation of the load restriction by-law, with no further reduction to the load limitation recommended at this time.

Bridge 2-WG is generally in fair to poor condition with signs of significant deterioration evident based on the deteriorating concrete and exposed corroded reinforcing steel bars. The main concern related to the structural integrity of this bridge is the loss of concrete on the underside of the exterior girders. The two half-through girders / barriers on the exterior of the bridge are the main load-carrying elements of the bridge, and failure of either of the girders could lead to the overall failure of the entire superstructure due to the non-redundancy of the load path. The loss of concrete results in a reduced capacity of these main load carrying members, as the ability of the concrete section to transfer tension into the reinforcing steel is compromised. Additionally, the exposure of the main tension reinforcing on the bottom of the girder has accelerated corrosion due to exposure, resulting in section loss which further reduces the capacity of the beams.

Additional concerns related to this bridge are the severely deteriorated and scoured abutments along the bottom portion of the north abutment and the southwest corner of the southwest abutment. Further, a large build-up of granular material has accumulated over the bridge deck. The bridge would not have originally been designed to carry this additional weight, which further reduces its capacity for carrying vehicle weights.

Further details are available in Appendix B, in the enclosed 2022 OSIM report by HP Engineering Ltd., and in Appendix C, in the enclosed November 2022 Update to the Monitoring Report completed by K. Smart Associates Ltd.

4.2 Bridge 3-E

Bridge 3-E, is a 13.5 m (+/-) single-span, concrete bowstring arch structure located on the Sixth Line of the former Eramosa Township, which was constructed in 1919 and has been closed to traffic since 2022.

In 1997, a post-tensioned tie was added below one of the floor beams of the bridge. Based on the large spall and exposed reinforcing steel visible today, it is anticipated that this rehabilitation was completed to act as the strengthening of a floor beam that was noted to have reduced capacity prior to the rehabilitation. A copy of the rehabilitation drawings is included in Appendix D.

Records indicate that the structure was load-posted to 10 tonnes prior to 2016 (original posting date unknown), and was later reduced to 8 tonnes in 2016, then again to 5 tonnes before closure was recommended in 2022. Closure was recommended following recommendations made by K. Smart Associates Ltd. on January 5, 2022, based on their review of the state of deterioration of the structure. A copy of the report for closure is included in Appendix E.

The recommendation for closure cites that the structure "exhibits serious structural issues due to advanced deterioration" and notes the following concerns:

- Railings in poor condition, on the verge of failure.
- Truss verticals in poor condition with a significant amount of missing concrete, which impacts the composite action of the truss ties.
- Failure of concrete at the location of the post-tensioned floor beam supports.
- Deck in poor condition with severe scaling and numerous deep spalls, some of which are exhibiting exposed reinforcing steel bars.

Further details are available in the enclosed 2022 OSIM report of Appendix F, and in the previously mentioned closure report.

4.3 Bridge 5-E

Bridge 5-E, located on the Fourth Line of the former Eramosa Township, is a 12.2 m clear-span concrete through girder bridge built in 1923, which has been closed since 2013. The concrete barriers visible along the exterior edges of this bridge act as the main load-carrying element for this bridge. The overall bridge width is 6.4 m. A copy of the original design drawings is included in Appendix G.

In 1994, a minor rehabilitation was conducted to repair areas of scoured concrete along the exposed abutment and wingwall faces. Tremie concrete was used to fill the areas of missing concrete, and additional gabion baskets were added to protect against future scour. A copy of the rehabilitation is included in Appendix H.

Prior to 2013, the structure had been load-posted with a 10-tonne gross vehicle weight limitation. Following inspections completed by K. Smart Associates Ltd. in August 2013, appended in Appendix I, the bridge was closed indefinitely due to structural concerns related to the floor beam and deck's capacity to carry vehicular loads based on the formation of new cracking since previous inspections.

The main load-carrying girders of the bridge have severely deteriorated concrete with significant section loss along the inside face of the girder, as well as along the bottom of the girder. Several reinforcing steel bars, which carry the tension load on the underside of the girder, have been completely disengaged from the girder due to the amount of concrete section loss that has occurred. In addition to this, the visible reinforcing steel has also experienced very significant corrosion of more than 50% in some areas, reducing the reinforcing steel's ability to carry loads.

Very wide cracks in the abutment walls were also noted during the site review. These large cracks indicate potential movement of the substructure, which could lead to additional stresses being induced on the bridge structure.

Further, there are several areas of the soffit with severe spalling and exposed reinforcing steel, which indicates that the embedded reinforcing steel has a high probability of corrosion, reducing the load-carrying capacity of the deck as well. Wide cracks identified in the floor beams also indicate that there is a high likelihood of corrosion of reinforcing within the floor beams.

A copy of the most recent (2022) OSIM report is provided in Appendix J.

4.4 Bridge 7-E

Bridge 7-E is a through-girder bridge located on the Third Line of the former Eramosa Township. The structure has a clear span between abutments of approximately 8.2 m, and an overall width of approximately 5.8 m. The bridge was built in 1920 and has been closed since 2021 following recommendations made by K. Smart Associates Ltd. (enclosed in Appendix K) based on the serious structural issues due to advanced deterioration.

The structure was formally load posted to 10 tonnes through by-law in 2016, based on recommendations made by K. Smart Associates Ltd. Additional inspections recommended further reduction of the load posting to 5 tonnes, and then finally the recommendation for closure in 2021.

The exterior barriers, which are the main load-carrying elements for this structure, are exhibiting signs of very significant concrete deterioration which have seen approximately 300 mm of the top of the concrete girder fully disintegrated. The reduced height of the girders greatly reduces their load-carrying capacity. Additionally, several reinforcing steel bars are exposed, and some are fully detached from the concrete beam.

On the soffit of the bridge, there is a very large spalled area on the south bay, where a significant depth of the original concrete deck has detached, exposing the originally embedded reinforcing steel bars. The visible reinforcing steel bars show signs of significant corrosion and section loss.

The concrete in the substructure is severely deteriorated along the top, including areas directly below the location of bearing of the main girders. The concrete below the girders is noted to have significant section loss and is in unsound condition. Further deterioration could lead to crushing of the bearing area concrete, which could result in movement of the superstructure, adding additional loads and putting the structure at further risk of failure.

For further details, please see the OSIM inspection report completed in 2022, included in Appendix L.

5.0 Summary

Overall, the existing bridges are generally in poor to very poor condition with significant defects which greatly impact their load-carrying capacity. Structure 2-WG remains open to traffic but is load-limited to a maximum 15-tonne gross vehicle weight. The other three structures have been closed to traffic due to their advanced state of deterioration.

The bridges are generally substandard in width based on current standards and may give the illusion of being a two-lane bridge platform, while only being able to accommodate one vehicle crossing at a time.

While rehabilitation efforts may technically be possible, the current state of deterioration and the consideration that the bridges were not designed for current vehicular loads would limit the effectiveness of the rehabilitation. If rehabilitation were to be considered, additional load evaluations would have to be completed to determine the achievable load capacity of the repaired bridge. In general, the state of the bridges indicates that the structures have passed a state that would be considered economically repairable.

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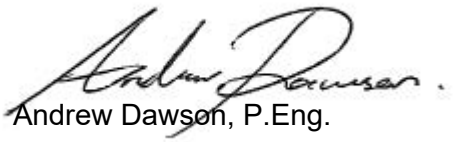

Andrew Dawson, P.Eng.
Project Engineer

AD:smm

Enclosure(s) Appendix A Original Design Drawings, Bridge 2-WG
Appendix B 2022 Bridge 2-WG OSIM Report, HP Engineering Inc.
Appendix C Update to Monitoring Report, K. Smart Associates Ltd, Nov. 2022
Appendix D Bridge 3-E Rehabilitation Drawings
Appendix E Bridge 3-E Inspection Update Report, K. Smart Associates Ltd, December 2021
Appendix F 2022 Bridge 3-E OSIM Report, HP Engineering Inc.
Appendix G Original Design Drawings, Bridge 5-E
Appendix H Bridge 5-E 1994 Rehabilitation Drawing
Appendix I Inspections Completed by K. Smart Associates Ltd., August 2013
Appendix J 2022 Bridge 5-E OSIM Report, HP Engineering Inc.
Appendix K Bridge 7-E Inspection Update Report, K. Smart Associates Ltd, May 2021
Appendix L 2022 Bridge 7-E OSIM Report, HP Engineering Inc.

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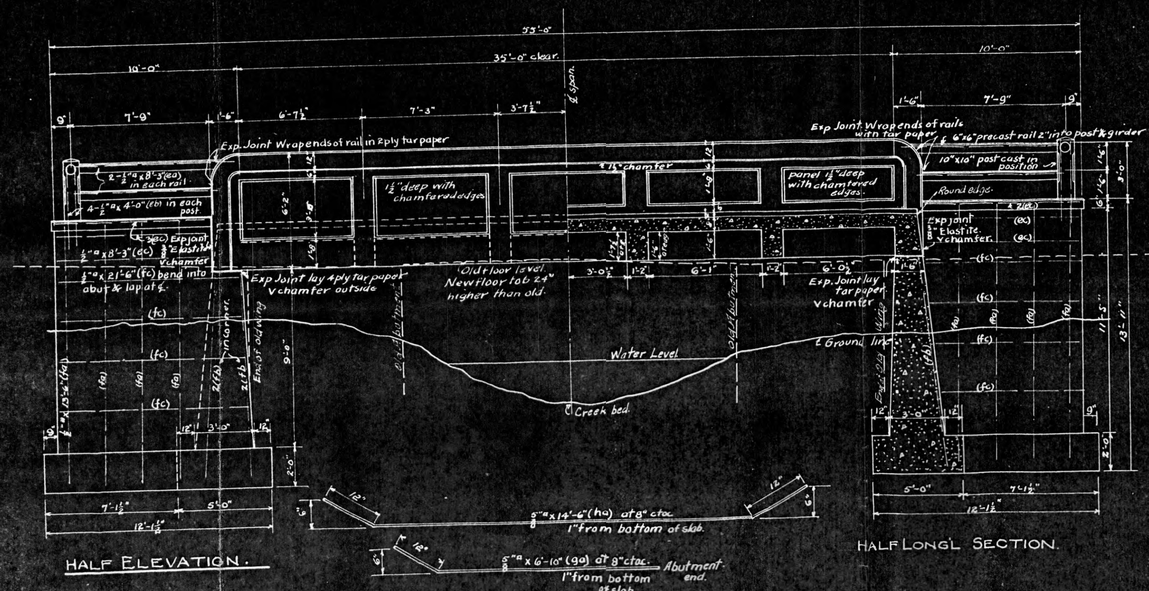
Appendix A

Original Design Drawings, Bridge 2-WG


53'-0"
35'-0" clear.
10'-0"
9"
7'-0"
1'-6"
6'-7½"
7'-3"
3'-7½"
℄ span.
Exp. Joint Wrap ends of rail in 2 ply tar paper
2-½"ø x 8'-3" (ea) ½ in each rail
4-¾"ø x 4'-0" (ea) in each post
Exp Joint ¾ elastite ½ chamfer
½"ø x 8'-3" (dc)
½"ø x 2'-6" (fc) bend into abut & lap at ℄
Exp Joint lay 4 ply tar paper ½ chamfer outside
1½" deep with chamfered edges
Old floor level. New floor 1 at 24" higher than old.
Water Level
Creek bed
Exp Joint lay tar paper ½ chamfer
℄ Ground line
HALF ELEVATION.
5/8"ø x 14'-6" (ha) at 8" c to c
1" from bottom of slab.
5/8"ø x 6'-10" (ga) at 8" c to c
Abutment end.
Exp Joint Wrap ends of rails with tar paper
℄ 6"x6" precast rail 2" into post & girder
10"x10" post cast in position
Round edges
panel 1½" deep with chamfered edges
4½" chamfer
Exp joint ¾ elastite ½ chamfer.
HALF LONG'L SECTION.
℄ bridge
21'-0"
18'-0" clear.
1'-6"
Railing not shown.
9" x 12" curb.
Old Road
Ground
drain
drain
HALF END ELEVN
HALF CROSS SECTION.
Waterproofing (c) 1 coat hot asphalt over face & bottom
¾"ø x 23'-0" (na) bend up 4'-9" from ends 2'-5" high.
¾"ø x 17'-0" (mb) bend up 3'-0" from ends 1'-6" high.
¾"ø bar 15'-0" (mc) bend up 3'-0" from ends 1'-6" high.
¾"ø stirrups (s) Hook over steel & turn into slab both sides
2-1"ø x 22'-4" (ra)
2-¾"ø 20'-6" (nb) 3'-0" from ends vertical & hooked; 3'-0" more bent up 45°
STEEL DETAIL FOR BEAM
Scale ⅜" = 1'-0"
32'-8"
Section through girder
Edge of road
PLAN
drain
5/8"ø x 4'-6" 1" from top (gb) over beams. at 12" c to c
(ga) (ha) (gb)
Edge of road
(fa) (fb) (fc) (fd) (fe) (ff) (fg) (fh)
drain
Edge of old Road.
ABUTMENT PLAN
Edge of old Road
2'-0" c to c of rod
Rod 8" under coping
2'-0" x 6" rod
5'-0"
12"
1'-6"
15'-0"
15'-10½"
21'-9"
℄ bridge
Edge of road
Easterly
(fd) in upper corner
(fe) in lower corner
(fg) 5'-0" c to c
(fh) 5'-0" c to c
drain
(fa) (fb) (fc) (fd) (fe) (ff) (fg) (fh)
2-⅝"ø x 9'-6" (ic) bent to 15" radius.
2-⅞"ø x 32'-0" (ib)
¾"ø x 27'-0" (jo)
1-⅞"ø x 33'-0" (ob) bent from 1'-6" inside to 45° 1'-6" outside
¾"ø x 25'-0" (pc) stirrups (s) from bath ends at 45°
2'-6" c to c
2'-6" c to c
2(ic)
2(ib)
2(ic)
2(ib)
2(ic)
2(ib)
2(jo)
2(jo)
2(jo)
2-1⅝"ø x 40'-0" (tb) bend up 5'-0" from ends at 45°
½"ø stirrups (s) hook to steel top and bottom.
2-1⅝"ø x 37'-0" (ib)
STEEL DETAIL FOR GIRDER.
Scale ⅜" = 1'-0"
ESTIMATE.
Concrete — Slab, Beams, Girders, Coping, Posts & Rails (1:2:4) = 51.0 c. yds
" Abutments & wings (1:2½:5) or (1:3) if approved — = 88.5 "
Total concrete = 139.5 "
Steel supplied f.o.b. cars.
NOTES.
Steel in slab to be 1" ⌀ ½" from slab & bent at bottom as shown.
" Beams - 2" & 4" " bottom & " "
" Girders - 2" & 4" " " & 2" from top
Horizontal Steel in walls to be 2" from Outside.
Vertical " " " " 2" " Inside
Top 1" of slab to be of (1:1½) mortar placed with slab or before it sets. Float to shape using template. Finish with roller.
Girders & beams to be poured with slab.
Joint, if any, to be at ℄ span. See specifications.
Rip rap 4' beyond ends of East wings.
35' X 18'
CONCRETE THRO' GIRDER.
FOR
BILTON BRIDGE
AT
LOT 1 CON 3 WEST GARAFRAXA
FOR THE
TWP of WEST GARAFRAXA.
SCALE - ¼" 1'-0"
A.W. Conner & Co. Engineers.
Toronto, June '25
Dwg. No. B2-43.
2-WG
2-WG
35220

Appendix B

2022 Bridge 2-WG OSIM Report, HP Engineering Inc.

Structure Condition Summary Form

Structure Name	THIRD LINE
Structure Number	2-WG
Date of Inspection	May 05, 2022
Project No.	18015
Consultant	HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approaches	Wearing Surface	Sq.m	6.00	66.00	0.00	33.00	19.80	13.20	396	196	50	00	00
Barriers	Barrier/ Parapet Walls (interior)	Sq.m	100.00	20.88	0.00	14.88	3.00	3.00	2088	1236	59	00	08
	Barrier/ Parapet Walls (exterior)	Sq.m	100.00	20.88	0.00	18.88	1.00	1.00	2088	1456	70	00	08
Decks	Wearing Surface	Sq.m	25.00	60.50	0.00	30.50	18.00	12.00	1513	752	50	00	00
	Deck Top - Thin Slab	Sq.m	120.00	70.40	0.00	70.40	0.00	0.00	8448	6336	75	00	00
	Soffit - Thin Slab	Sq.m	120.00	67.84	0.00	51.84	10.00	6.00	8141	5146	63	01	00
Beams/ Main Longitudinal Elements	Girders	Sq.m	200.00	113.30	0.00	78.30	20.00	15.00	22660	13345	59	01	00
	Floor Beams - Concrete	Sq.m	200.00	45.92	0.00	43.92	1.00	1.00	9184	6668	73	00	08
Abutment	Wingwalls	Sq.m	350.00	17.40	0.00	7.40	5.00	5.00	6090	2643	43	00	00
	Abutment Walls	Sq.m	900.00	24.32	0.00	2.32	11.00	11.00	21888	5526	25	01	00
									82495	43303			

Bridge Condition Index (BCI) 52

Structure Name 2-WG

THIRD LINE

HP Engineering Inc.

Municipal Structure Inspection Form

MTO Site Number: 35-219

BCI:

Inventory Data:

Structure Name:	2-WG						
Main Hwy/Road #		On ☑ / Under ☐	Crossing Type:	Navig. Water ☑	Non-Navig Water ☐	Rail ☐	Ped. ☐	Road ☐	Other ☐
Road Name	Third Line						
Structure Location	1.25 km North of Eramosa-West Garafraxa Townline						
Latitude	N 43° 42' 57.0"		Longitude	W 80° 18' 28.8"			
Owner(s)	Township of Centre Wellington		Heritage Designation	Not Cons. ☐	Cons. /not App ☐	List/not Desig. ☐	Desig./not List ☐	Desig.& List ☐
MTO Region *	-	-	Road Class	Freeway ☐	Collector ☐	Arterial ☐	Local ☑
MTO District *	-	-	Posted Speed	80	No. of Lanes:	2
Current County*	-	-	AADT		% Trucks	
Geographic Twp. *		West Garafraxa	Special Routes:	Transit ☐	School ☐	Truck ☐	Bicycle ☐
Structure Type*	5	Half-through Beams of Girders		Detour Length	8	(km)
Total Deck Length	11.6	(m)		Fill on Structure	0.2	(m)
Overall Str. Width	6.4	(m)		Skew Angle		(degrees)
Total Deck Area	74.6	(sq. m)		Direction of Structure	N-S	
Roadway Width	5.5	(m)		No. of Spans	1	
Span Lengths.	10.6					(m)

Historical Data:

Year Built	1921		Last Biennial Inspection	June 18, 2020
Current Load Limit	15	(tonnes)	Last BridgeMaster Inspection	
Load Limit By-Law #			Last Evaluation	
By-Law Expiry Date			Last Underwater Inspection	
Min. Vertical Clearance		(m)	Last Condition Survey	

Rehab History : (Date/description)

Field Inspection Information:

Date of Inspection:	May 05, 2022
Inspector:	Tashi Dwivedi, P.Eng., (H.P. Engineering)
Others in Party:	Charlemagne Charles and Sagar Chhayani, (H.P. Engineering)
Equipment Used:	Hammer, Tape, Camera, Chest waders
Weather	Rainy
Temperature	11 °C

Additional Investigations Required		Priority			Estimated Cost
		None	Normal	Urgent	
Detailed Deck Condition Survey:			X		$10,000.00
DART Survey:					
Detailed Coating Condition Survey:					
Underwater Investigation					
Fatigue Investigation:					
Seismic Investigation:					
Replacement/Rehabilitation Study:			X		$20,000.00
Load Posting - Estimated Load	0			Total Cost	$30,000.00

Special Notes:

The current approach guiderails are not code compliant. It is recommended that the existing approach guiderails be replaced with a code compliant approach guiderail system and end treatments. The current deck barrier is not code compliant. It is recommended that the existing deck barrier be replaced with a code compliant deck barrier.

Several potholes observed on top of deck and approach wearing surface. Several areas of apparent delamination was noted on the inside face of the girders.Severe spalling with exposed corroded reinforcement was also noted along the underside of the girders for the entire length of the beams. Delamination and spalls with exposed corroded reinforcement were also observed on the floor beams and the soffit.A wide horizontal crack with disintegration and erosion was also observed at the west corner of the North abutment.

Next Detailed Inspection: May 2024

HP Engineering Inc.

Municipal Structure Inspection Form **MTO Site Number:** **35-219**

Repair and Rehabilitation Required		Priority				Estimated Construction Cost
Element	Repair and Rehabilitation Required	6 - 10 years	1 - 5 years	Within 1 year	Urgent	
	Structure Replacement		X			$858,000.00
						$858,000.00

Associated Work:	Comments	Estimated Cost
Approaches		
Detours		$100,000.00
Traffic Control		$60,000.00
Utilities		
Right of Way		
Environmental Study		$100,000.00
Other		
Contingencies		
	Total Cost	$260,000.00

Justification

The outcome of the detailed deck condition survey, the replacement/rehabilitation study and other project constraints could result in significant escalation of estimated cost.

Construction Cost	$858,000.00
Associated Costs	$260,000.00
TOTAL Estimated Cost	$1,118,000.00

Municipal Structure Inspection Form **MTO Site Number** **# 35-219**

Element Data

Element Group	900	Abutments				**Length**		
Element Name	901	Abutment Walls				**Width**	6.40	
Location	North and south side of structure					**Height**	1.90	
Material	Cast-in-place concrete					**Count**	2	
Element Type	Conventional closed		**Element code**			**Total Qnty.**	24.32	
Environment	Moderate					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	1	Load Carrying capacity	
	Sq. m.	0	2.32	11	11			

Comments:
Severe scaling and severe erosion was noted at the base of abutments. A wide horizontal crack with disintegration and erosion was also observed at the west corner of the North abutment. Large areas of spalls and scaling with cracks noted at both walls.

Recommended Work:	Rehab	☐	Replace	☒	**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒ 6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	900	Abutments				**Length**	2.90	
Element Name	903	Wingwalls				**Width**		
Location	NE, NW, SE & SW of structure					**Height**	1.50	
Material	Cast-in-place concrete					**Count**	4	
Element Type	Reinforced concrete		**Element code**	6		**Total Qnty.**	17.4	
Environment	Moderate					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Sq. m.	0	7.4	5	5			

Comments:
Concrete disintegration and spalls at SW, NW and NE wingwalls. Light scaling noted throughout.

Recommended Work:	Rehab	☐	Replace	☒	**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒ 6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	1500	Signs				**Length**		
Element Name	1501	Sign				**Width**		
Location	NE, NW, SE & SW of structure					**Height**		
Material	Steel					**Count**	6	
Element Type	Hazard Signs		**Element code**	N/A		**Total Qnty.**	6	
Environment	Severe					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Each	0	1	3	2			

Comments:
All signs observed appeared to be leaning. Load posting sign at southeast ia also leaning. Light corrosion notes at all bolts.

Recommended Work:	Rehab	☐	Replace	☐	**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☐ 6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Data

Element Group	1600	Approaches				**Length**	2.50	
Element Name	1606	Barriers				**Width**	0.25	
Location	East & West side of structure					**Height**	1.20	
Material	Cast-in-place concrete					**Count**	4	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	26.50	
Environment	Severe					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	08	Pedestrain/ Vehicular hazard	
	Sq. m.	0	17.0	5.0	4.5			

Comments:

The current approach barriers are not code compliant. Numerous spalls with exposed corroded reinforcement was noted on the concrete posts. Approach barrier should be replaced with a code complaint barrier and end treatments. Large spalls with exposed corroded reinforcement was noted on the bottom section of top railing.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	1600	Approaches				**Length**	6.00	
Element Name	1601	Wearing surface (app)				**Width**	5.50	
Location	North & south side of structure					**Height**		
Material	Gravel					**Count**	2	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	66	
Environment	Severe					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Sq. m.	0	33.0	19.8	13.2			

Comments:

Numerous potholes observed on the approach wearing surface with some loose gravels throughout.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	500	Beams/MLE's				**Length**	5.60	
Element Name	502	Floor Beams (Intermediate)				**Width**	0.35	
Location	Underside of structure					**Height**	0.50	
Material	Cast-in-place concrete					**Count**	4	
Element Type	Rectangular-solid		**Element code**	4		**Total Qnty.**	45.92	
Environment	Moderate					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Sq. m.	0	38.42	5.0	2.5			

Comments:

Several areas of apparent delamination noted on floor beams. Medium to severe horizontal cracks also observed at bottom and end sections section of floor beams. Severe spalls with exposed corroded reinforcement at the end sections of beams.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	8	Repair of bridge concrete
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year	☒

Element Data

Element Group	500	Beams/MLE's				**Length**	11.00	
Element Name	501	Girders				**Width**	0.45	
Location	Underside of structure					**Height**	1.90	
Material	Cast-in-place concrete					**Count**	2	
Element Type	Rectangular-solid		**Element code**	4		**Total Qnty.**	113.3	
Environment	Severe					**Limited Insp.**		
Protection System	Hot dip galvanizing					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	1	Load Carrying capacity	
	Sq. m.	0	78.3	20	15			

Comments:

Several areas of apparent delamination noted on the inside face of girders. Severe spalling along underside of girders with exposed corroded reinforcement for full length of the beams.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	100	Decks				**Length**	11.00	
Element Name	102	Deck top				**Width**	6.40	
Location	Top of deck					**Height**		
Material	Cast-in-place concrete					**Count**	1	
Element Type	Cast-in-place conc on supports, composite		**Element code**			**Total Qnty.**	70.4	
Environment	Moderate					**Limited Insp.**	X	
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Sq. m.	0	70.4	0	0			

Comments:

The deck top could not be observed due to the gravel wearing surface. Rating based on the condition of the soffit.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	100	Decks				**Length**	10.60	
Element Name	103	Soffit Thin Slab (Interior)				**Width**	6.40	
Location	Underside of deck					**Height**		
Material	Cast-in-place concrete					**Count**	1	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	67.84	
Environment	Benign					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	01	Load carrying capacity	
	Sq. m.	0	51.84	10	6			

Comments:

Localized areas of delamination and some spalls with exposed corroded reinforcement was noted on the interior portion of the soffit.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐	

Municipal Structure Inspection Form **MTO Site Number** **35-219**

Element Data

Element Group	100	Decks					**Length**	11.00	
Element Name	101	Wearing surface					**Width**	5.50	
Location	Top of deck						**Height**		
Material	Gravel						**Count**	1	
Element Type	N/A			**Element code**	N/A		**Total Qnty.**	60.5	
Environment	Severe						**Limited Insp.**		
Protection System	None						**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		-	-	
	Sq. m.	0	30.5	18	12				

Comments:
Numerous potholes and loose gravel observed on bridge deck. Accumulation of vegetation on the west edges was noted.

Recommended Work:	Rehab ☐	Replace ☐		**Maint. Needs**	-	-		
	Urgent ☐	1-5 yrs ☐	6-10 yrs ☐	Urgent ☐	1 year ☐			

Element Group	1400	Embankments and Streams					**Length**		
Element Name	1402	Embankments					**Width**		
Location	NE, NW, SE & SW side of structure						**Height**		
Material	Native soil						**Count**	4	
Element Type	N/A			**Element code**	N/A		**Total Qnty.**	4	
Environment	-						**Limited Insp.**		
Protection System	None						**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		-	-	
	Each	0	3	0	1				

Comments:
The embankments were moderately sloped and well vegetated. Northeast embankment appeared unstable and collapsed at the time of inspection. Northwest, southeast and southwest embankments were in stable condition.

Recommended Work:	Rehab ☐	Replace ☐		**Maint. Needs**	13	Erosion Control at bridge		
	Urgent ☐	1-5 yrs ☐	6-10 yrs ☐	Urgent ☐	1 year ☒			

Element Group	1400	Embankments and Streams					**Length**		
Element Name	1403	Slope Protections					**Width**		
Location	NE, NW, SE & SW of structure						**Height**		
Material	Other						**Count**	-	
Element Type	Rock Protection			**Element code**	9		**Total Qnty.**	-	
Environment	-						**Limited Insp.**		
Protection System	None						**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		-	-	
	Each	0	0	0	0				

Comments:
No slope protection was present at the time of the inspection.

Recommended Work:	Rehab ☐	Replace ☐		**Maint. Needs**	-	-		
	Urgent ☐	1-5 yrs ☐	6-10 yrs ☐	Urgent ☐	1 year ☐			

Element Data

Element Group	1400	Embankments and Streams				**Length**		
Element Name	1401	Streams and Waterways				**Width**		
Location	Under structure					**Height**		
Material	Other					**Count**	1	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	1	
Environment	-					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	All	0	1	0	0			

Comments:
The stream had a low volume of water and a low flow from east to west. Vegetation appeared to be encroaching into the water upstream.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	1300	Foundations				**Length**		
Element Name	1301	Foundation (below ground level)				**Width**		
Location	Below abutment walls					**Height**		
Material	Unknown					**Count**		
Element Type			**Element code**			**Total Qnty.**	1	
Environment	Benign					**Limited Insp.**	X	
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	N/A	0	1	0	0			

Comments:
The foundation was not visible at the time of the inspection. No sign of instability was noted.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	500	Barriers				**Length**	11.6	
Element Name	502	Barrier/Parapet Walls (Interior)				**Width**	0.5	
Location	East & West side of structure					**Height**	0.9	
Material	Concrete					**Count**	2	
Element Type	Cast-in-Place Concrete Barrier		**Element code**	4		**Total Qnty.**	20.88	
Environment	Severe					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Sq. m.	0	13.88	3.5	3.5			

Comments:
The interior faces of the parapet walls appeared to be in generally fair condition with small spalls at the ends and mi-section of the walls. Disintegration noted at the base of east parapet wall.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	8	Repair of bridge concrete
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year	X

HP Engineering Inc.

Municipal Structure Inspection Form **MTO Site Number** **# 35-219**

Element Data

Element Group	500	Barriers					**Length**	11.6	
Element Name	502	Barrier/Parapet Walls (Exterior)					**Width**	0.5	
Location	East & West side of structure						**Height**	0.9	
Material	Concrete						**Count**	2	
Element Type	Cast-in-Place Concrete Barrier		**Element code**	4			**Total Qnty.**	20.88	
Environment	Severe						**Limited Insp.**		
Protection System	None						**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		-	-	
	Sq. m.	0	18.88	1	1				

Comments:

Light scaling and damp stains throughout. Spalling noted at the base of the parapet walls.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	8	Repair of bridge concrete
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent	☐	1 year ☒



Photo 1 Structure from north approach



Photo 2 Structure from south approach



Photo 3 North approach from centre of structure



Photo 4 South approach from centre of structure



Photo 5 East elevation



Photo 6 West elevation



Photo 7 Spalls with exposed corroded reinforcement noted on approach barrier



Photo 8 Disintegration with small spalls noted on east parapet wall



Photo 9 Interior face of west parapet wall



Photo 10 Severe scaling, damp stains and spalls with exposed corroded reinforcement noted on exterior parapet wall



Photo 11 Medium horizontal cracks with delamination with exposed corroded reinforcement noted at soffit



Photo 12 Sever scaling and erosion with horizontal cracks noted on north abutment wall



Photo 13 Severe spalls with concrete disintegration noted on south abutment wall



Photo 14 Concrete disintegration and spalls observed on wingwalls



Photo 15 Sever spalling with exposed corroded reinforcement noted over the full length of west exterior beams

BURNSIDE

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Appendix C

Update to Monitoring Report, K. Smart Associates Ltd., November 2022

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
85 McINTYRE DRIVE
KITCHENER, ONTARIO N2R 1H6
TELEPHONE (519) 748-1199
FAX (519) 748-6100
Email: ksmart@ksmart.on.ca

November 30, 2022 File No. 22-066

Mr. Adam Dickieson, C.E.T., Engineering Services Coordinator
and
Mr. Colin Baker, P. Eng., Managing Director of Infrastructure

Township of Centre Wellington
7444 Wellington Road #21
P.O. Box 10
Elora, ON N0B 1S0

RE: 2-WG BRIDGE INSPECTION
NOVEMBER 2022 UPDATE REPORT

Dear Adam and Colin,

K. Smart Associates Limited (KSAL) has been retained to inspect several structures including Structure 2-WG in the Township of Centre Wellington that have been previously identified as having specific suspected structural deficiencies. This report is an update to previous reports for Structure 2-WG. On November 2, 2022, we attended this site to review the condition of the structure. Our observations and recommendations are as follows:

Structure Type:	Single span concrete side girder bridge
Location:	3rd Line between Wellington Cty. Rd 18 & Eramosa-Garafraxa Townline
Existing Load Posting:	15 Tonnes
Concern:	Severely deteriorated beam bottoms

OBSERVATIONS

General inspection of the entire structure was completed. The structure was photographed with close-ups of any defects or deteriorations; refer to Appendix A for inspection photos. Our observations include the following:

- The side traffic barriers/bridge girders are the main structural element for this type of bridge;
- There is no approach guide rail at this structure;
- There is a large build-up of granular material overtop the deck; deck top condition is unknown;
- Concrete posts and railings at approaches are severely spalled and delaminated;
- Top of barriers/girders are in good to fair condition; small isolated spalls and some abrasion from vehicles are evident;
- Bottom of girders are in poor condition with the bottom 100mm ± of concrete spalled away and bottom row of reinforcing completely exposed;
- Abutments are in fair to poor condition with significant disintegration and scour of the bottom portion of the north abutment as well as at the southwest corner of the south abutment;
- Popouts present at northwest wingwall;
- Soffit exhibits isolated spalls and delaminations with exposed corroded reinforcement;
- Floor beams are in fair condition with isolated small spalls and delaminations.

RECOMMENDATION

The bridge has lost much of its original load carrying capacity due to the severe disintegration of the bottom of the girders on each side of the bridge. Rehabilitation of the girders and scour along the north abutment could prolong the useful life of this structure and possibly remove the need for load posting.

The Township should leave the structure posted for 15 tonnes, continue to monitor at 6 month intervals, and replace this structure as soon as possible. A super structure replacement may also be a remediation option for this bridge. Closure of the structure may need to occur prior to scheduled rehabilitation.

We recommend the removal of excess granular overtop the structure. Theoretically, removal of this material will increase the load carrying capacity of this structure. However, due to the poor condition of the load carrying components of this bridge, we do not recommend increasing the load posting of this structure beyond the 15 tonnes existing load limit.

This structure exhibits serious structural issues due to advanced deterioration. This structure should be replaced as soon as possible or be subject to complete closure in the near future.

Next scheduled inspection: April 2023 *Frequency of inspections: Every 6 Months*

If you have any questions or concerns, or if we can be of further service, please contact the undersigned anytime.

All of which is respectfully submitted,

Allan Garnham, P. Eng. David Zahorak, E.I.T.



1. North Approach (looking south)



2. South Approach (looking north)



3. East Barrier (looking south)



4. West Barrier (looking south)



5. East Elevation



6. North Abutment



7. South Abutment



8. Bridge Soffit (looking north)



9. Granular Wearing Surface Over Bridge



10. Cracked Concrete Railing Post (typ.)



11. Scour at North Abutment



12. Spalls and Delaminations on Soffit



13. Exposed Reinforcing Steel at Underside of Girders (typ.)

BURNSIDE

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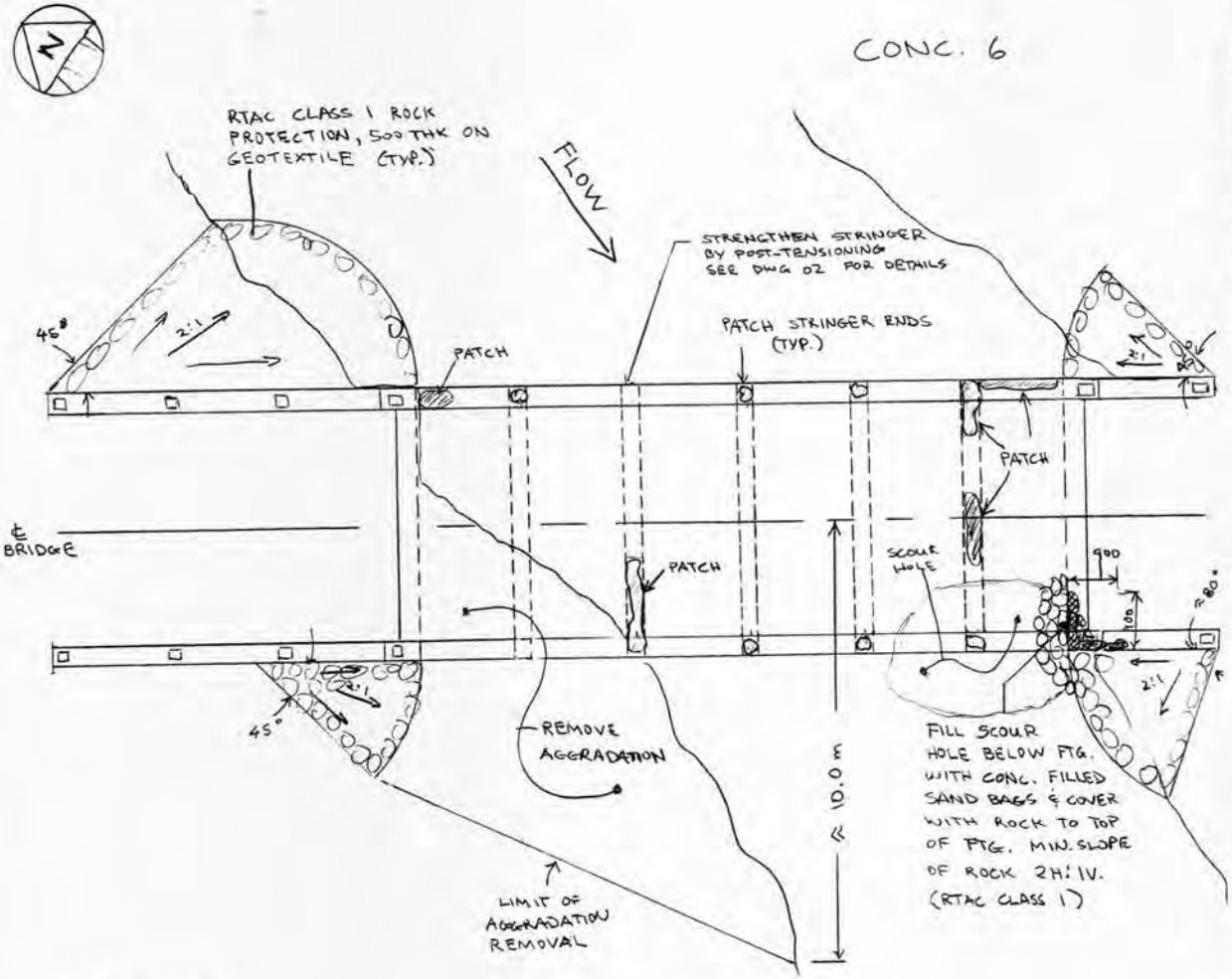
Appendix D

Bridge 3-E Rehabilitation Drawings



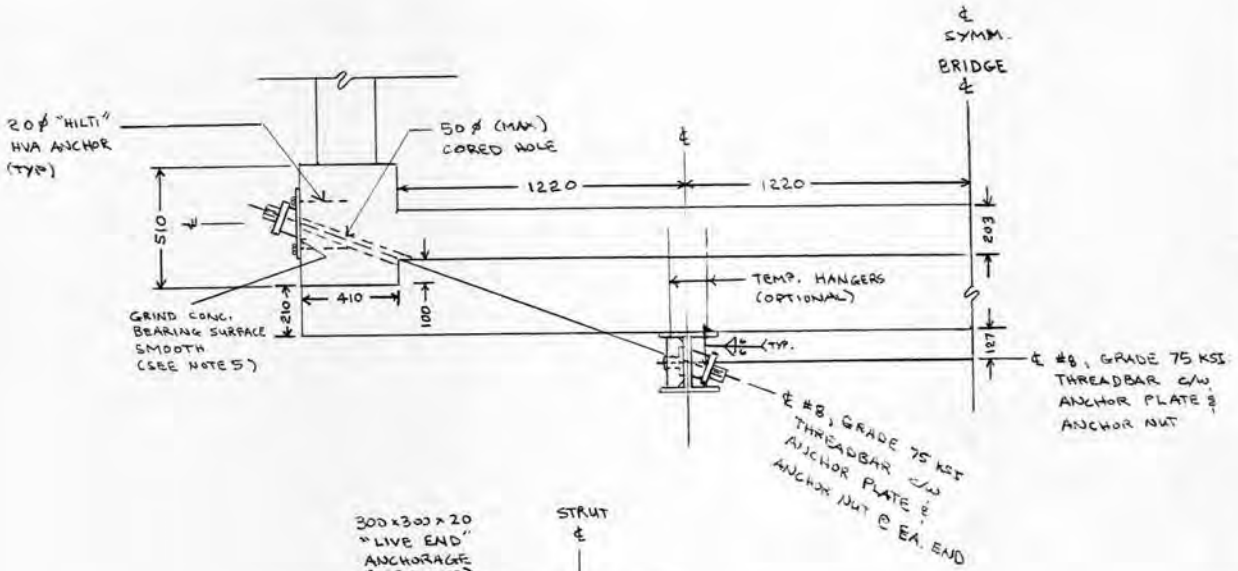
TOWNSHIP OF ERAMOSA CONSTRUCTION OF REPAIRS FOR BRIDGE NO. 4 LOT 29, CONCESSIONS 5 & 6 MTO Site No. 35-224	TRITON ENGINEERING SERVICES LIMITED Consulting Engineers	
	scale: NTS	designed by: TPS
	drawn by: TPS	checked by: PAA
GENERAL ARRANGEMENT		Drawing: 01

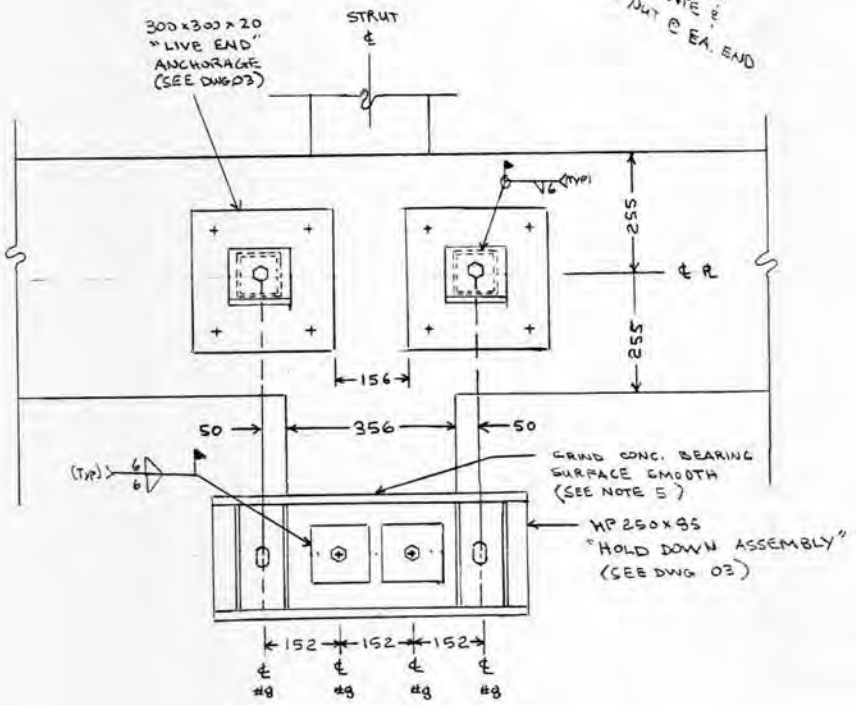
GENERAL NOTES

1. CONSTRUCTION SHALL BE IN GENERAL ACCORDANCE WITH ONTARIO PROVINCIAL STANDARDS FOR ROADS AND MUNICIPAL SERVICES, OPSS 128, 180, 201, 517, 577, 904, 905, 906, 911, 919, 928, 929, AND 930 WHERE APPLICABLE.
2. CONCRETE PATCH MATERIAL SHALL BE "MEDOWCRETE OV" AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS INCLUDING REMOVAL OF UNSOUND CONCRETE AND ABRASIVE BLASTING IN ACCORDANCE WITH OPSS 929.
3. CONCRETE PATCHES TO BE CURED BY WET BURLAP, OR CURING MEMBRANE COMPOUND IN ACCORDANCE WITH DSM #9.25.25.

SEDIMENT AND EROSION CONTROL NOTES

1. THE SPEED RIVER TRIBUTARY MUST NOT BE BLOCKED DURING ANY PHASE OF CONSTRUCTION SO AS TO IMPEDE THE FREE MOVEMENT OF STREAM FLOW.
2. THE USE OF CONSTRUCTION MACHINERY ON THE STREAM BED SHALL BE MINIMIZED.
3. DISTURBED AREAS SHALL BE STABILIZED BY SEEDING WITH A GRASS SEED MIXTURE. CONTRACTOR TO UNDERTAKE SEEDING AND MULCHING IN ACCORDANCE WITH OPSS 572. ALL AREAS TO BE PROTECTED WITH STRAW MULCH.
4. CONTRACTOR SHALL MINIMIZE CONSTRUCTION TIME AND GIVE DUE REGARD FOR ADJACENT TREES AND PROPERTY.
5. CONTRACTOR TO CONSTRUCT ALL WORKS IN ACCORDANCE WITH OPSS 577, FEBRUARY 1996, TEMPORARY EROSION & SEDIMENT CONTROL MEASURES.
6. THE CONTRACTOR SHALL LIMIT THE AMOUNT OF SOIL EXPOSED DURING THE CONSTRUCTION PERIOD.
7. ALL INSTREAM AND BANK WORK SHALL BE COMPLETED BY SEPTEMBER 1, 1997.





TOWNSHIP OF ERAMOSA	TRITON ENGINEERING SERVICES LIMITED Consulting Engineers	
CONSTRUCTION OF REPAIRS FOR BRIDGE NO. 4 LOT 29, CONCESSIONS 5 & 6 MTO Site No. 35-224	scale: as shown	designed by: TPS
	drawn by: TPS	checked by: PAA
STRINGER STRENGTHENING BY POST-TENSIONING		Drawing: 02

POST-TENSIONING NOTES:

1. THREADBAR SHALL BE #8 (25 MM DIAMETER) GRADE 75 KSI, SUPPLIED BY "DYWIDAG-SYSTEMS INTERNATIONAL" (D.S.I.). ANCHOR NUTS AND ANCHOR PLATES SHALL BE AS SUPPLIED BY D.S.I. IN ACCORDANCE WITH DETAILS SHOWN. CONTRACTOR TO VERIFY DIMENSIONS GIVEN. ALL D.S.I. COMPONENTS TO BE OILED BY MANUFACTURER, EXCEPT ANCHOR PLATES. ANCHOR PLATES SHALL BE OILED AFTER FIELD WELDING.

2. THREADBAR ANCHOR NUTS SHALL BE TIGHTENED PRIOR TO FINAL POST-TENSIONING BY TURN OF NUT TO 200 N-m (150 ft-lb) TORQUE.

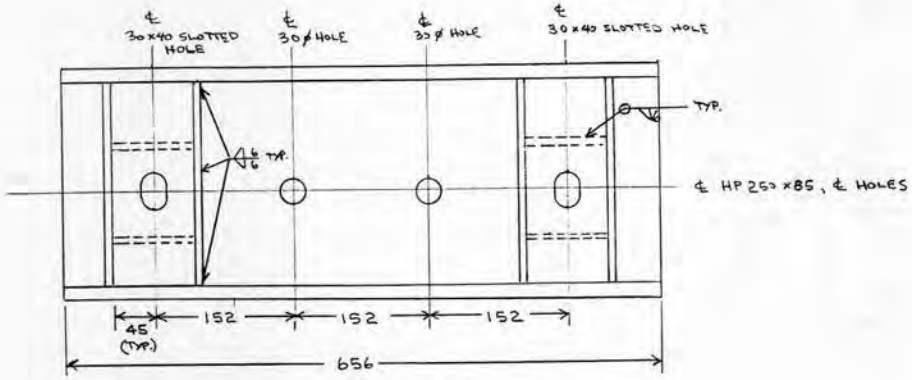
3. THREADBARS SHALL BE POST-TENSIONED BY TURN OF NUT TO 540 N-m (400 ft-lb) TORQUE.

4. "LIVE END" ANCHORAGE ASSEMBLIES SHALL BE FIXED TO CONCRETE WITH 20M ANCHOR RODS, CLASS 5.8, SUPPLIED BY "HILTI". INSTALLATION OF ANCHOR RODS SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS FOR HVA ADHESIVE SYSTEM. HEAVY HEX NUTS AND FLAT WASHERS TO SUIT ROD TYPE. MINIMUM DEPTH OF EMBEDMENT IN CONCRETE SHALL BE 210 mm. ALTERNATIVE ANCHOR TYPES TO BE APPROVED BY CONTRACT ADMINISTRATOR.

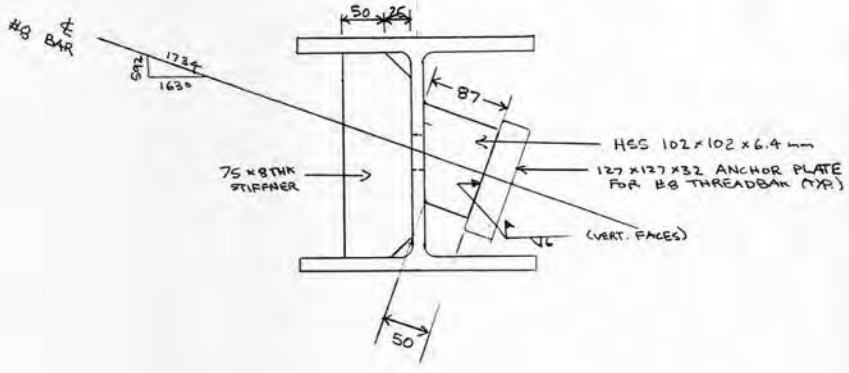
5. CONCRETE SURFACES TO BE COVERED WITH ANCHOR ASSEMBLIES SHALL BE GROUND FLAT AS REQUIRED SUCH THAT ANCHOR ASSEMBLIES SHALL BE IN FULL CONTACT WITH CONCRETE IN THE ALIGNMENT SHOWN.

6. GALVANIZING REMOVED FROM ANCHOR ASSEMBLIES FOR FIELD WELDING AND FIELD WELDS SHALL BE TREATED WITH ZINC RICH TOUCH UP COATING IN ACCORDANCE WITH DSM #9.20.90.

TOWNSHIP OF ERAMOSA	TRITON ENGINEERING SERVICES LIMITED Consulting Engineers	
CONSTRUCTION OF REPAIRS FOR BRIDGE NO. 4 LOT 29,CONCESSIONS 5 & 6 MTO Site No. 35-224	scale: as shown	designed by: TPS
	drawn by: TPS	checked by: PAA
POST-TENSIONING ANCHORAGE DETAILS		Drawing: 03

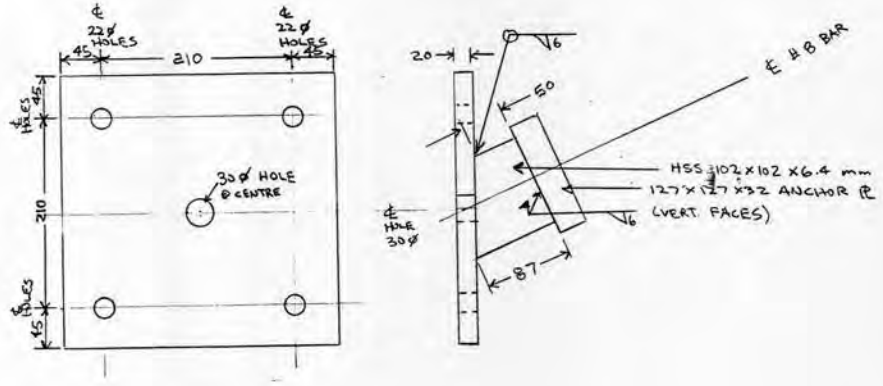


HP 250 x 85 "HOLD DOWN ASSEMBLY"
scale 1:50



STRUCTURAL STEEL NOTES:

1. ALL STRUCTURAL STEEL SHALL CONFORM TO CSA STANDARD CAN/CSA-G40.21-M92, GRADE 350W.
2. ANCHOR PLATE ASSEMBLIES SHALL BE FABRICATED IN ACCORDANCE WITH OPSS 906. ALL WELDS SHALL GROUND SMOOTH.
3. FABRICATED ANCHOR PLATE ASSEMBLIES SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH OPSS 911.



300 x 300 x 20 "LIVE END ANCHORAGE"
scale 1:50

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Appendix E

Bridge 3-E Inspection Update Report, K. Smart Associates Ltd., December 2021

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
85 McINTYRE DRIVE
KITCHENER, ONTARIO N2R 1H6
TELEPHONE (519) 748-1199
FAX (519) 748-6100
Email: ksmart@ksmart.on.ca

January 5, 2022 File No. 21-056

Mr. Adam Dickieson, C.E.T., Engineering Services Coordinator
and
Mr. Colin Baker, P. Eng., Managing Director of Infrastructure

Township of Centre Wellington
7444 Wellington Road #21
P.O. Box 10
Elora, ON N0B 1S0

RE: 3-E BRIDGE INSPECTION
DECEMBER 2021 UPDATE REPORT

Dear Adam and Colin,

K. Smart Associates Limited has been retained to inspect several structures including Structure 3-E in the Township of Centre Wellington that have been previously identified as having specific suspected structural deficiencies. This report is an update to previous reports for Structure 3-E. On December 1, 2021, we attended this site to review the condition of the structure. Our observations and recommendations are as follows:

Structure Type:	Single span bowstring arch
Location:	Sixth Line between Sideroad 30 and Wellington County Road 22
Existing Load Posting:	5 Tonnes
Concern:	Overall deterioration of the concrete deck, truss verticals, and floor beams.

OBSERVATIONS

General inspection of the entire structure was completed. The structure was photographed with close-ups of any defects or deteriorations; refer to Appendix A for inspection photos. Our observations include the following:

- Height restriction barriers (3.0m) have been installed on top of the truss arches at the centre of the structure.
- At time of the October 2020 inspection, height restriction barriers had been struck indicating oversize vehicles are using the bridge.
- Approach barriers have been removed at the south; there is one missing post and 2 missing rails at the northwest.
- Railing panels are generally in poor condition; numerous spalls and exposed reinforcement bars throughout. Some panels will likely break and fall into the watercourse over the winter.
- Concrete arches are in good condition; there is a spalled area at the northwest which could have been caused by impact in the past. There is no exposed reinforcement bar as a result of the spall.
- Concrete arches show evidence of numerous abrasions, likely from snow plow.
- Truss verticals are generally in poor condition with numerous spalls and exposed reinforcement with section loss; composite action between steel reinforcing and concrete does not exist at most of the vertical members.

- Fascias are in good to fair condition with one isolated spall and delaminated location at the southwest.
- Floor beams are in fair condition with evidence of previous rehabilitation/repairs to concrete. Most patches are cracked and delaminated with wet staining. Second floor beam from the north is externally post tensioned. Concrete under the exterior post-tensioned beam is failing.
- Concrete in arches at interface with deck is deteriorated, likely due to exposure to moisture/chlorides.
- Footing at southwest is exposed by approximately 50mm ±. There is rock protection at this location, however the slope of the rock is steep (approximately 1:1). Further erosion may occur in this area.
- Soffit is in fair condition with numerous isolated spalls and exposed reinforcement throughout.
- Deck is in poor condition with severe scaling and numerous spalls/deep potholes; some spalls exhibit exposed reinforcement bar (at least 4 locations). One exposed reinforcement bar is quite sharp and presents a high risk of vehicle tire puncture, resulting in an unsafe condition for motorists.

RECOMMENDATION

This structure exhibits serious structural issues due to advanced deterioration. Due to the advancement of deterioration, this structure should be closed immediately.

Next scheduled inspection: n/a *Frequency of inspections: n/a*

If you have any questions or concerns, or if we can be of further service, please contact the undersigned anytime.

All of which is respectfully submitted,

Allan Garnham, P. Eng. David Zahorak, E.I.T.



1. North Approach (looking south)



2. South Approach (looking north)



3. East Arch (looking south)



4. West Arch (looking south)



5. East Elevation



6. North Abutment



6. West Elevation



7. South Abutment



8. Bridge Soffit (looking south)



9. Floor Beam Reinforcement

BURNSIDE

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Appendix F

2022 Bridge 3-E OSIM Report, HP Engineering Inc.

Structure Condition Summary Form

Structure Name	SIXTH LINE
Structure Number	3-E
Date of Inspection	May 04, 2022
Project No.	18015
Consultant	HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approach	Wearing Surface	Sq.m	6.00	58.80	0.00	52.80	3.00	3.00	353	245	69	09	12
Barriers	Railing Systems	m	200.00	88.00	0.00	0.00	44.00	44.00	17600	3520	20	08	00
	Posts (Steel/Concrete)	Each	200.00	18.00	0.00	4.00	6.00	8.00	3600	1080	30	08	00
Trusses/ Arches	Top Chords	Sq.m	300.00	64.00	0.00	56.00	4.00	4.00	19200	13080	68	00	00
	Verticals	Sq.m	300.00	5.76	0.00	0.00	2.88	2.88	1728	346	20	01	00
	Bottom Chords	Sq.m	300.00	52.56	0.00	42.56	5.00	5.00	15768	10176	65	00	00
Decks	Deck Top - Thin Slab	Sq.m	120.00	79.80	0.00	0.00	39.90	39.90	9576	1915	20	09	02
	Soffit - Thin Slab	Sq.m	120.00	78.09	0.00	46.85	15.62	15.62	9371	4966	53	00	00
Beams/ Main Longitudinal	Floor Beams - Concrete	Sq.m	200.00	51.30	0.00	41.30	5.00	5.00	10260	6595	64	01	00
Abutment	Wingwalls	Sq.m	350.00	22.40	0.00	18.40	2.00	2.00	7840	5110	65	00	08
	Abutment Walls	Sq.m	900.00	19.38	0.00	17.38	2.00	0.00	17442	12452	71	00	00
									112738	59484			

Bridge Condition Index (BCI) 52.76

Structure Name 3-E

SIXTH LINE

Municipal Structure Inspection Form

MTO Site Number: 35-224

BCI: 52.76

Inventory Data:

Structure Name:	3-E						
Main Hwy/Road #		On ☑ / Under ☐	Crossing Type:	Navig. Water ☑	Non-Navig Water ☐		
				Rail ☐	Ped. ☐		
				Road ☐	Other ☐		
Road Name	Sixth Line						
Structure Location	1.1 km South of Sideroad 30						
Latitude	N 43° 43' 8.8"		Longitude	W 80° 15' 42.9"			
Owner(s)	Township of Centre Wellington	Heritage Designation	Not Cons. ☐	Cons. /not App ☐			
			List/not Desig. ☐	Desig./not List ☐			
				Desig.& List ☐			
MTO Region *	- -	Road Class	Freeway ☐	Collector ☐			
			Arterial ☐	Local ☑			
MTO District *	- -	Posted Speed	80	No. of Lanes:	2		
Current County*	- -	AADT	<Null>	% Trucks	<Null>		
Geographic Twp. *	Eramosa	Special Routes:	Transit ☐	School ☐			
			Truck ☐	Bicycle ☐			
Structure Type*	1 Bowstring Arch		Detour Length	9	(km)		
Total Deck Length	14.5 (m)		Fill on Structure		(m)		
Overall Str. Width	5.8 (m)		Skew Angle		(degrees)		
Total Deck Area	84.1 (sq. m)		Direction of Structure	N-S			
Roadway Width	4.9 (m)		No. of Spans	1			
Span Lengths.	13.7 (m)						

Historical Data:

Year Built	1919		Last Biennial Inspection	June 18, 2020
Current Load Limit	Bride is closed (tonnes)		Last BridgeMaster Inspection	
Load Limit By-Law #			Last Evaluation	
By-Law Expiry Date			Last Underwater Inspection	
Min. Vertical Clearance	3.00 (m)		Last Condition Survey	

Rehab History : (Date/description)

HP Engineering Inc.

Municipal Structure Inspection Form **MTO Site Number:** **35-224**

Field Inspection Information:

Date of Inspection:	May 04, 2022
Inspector:	Tashi Dwivedi, P.Eng., (H.P. Engineering)
Others in Party:	Charlemagne Charles and Sagar Chhayani, (H.P. Engineering)
Equipment Used:	Hammer, Tape, Camera and Chest waders
Weather	Sunny
Temperature	11 °C

Additional Investigations Required		Priority			Estimated Cost
		None	Normal	Urgent	
Detailed Deck Condition Survey:		☐	☑	☐	$ 10,000.00
DART Survey:		☑	☐	☐	
Detailed Coating Condition Survey:		☑	☐	☐	
Underwater Investigation		☑	☐	☐	
Fatigue Investigation:		☑	☐	☐	
Seismic Investigation:		☑	☐	☐	
Structure Evaluation:		☐	☑	☐	$ 10,000.00
Load Posting - Estimated Load	0			Total Cost	$ 20,000.00

Special Notes:
Bridge was closed at the time of the inspection. Superstructure is generally in poor condition should be replaced. A rehabilitation / replacement study is recommended ($5,000.00). Existing deck barrier is substandard and should be replaced. Light to moderate scaling at water level. Medium diagonal crack at upper northwest corner of north abutment wall.
Medium vertical cracks with heavy efflorescence noted at south abutment wall. Stained cracks, localized delaminations, and light to moderate localized disintegration noted at wingwalls. Medium and wide horizontal cracks, large delaminations, and medium to severe spalls with exposed corroded reinforcement noted throughout floor beam. Numerous damp stains, medium & wide cracks, medium & large delaminations, large spalls noted at soffit. Light to moderate scaling with spalls and concrete disintegration observed on truss/ arches throughout.

Next Detailed Inspection: May 2024

HP Engineering Inc.

Municipal Structure Inspection Form **MTO Site Number:** **35-224**

Repair and Rehabilitation Required		Priority				Estimated Construction Cost
Element	Repair and Rehabilitation Required	6-10 years	1 - 5 years	Within 1 year	Urgent	
	Replace Structure	☐	☑	☐	☐	$967,000.00
		☐	☐	☐	☐	
		☐	☐	☐	☐	
		☐	☐	☐	☐	
		☐	☐	☐	☐	
		☐	☐	☐	☐	
		☐	☐	☐	☐	
		☐	☐	☐	☐	
						$967,000.00

Associated Work:	Comments	Estimated Cost
Approaches		
Detours		$ 100,000.00
Traffic Control		$60,000.00
Utilities		
Right of Way		
Environmental Study		$ 100,000.00
Other		
Contingencies		
	Total Cost	$ 260,000.00

Justification

Construction Cost	$967,000.00
Associated Costs	$ 260,000.00
TOTAL Estimated Cost	$1,227,000.00

Element Data

Element Group	900	Abutments				**Length**		
Element Name	901	Abutment Walls				**Width**	5.70	
Location	North and south underside of structure					**Height**	1.70	
Material	Cast-in-place concrete					**Count**	2	
Element Type	Conventional closed		**Element code**	1		**Total Qnty.**	19.38	
Environment	Moderate					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Sq. m.	0	17.38	2.00	0			

Comments:

Light to moderate scaling at water level. Medium diagonal crack at upper northwest corner of north abutment wall. Medium vertical cracks with heavy efflorescence noted at south abutment wall.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	-
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year ☐

Element Group	900	Abutments				**Length**	4.00	
Element Name	903	Wingwalls				**Width**		
Location	NE, NW, SE & SW side of structure					**Height**	1.40	
Material	Cast-in-place concrete					**Count**	4	
Element Type	Reinforced concrete		**Element code**	6		**Total Qnty.**	22.40	
Environment	Moderate					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Sq. m.	0	18.40	2.00	2.00			

Comments:

Stained cracks, localized delaminations, and light to moderate localized disintegration observed.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐

Element Group	1500	Signs				**Length**		
Element Name	1501	Sign				**Width**		
Location	NW, NE, SW, & SW of Structure					**Height**		
Material	Steel					**Count**	6	
Element Type	Hazard Signs x 4 Load Posting Signs x 2		**Element code**	N/A		**Total Qnty.**	6	
Environment	-					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Each	0	3	1	2			

Comments:

Small abrasions noted throughout. Southeast hazard sign leaning slightly. Northwest sign is damaged and north closing bridge sign is tilted.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	-
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year ☐

Element Data

Element Group	1600	Approaches				**Length**	6.00		
Element Name	1601	Wearing surface (app)				**Width**	4.90		
Location	North & South of Structure					**Height**			
Material	Gravel					**Count**	2		
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	58.8		
Environment	Severe					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	9	Rough riding surface		
	Sq. m.	0	52.8	3.0	3.0				

Comments:

Several small potholes noted throughout both approaches.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	12	Bridge surface repair	
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year ☒		

Element Group	400	Barriers				**Length**	0.25		
Element Name	403	Posts				**Width**	0.25		
Location	East & West Sides of Deck & Wingwalls					**Height**	1.00		
Material	Cast-in-place concrete					**Count**	18		
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	18		
Environment	Severe					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	08	Pedestrian / Vehicular Hazard		
	Each	0	4	6	8				

Comments:

Two missing posts at southeast and southwest. Other posts exhibit wide cracks and spalls with exposed corroded reinforcement. Barrier is substandard and should be replaced with code compliant barrier. Localized moderate scaling and spalls noted throughout.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-	
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐		

Element Group	400	Barriers				**Length**	22.00		
Element Name	402	Railing Systems				**Width**	0.15		
Location	East & west side of structure					**Height**	0.15		
Material	Cast-in-place concrete					**Count**	4		
Element Type	Concrete Post and Railing		**Element code**	6		**Total Qnty.**	88		
Environment	Severe					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	08	Pedestrian / Vehicular Hazard		
	m.	0	0	44	44				

Comments:

Numerous rails with wide cracks and spalls with exposed corroded reinforcement. Missing rails at south end. Barrier us substandard and should be replaced. Severe scaling also noted throughout.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-	
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐		

Element Data

Element Group	500	Beams/MLE's				**Length**	5.70	
Element Name	502	Floor Beams (Intermediate)				**Width**	0.30	
Location	Underside of structure					**Height**	0.30	
Material	Cast-in-place concrete					**Count**	6	
Element Type	Rectangular-solid		**Element code**	4		**Total Qnty.**	51.3	
Environment	Moderate					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	1	Load Carrying capacity	
	Sq. m.	0	41.3	5.0	5.0			

Comments:

Medium and wide horizontal cracks, large delaminations, and medium to severe spalls with exposed corroded reinforcement noted throughout. Concrete patchwork noted at some beam ends. One beam has been externally post tensioned.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	100	Decks				**Length**	14.00	
Element Name	102	Deck top (exposed)				**Width**	5.70	
Location	Top of deck					**Height**		
Material	Cast-in-place concrete					**Count**	1	
Element Type	Cast-in-place conc on supports, composite		**Element code**	1		**Total Qnty.**	79.8	
Environment	Severe					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	9	Rough riding surface	
	Sq. m.	0	0	39.9	39.9			

Comments:

Moderate scaling and small spalls noted throughout. Deck partially covered in gravel. Severe concrete disintegration and spalls with exposed corroded reinforcement on bridge deck.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	02	Bridge Cleaning
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year	☒

Element Group	100	Decks				**Length**	13.70	
Element Name	103	Soffit Thin Slab (Interior)				**Width**	5.70	
Location	Underside of deck					**Height**		
Material	Cast-in-place concrete					**Count**	1	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	78.09	
Environment	Benign					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Sq. m.	0	46.85	15.62	15.62			

Comments:

Numerous damp stains, medium & wide cracks, medium & large delaminations, and medium & large spalls with exposed corroded reinforcement noted throughout.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐	

HP Engineering Inc.

Municipal Structure Inspection Form **MTO Site Number** **35-224**

Element Data

Element Group	1400	Embankments and Streams				**Length**		
Element Name	1402	Embankments				**Width**		
Location	NE, NW, SE & SW of structrue					**Height**		
Material	Other					**Count**	4	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	4	
Environment	-					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Each	0	4	0	0			

Comments:
Embankments are moderately sloped, well vegetated. Minor erosion noted at northeast & northwest embankments. Sediment build up at northwest embankment.

Recommended Work:	Rehab ☐	Replace ☐		**Maint. Needs**	13	Erosion Control	
	Urgent ☐	1-5 yrs ☐	6-10 yrs ☐	Urgent ☐	1 year	☒	

Element Group	1400	Embankments and Streams				**Length**		
Element Name	1401	Streams and Waterways				**Width**		
Location	Under structure					**Height**		
Material	Native					**Count**	1	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	1	
Environment	-					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	All	0	1	0	0			

Comments:
Moderate volume and low flow from west to east with no visible obstructions noted at the time of inspection.

Recommended Work:	Rehab ☐	Replace ☐		**Maint. Needs**	-	-	
	Urgent ☐	1-5 yrs ☐	6-10 yrs ☐	Urgent ☐	1 year	☐	

Element Group	1300	Foundations				**Length**		
Element Name	1301	Foundation (below ground level)				**Width**		
Location	Below abutment walls					**Height**		
Material	Unknown					**Count**		
Element Type	Foundation		**Element code**			**Total Qnty.**	1	
Environment	-					**Limited Insp.**	X	
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	N/A	0	1	0	0			

Comments:
Foundations not visible; no signs of instability noted at time of inspection.

Recommended Work:	Rehab ☐	Replace ☐		**Maint. Needs**	-	-	
	Urgent ☐	1-5 yrs ☐	6-10 yrs ☐	Urgent ☐	1 year	☐	

Element Data

Element Group	600	Trusses/Arches					**Length**	14.60
Element Name	602	Bottom chords					**Width**	0.40
Location	East & West sides of structure						**Height**	0.50
Material	Cast-in-place concrete						**Count**	2
Element Type	Rectangular-solid			**Element code**	4		**Total Qnty.**	52.56
Environment	Severe						**Limited Insp.**	
Protection System	None						**Suspected Performance Deficiencies**	
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		-	-
	Sq. m.	0	42.56	5.00	5.00			

Comments: Light to moderate scaling throughout all exposed faces. Wide cracks at underside of west chord near south end. Large spall / disintegration at exterior vertical face at east chord. Large spall with exposed corroded reinforcement at interior vertical roadway face - east edge of deck.

Recommended Work:	Rehab ☐	Replace ☒	**Maint. Needs**	-	-
	Urgent ☐	1-5 yrs ☒ 6-10 yrs ☐	Urgent ☐ 1 year ☐		

Element Group	600	Trusses/Arches					**Length**	16.00
Element Name	601	Top chords					**Width**	0.45
Location	East & west sides of structure						**Height**	0.55
Material	Cast-in-place concrete						**Count**	2
Element Type	Rectangular-solid			**Element code**	4		**Total Qnty.**	64.00
Environment	Severe						**Limited Insp.**	
Protection System	None						**Suspected Performance Deficiencies**	
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		-	-
	Sq. m.	0	56.0	4.0	4.0			

Comments:
Light to moderate scaling at bases of arches and at top of west arch. Spalls noted on north side of west arch.

Recommended Work:	Rehab ☐	Replace ☒	**Maint. Needs**	-	-
	Urgent ☐	1-5 yrs ☒ 6-10 yrs ☐	Urgent ☐ 1 year ☐		

Element Group	600	Trusses/Arches					**Length**	0.20
Element Name	603	Verticals/diagonals					**Width**	0.20
Location	East & west sides of structure						**Height**	1.20 (avg.)
Material	Cast-in-place concrete						**Count**	6
Element Type	Rectangular-solid			**Element code**	4		**Total Qnty.**	5.76
Environment	Severe						**Limited Insp.**	
Protection System	None						**Suspected Performance Deficiencies**	
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		1	Load Carrying capacity
	Sq. m.	0	0	2.88	2.88			

Comments:
Severe spalls noted throughout, completely exposing corroded reinforcement. Some members have almost no concrete remaining over their entire height.

Recommended Work:	Rehab ☐	Replace ☒	**Maint. Needs**	-	-
	Urgent ☐	1-5 yrs ☒ 6-10 yrs ☐	Urgent ☐ 1 year ☐		



Photo 1 Structure from north approach



Photo 2 Structure from south approach



Photo 3 North approach from centre of structure



Photo 4 South approach from centre of structure



Photo 5 East elevation



Photo 6 West elevation



Photo 7 Concrete disintegration with exposed corroded rebar at northwest of deck barrier post



Photo 8 Severe spalling with exposed corroded rebar at rail in deck barrier



Photo 9 Spalls in exposed concrete deck top



Photo 10 Spall with exposed corroded rebar and sheared railing in deck barrier at southeast corner



Photo 11 Spalls with exposed corroded rebar and delamination at soffit



Photo 12 Large spalls with exposed corroder reinforcement at underside of floor beams and post tensioning system



Photo 13 Large spalls with exposed corroded rebar noted at soffit in between girders



Photo 14 Moderate erosion and scaling were noted at and below the waterline on north abutment wall



Photo 15 Moderate erosion and scaling were noted at and below the waterline on south abutment wall



Photo 16 Wide cracks noted at underside of west chord near south end

BURNSIDE

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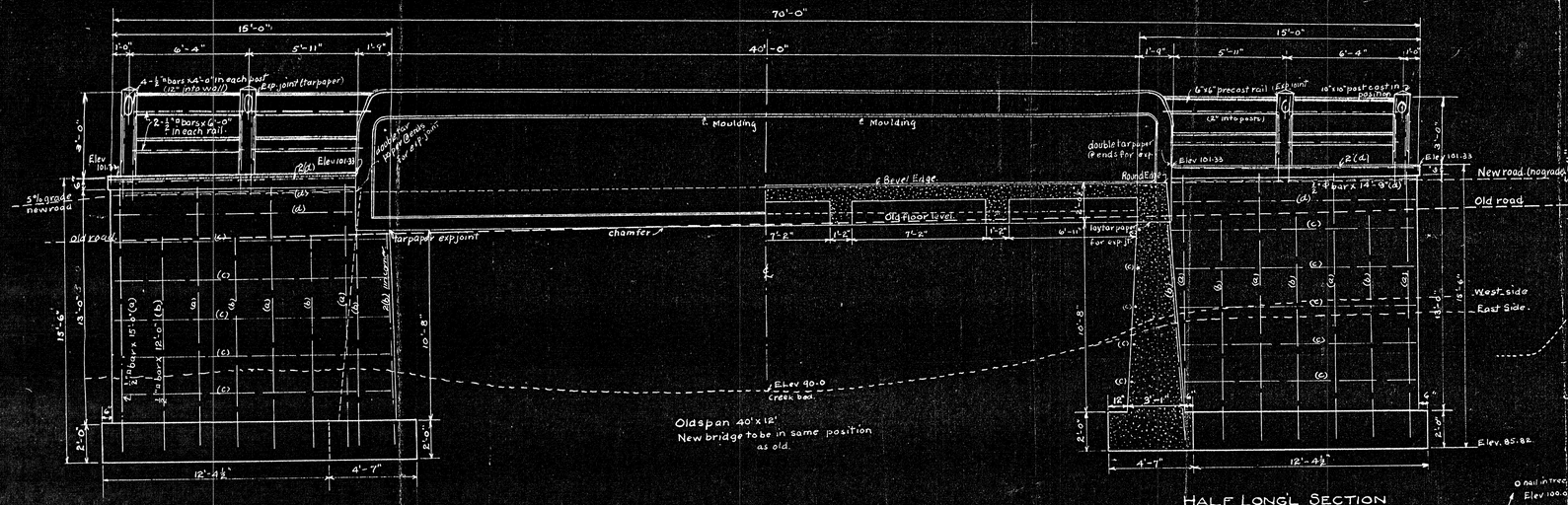
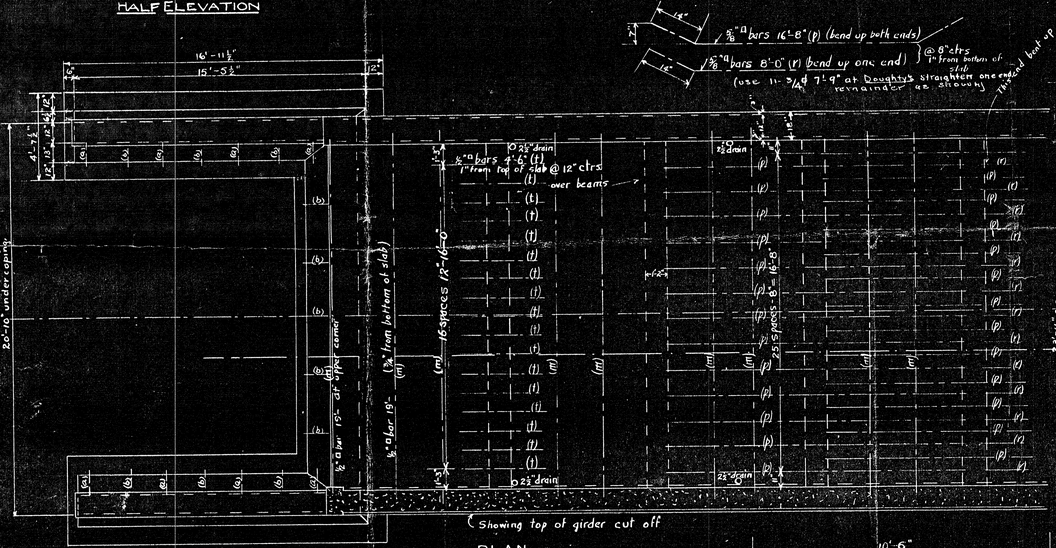
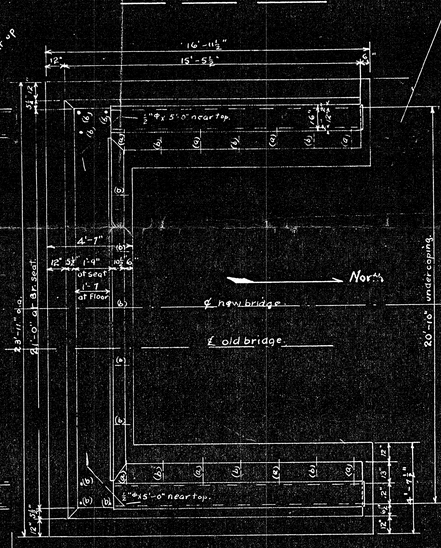
Appendix G

Original Design Drawings, Bridge 5-E







Reinforcing Steel Shown thus _____

Place bars in girders 2" and 4" from bottom and bend up at ends as shown.
" " " " " 2" " top " " down " " " "
" " " " Slab 1" from top over beams and 1" from bottom and bend end up as shown
Place horizontal bars in Wing Walls 2" from outside } Exc. 4" if below water.
" vertical " " " " 2 " inside }
Follow figures regardless of scale. Top of Rail and Post must not be rounded.
Top of girder and of coping to be trowelled smooth and to line at ends (not coursed)

ESTIMATE.

	cu.yds.
Concrete in Slabs, Beams, Coping, and Railing, (1:2:4) =	50.7
" " " Abutments and Wings (1:2½:5, or 1:6, if approved) =	153.9
Total Concrete =	204.6

Reinforcing Steel (supplied f.o.b. cars)
Approximate Excav. cu. yds.

40'x18' CONCRETE THROUGH GIRDER FOR BOULTON'S BRIDGE

AT LOT 28 CON 4. ERAMOSA TWP. WELLINGTON CO.

FOR THE

TWP. OF ERAMOSA.

SCALE 1/4" = 1'-0"

A.W. Connor & Co. Engineers.

Toronto, June 9. 23. Dwg. No. B.-3-9.

35-284

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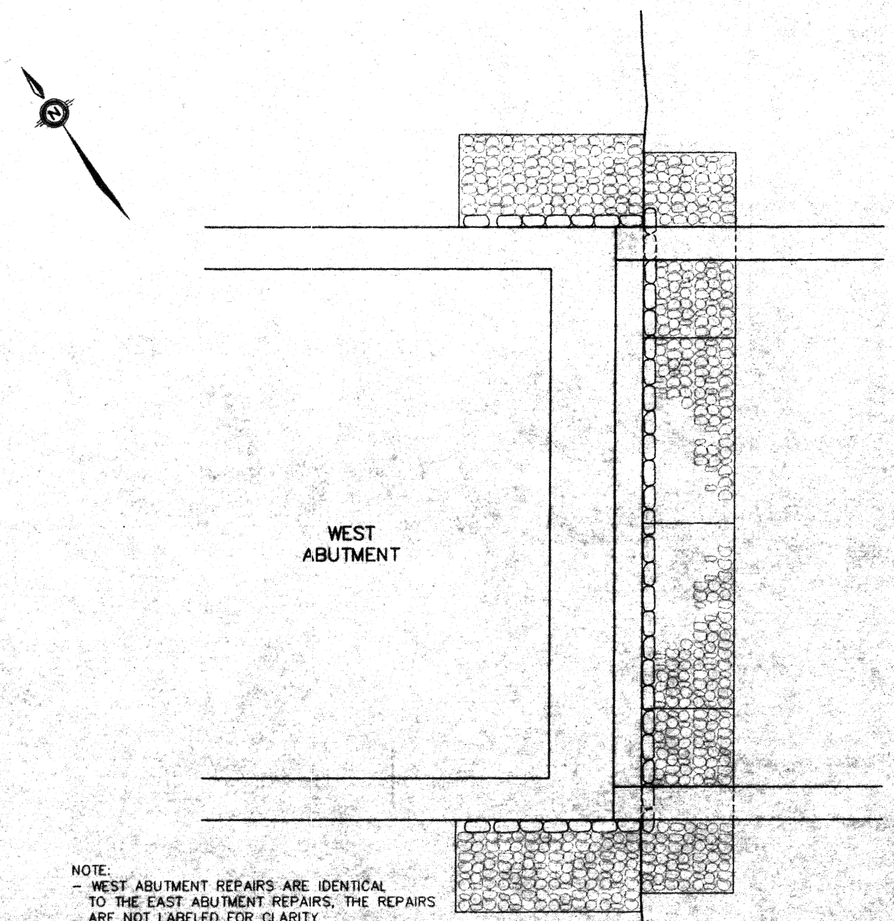
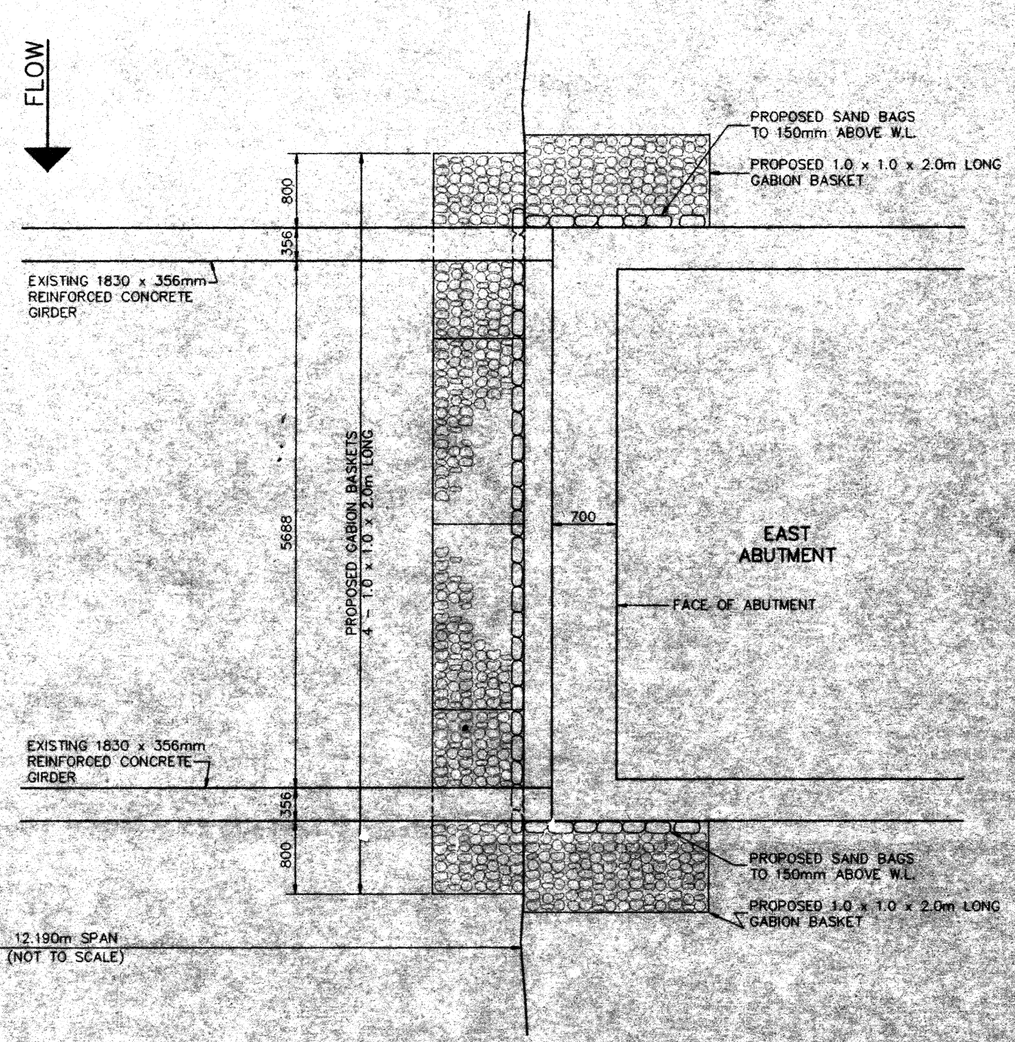
Appendix H

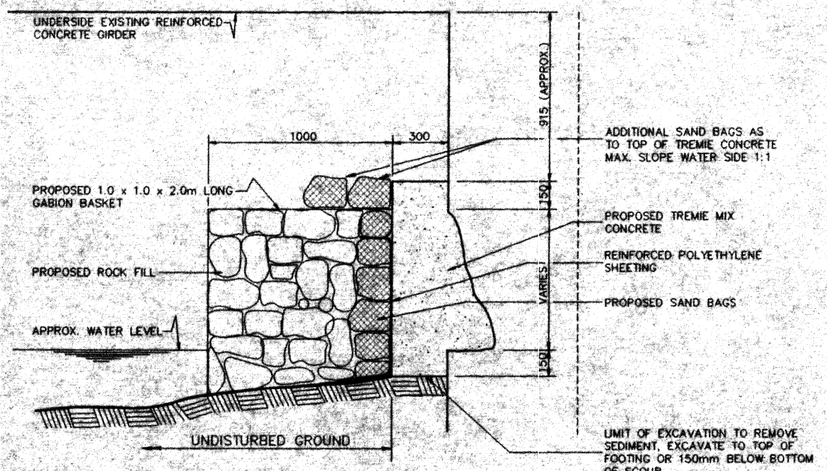
Bridge 5-E 1994 Rehabilitation Drawing



NOTE:
- WEST ABUTMENT REPAIRS ARE IDENTICAL TO THE EAST ABUTMENT REPAIRS, THE REPAIRS ARE NOT LABELED FOR CLARITY



PLAN
SCALE 1:50



TYPICAL SECTION
SCALE 1:25

SCHEDULE B

NOTES
1. UPDATED FIELD WORK UNDERTAKEN BY T.E.S.L. JULY, 1994.
2. M.T.O. STRUCTURE No. 35-264.

No	DATE	REVISION	INITIAL
1	AUG 15/94	SUBMITTED FOR O.R.C.A. M.N.R. APPROVAL	R.H.L.

CONTRACT FOR
ABUTMENT REPAIRS
STRUCTURE No.009
CONCESSION 3-4, LOT 28
TOWNSHIP OF ERAMOSA

TOWNSHIP OF ERAMOSA
R.R. No.1 ROCKWOOD, ONTARIO N0B 2K0

GENERAL PLAN & REPAIR DETAILS

PROJECT No. B4961
DRAWN BY: G.R.T. (JUNIOR)
CHECKED BY: R.H.L.
APPROVED BY: G.R.S.
DATE: AUGUST 1994

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

SCALES: AS SHOWN
HORIZONTAL VERTICAL

DRAWING NUMBER 2

BURNSIDE
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Appendix I

Inspections Completed by K. Smart Associates Ltd., August 2013

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER • SUDBURY • CHATHAM • ENGLEHART • RAINY RIVER

85 McIntyre Drive
Kitchener, ON N2R 1H6

Tel: 519-748-1199
Fax: 519-748-6100

September 27, 2013

File No. 13-114

Township of Centre Wellington
7444 Wellington Road #21
PO Box 10
Elora ON N0B 1S0

ATTN: MR. ADAM DICKIESON
ENGINEERING SERVICES COORDINATOR

Re: 2013 STRUCTURE REHABILITATIONS
VARIOUS BRIDGES IN THE TOWNSHIP OF CENTRE WELLINGTON
SUMMARY OF COSTS AND ALTERNATIVES

Dear Mr. Dickieson:

This letter is to summarize the proposed rehabilitation alternatives for 5 structures in the Township of Centre Wellington as well as provide preliminary cost estimates and timelines. We understand the goal of these rehabilitations is to extend the lifespan of these structures by 10-20 years without further repairs being necessary. Where we determine that minor rehabilitation is not warranted, we have stated such and follow this up with an alternative proposal. Preliminary costs are provided, however these costs are very preliminary and may change as the project progresses. Please note that costs provided do not include HST.

Our summary is as follows:

Structure 21-P

Location:
Eighth Line West, between Wellington Road 18 and Middlebrook Road in the former Township of Pilkington.

Structure Description:
Two equal spans of four concrete beams cast monolithically with a concrete deck continuous over the pier. Two equal spans of 11.63m and overall with of 7.45m. Substructure consists of one concrete pier and two concrete abutments. It is unknown if piles are present below the foundation. The barriers consist of twin concrete rails supported on concrete posts. The deck top is covered with an asphalt wearing surface. This bridge was constructed in 1956, making it 57 years old.

Existing Posted Limit: None

Notable Deficiencies:

- Curbs/fascias have localized areas of severe deterioration with large amounts of exposed reinforcement;
- Curb deterioration is extending into the deck in isolated areas;
- Curb height is insufficient due to additional asphalt (bridge not designed for asphalt);
- Railing system is poorly supported due to curb and fascia deterioration;
- No approach guide rails;
- Areas of severe deterioration on railing system;
- Section of northwest railing is reconstructed with timber;
- Broken utility duct on west fascia;
- Most girder ends are experiencing wide cracking, delamination, spalling and exposed reinforcement;
- Severe scaling of bearing seat at northwest abutment;
- Exterior soffit is severely deteriorated along outside of bridge;
- Portions of interior soffit are delaminated and exhibit large areas of leachate;
- Large number of swallow nests present between girders;
- Large spall below interior girder at east abutment;
- Localized delaminations, spalling and honeycoming on girders;
- Bearings at girder ends are generally seized and not allowing movement;
- Expansion joints leak, are paved over and do not allow sufficient room for expansion;
- Pier footing has been noted to be exposed in previous inspections;
- Cracking on abutments with rust stains.

Suggested Action

- Perform detailed Deck Condition Survey (DCS);
- Perform structural analysis for asphalt load;
- Pending results of DCS, perform full structure rehabilitation including:
    - Chip & patch of deck top;
    - Chip & patch of damaged soffit areas;
    - Reconstruction of outer curb/fascia;
    - Replace railing system;
    - Repair girder ends;
    - Replace bearings;
    - Repair spall on south abutment;
    - Repair northwest abutment scaling;
    - Seal expansion joints to prevent leakage;
- Install approach steel beam guide rail;

Alternatively, if the DCS shows extensive deterioration, a superstructure replacement can be carried out.

- Remove existing superstructure
- Construct new superstructure:
    - Concrete deck on steel girders
    - Concrete distribution slab on prestressed box girders
- Install approach steel beam guide rail

Other Notes:

- Due to the bird population at this bridge, netting will likely be required prior to construction;
- Permit will be required from Conservation Authority for major work;

Summary
This bridge is experiencing numerous defects which are still considered worth repairing, pending the results of a deck condition survey. Given the advanced age of this structure though, the repairs should be limited to only the necessary items as the bridge can only be expected to last another 15-20 years. Although it would be ideal to convert the bridge to a semi-integral structure, this type of retrofit would be too costly for the relatively short remaining service life of the bridge and therefore a rehabilitation of the existing configuration is recommended.

The required engineering studies, design and contract preparation, as well as acquisition of permits will take several months. The earliest that the recommended rehabilitation work could be carried out feasibly is summer of 2014.

Cost Estimate

Deck condition survey & load capacity evaluation:	$15,000
Rehabilitation:	$230,000
Engineering & Contract Administration:	$40,000
Total:	**$285,000**

Alternate Cost Estimate

Deck condition survey & load capacity evaluation:	$15,000
Superstructure Replacement:	$250,000
Engineering & Contract Administration:	$50,000
Total:	**$315,000**

Structure 22-P

Location:
Eighth Line West, between Sideroad 11 and Wellington Road 18 in the former Township of Pilkington.

Structure Description:
Single span rigid frame concrete bridge. Span of 16.75m, overall length of 30.65m including wingwalls. Overall width of 8.65m and travelled width inside curbs of 7.35m. The barriers consist of concrete rails on concrete posts supported by the curb. The deck top is covered with an asphalt wearing surface. The date of construction of this bridge is unknown; however it appears to have been constructed in either the 1950's or 1960's, making the bridge approximately 50-60 years old.

Existing Posted Limit: None

Notable Deficiencies:
- Cracking, raveling, rutting and patching in asphalt;
- Light scaling throughout concrete railing with isolated spalls;
- Localized large delaminations and spalls on sections of east railing;
- Road beginning to wash out at structure corners due to steep and eroding embankments;
- Deck drain pipes are corroded and flush with soffit;
- Construction joint with efflorescence along centerline of soffit.
- No approach guide rails.

Suggested Action

- Perform detailed Deck Condition Survey (DCS) to determine deck top condition;
- Pending results of DCS, perform structure rehabilitation including:
    - Chip & patch of deck top;
    - Asphalt & waterproof of deck top;
    - Localized chipping and patching of spalled and delaminated sections of railing;
    - Add rock protection and rip rap spillways at all four corners of bridge to prevent further scour;
    - Add curbs and asphalt spillways at approaches;
    - Replace existing deck drains with new drains and extend pipe length below soffit;
- Install approach steel beam guide rail.

Other Notes:

- Permit will be required from Conservation Authority for work adjacent to and in the waterway.

Summary

This bridge is experiencing several defects which are well worth repairing. Although the bridge is well over 50 years old, it appears to be in relatively good condition structurally. At this point, the cost of the required repairs is relatively nominal compared to the value of the bridge. Carrying out the recommended repairs will maintain the integrity of the bridge for many years to come and is considered a wise investment.

Since most of the suggested work at this structure is not in contact with the watercourse, few limits on the time of year of construction exist. As such, it is expected that it would be feasible to start these repairs in late 2013 pending completion of design, contract preparation and permit approvals.

Cost Estimate

Deck condition survey:	$8,000
Rehabilitation:	$100,000
Engineering & Contract Administration:	$20,000
Total:	**$128,000**

Structure 26-P

Location:

First Line West, between Sideroad 5 and Sideroad 11 in the former Township of Pilkington.

Structure Description:

Single span of concrete beams cast monolithically with the deck, supported on concrete abutments. The bridge has a single span of 9.0m, an overall deck length of 10.2m, a total structure width of 6.3m and a travelled width of 5.7m. The barriers consist of concrete rails on concrete posts supported by the curb. The deck top is covered by a thick layer of granular material. The bridge was constructed in 1940, making it 73 years old.

Existing Posted Limit: 15 tonnes

Notable Deficiencies:

- Large amount of gravel on deck (0.1m above curbs) causing excessive load beyond original design;
- Two wingwalls (southeast and southwest) have separated from abutments and are moving outward away from the structure with the curbs;
- Deterioration at south abutment associated with wingwall separation;
- Vertical cracking on northwest retaining wall, but no movement yet;
- Scaling of concrete surface at both abutments;

Suggested Action

- Remove excess gravel on deck to 0.15m below top of curbs;
- Repair southeast and southwest wingwalls in similar style to that of the northeast wingwall;
- Repair barrier and curb at locations that have moved out with retaining wall.

Other Notes:

- Permit will be required from Conservation Authority for work adjacent to and in the waterway.

Summary

This bridge is quite old and eventual replacement is recommended. It is recommended to only repair the southeast and southwest wingwalls at this point in time to extend the life of the bridge until full replacement is warranted. There do not appear to be signs of structural distress in the concrete beams at this time. It is recommended that the Township consider placing guide rail or reflectors on the bridge approaches to better guide traffic away from colliding with the bridge barriers. Installation of "narrow bridge" signs is also recommended.

Due to the relatively limited nature of the proposed repairs, it is considered feasible to be able to carry out this work by late 2013.

Cost Estimate

Rehabilitation:	$15,000
Engineering & Contract Administration:	$5,000
Total:	**$20,000**

Structure 12-N

Location:

Washington Street in Salem over Irvine Creek.

Structure Description:

This structure comprises of a concrete filled spandrel arch on concrete abutments founded on bedrock. The bridge has a single span of 9.1m and an overall structure length of 10.3m. The total width is 6.2m and the travelled width inside the curbs is 5.5m. This bridge was constructed in 1925 making it 88 years old.

Existing Posted Limit: Bridge is closed to vehicular traffic and open to pedestrians only.

Notable Deficiencies:

- Severe deterioration of soffit with exposed reinforcement, resulting in severely reduced thickness of arch;
- Lower concrete rail at northeast corner barrier is missing;
- Lower concrete rail near southwest corner is severely spalled;
- Northwest concrete post delaminated and deteriorating;
- Deterioration on both fascias;
- Severe undermining of retaining wall/abutment at southwest corner;
- Voids at southeast footing;
- Retaining wall northwest of bridge is undermined and partly supported by a tree;
- Gap between southwest retaining wall and southwest corner of bridge;
- Undermining in the bedrock below west end of north abutment;

Suggested Action:

There are several options at this location depending upon budget. It appears that the remaining life of the present structure is very short without significant rehabilitation or replacement. Any repairs made to the current structure cannot be guaranteed to last for the long term due to the advanced age and state of deterioration of this bridge.

- Option 1: Replace bridge with prefabricated steel pedestrian bridge;
    - Remove existing bridge;
    - Remove northwest retaining wall;
    - Shore up underside of south abutment and southwest retaining wall, or replace wall;
    - Install bridge;
    - Install approach barriers;
- Option 2: Replace bridge with concrete arch (similar to current style);
    - Remove existing bridge;
    - Replace northwest retaining wall;
    - Shore up underside of south abutment and southwest retaining wall, or replace wall;
    - Install new bridge supported by precast concrete arch (Conspan or similar);
    - Install approach barriers;
- Option 3: Replace bridge with straight beam bridge;
    - Remove existing bridge;
    - Replace northwest retaining wall;
    - Shore up underside of south abutment and southwest retaining wall, or replace wall;
    - Install new bridge supported by precast concrete beams or steel beams with concrete deck;
    - Install approach barriers;
- Option 4: Major structural rehabilitation to maintain pedestrian use;
    - Scale loose concrete from soffit and apply new structural facing;
    - Repair barriers;
    - Replace northwest retaining wall;
    - Shore up underside of south abutment and southwest retaining wall by injecting concrete;
    - Install additional approach barriers;
- Option 5: Minor short term repairs;
    - Scale loose concrete and rebar from soffit;
    - Shore up underside of south abutment and southwest retaining wall by injecting concrete;
    - Repair barrier and/or install supplementary barriers on inside face of existing barriers;
    - Maintain periodic inspections;

- Option 6: Close bridge to pedestrians;
    - Install barricades to prevent pedestrian access;
    - Provide periodic maintenance to prevent material from falling into watercourse;
- Option 7: Remove existing bridge with no replacement;
    - Install barricades to prevent pedestrian access;
    - Remove existing bridge;

Option	Pro	Con	Lifespan	Construction Cost	Cost per year of service
Option 1	- Long lifespan - Low lifecycle cost - Maintains pedestrian crossing	- No vehicular traffic other than small maintenance vehicles - Does not preserve visual style - High initial cost - Must prevent exposure to salt	50-75 years	$150,000	~$2400/year for 62.5 years
Option 2	- Longest lifespan - Low lifecycle cost - Similar aesthetic style maintained - Highly durable - Possible to carry vehicular traffic with some upgrades	- High initial cost	75-100 years	$240,000	~$2750/year for 87.5 years
Option 3	- Longest lifespan - Low lifecycle cost - Highly durable - Possible to carry vehicular traffic with some upgrades	- High initial cost - Loss of similar bridge style - Loss of aesthetics	75-100 years	$240,000	~$2750/year for 87.5 years
Option 4	- Preserves some heritage value - Keeps bridge open	- High initial cost - High lifecycle cost - Short lifespan - No guarantee on lifespan of bridge	5-10 years	$115,000	~$15,300/year for 7.5 years
Option 5	- Preserves some heritage value - Lower initial cost - Keeps bridge open	- High lifecycle cost - Short lifespan - No guarantee on lifespan of repairs	< 5 years	$30,000	~$10,000/year for 3 years
Option 6	- Low cost - Low lifecycle cost	- Loss of use of bridge - Some ongoing maintenance costs - High likelihood of illegal usage	5-10 years	$5,000 initial closure cost	~$1,000/year in ongoing maintenance
Option 7	- No ongoing maintenance	- Loss of crossing	N/A	$50,000	N/A

Other Notes:

- Permit will be required from Conservation Authority for work adjacent to and in the waterway.

Summary:

This bridge is well beyond its expected life span and is experiencing advanced deterioration throughout the structure. Although some rehabilitation can be carried out, the superstructure appears to be beyond permanent repair. Any significant rehabilitation work is not expected to last longer than 5-10 years.

In order to maintain public safety, as well as provide adequate time for planning of a new structure, it is recommended that Option 5 be carried out initially to keep the structure open. It is then recommended that Option 1 or 2 be carried out to provide a long term replacement option that satisfies the needs of the community.

Considering the potential complexity of the work at this site, the proposed timing of work may vary greatly. Replacement and/or major rehabilitation could likely commence sometime in 2014 or 2015 pending approvals. Minor repairs could likely commence in late 2013 or early 2014 pending design and approval.

Due to the heritage value of this structure, any major work to this bridge will likely require an environmental assessment to be carried out prior to replacement of the structure. This EA could potentially change to recommended options for replacement.

Structure 5-E

Location:

Fourth Line, between Sideroad 30 and Wellington Road 22 in the former Township of Eramosa.

Structure Description:

This structure is comprised of a concrete deck supported by two concrete through girders. The girders also act as the barriers. The deck is supported by several concrete floor beams which span between the through girders. The structure comprises of concrete girders cast monolithically with a concrete deck. The superstructure rests on concrete abutments. The bridge has a single clear span of 12.2m and an overall structure length of 13.3m. The total structure width is 6.4m with a travelled width of 5.5m. This bridge was constructed in 1923 making it 90 years old.

Existing Posted Limit: 10 tonnes

Notable Deficiencies:

- Deep scaling on both faces of girders, notably just above concrete deck level resulting in significant loss of cross section;
- West girder severely delaminated and spalled, exposing corroded and debonded bars;
- East girder severely delaminated and spalled, exposing corroded bars;
- Loss of concrete in north abutment below east girder;
- Severe scaling of concrete in north abutment below west girder;
- Wide diagonal crack between north abutment and northeast retaining wall;
- Wide vertical crack and severe scaling forming a void between the northwest retaining wall and north abutment;
- Wide crack between deck and girders at north abutment;
- Wide vertical and diagonal cracking and moderate scaling of abutments;
- Broken concrete end posts on barriers and several broken barrier rails;

- Severe spall with exposed rebar on top of west girder at south end;
- Deck top exhibits severe scaling, delamination, spalling, exposed rebar and pools of collected water in potholes;
- Wide horizontal cracks with delamination in several floor beams;
- Missing gabion stones from gabion baskets at south abutment;

Action Taken:

- After follow up inspections on August 21st and 22nd, this bridge was closed to vehicular traffic indefinitely due to structural concerns. New cracking had formed since the previous inspection and significant concern was noted that the floor beams and portions of the deck slab will be unable to withstand heavy wheel loads.

Other Notes:

- Permit will be required from Conservation Authority for work adjacent to and in the waterway.

Summary:

This bridge is quite old and full replacement is recommended. The structure has lasted well beyond its intended service life. As the bridge is now closed due to structural concerns, immediate roadside safety repairs are no longer recommended. To re-open this crossing, a full structure replacement is recommended.

Replacement Cost Estimate:

Replacement:	$800,000
Engineering & Contract Administration:	$80,000
Total:	**$880,000**

Structure 29-WG

Location:

Sideroad 15, between First Line and Second Line in the former Township of West Garafraxa.

Structure Description:

The structure is a single span concrete bowstring arch bridge. The bridge has a single clear span of 21.4m and an overall structure length of 22.6m. The total structure width is 6.4m with a travelled width of 5.6m. This bridge was constructed in 1928 making it 85 years old.

Existing Posted Limit: None

Notable Deficiencies:

- The approach guide rail system on either side of the bridge is insufficient in length and has failed in numerous locations;
- The northwest concrete railing on the bridge has been severely damaged and requires remediation.

Suggested Action

- Remove all existing failed steel beam guide rail and install new steel beam guide rail on all approaches, including extruders. The recommended length of guide rail at each quadrant, including the extruders is as follows:
    - Northwest: 25m +/-
    - Southwest: 40m +/-
    - Northeast: 33m +/-
    - Southeast: 33m +/-
- Repair damaged railing at northwest corner by extending length of steel beam guide rail on to the end of the bridge by attaching to the top of the wingwall.

Other Notes:

- Permit might be required from Conservation Authority for work adjacent to and in the waterway.
- Property acquisition or land negotiations may be required due to some of the land under the road and bridge potentially being on private property.

Summary:

A full inspection of the bridge structure was not carried out as repair of the approach railing system is the main focus of this investigation. Installation of approach guide rails and remediation of the gap at the northwest railing is recommended to increase roadside safety adjacent to the bridge.

Due to the relatively limited nature of the proposed repairs, it is considered feasible to be able to carry out this work by late 2013.

Repair Cost Estimate:

Guide rails and extruders:	$25,000
Engineering & Contract Administration:	$3,000
Total:	**$28,000**

We trust that this summary is suitable. Should you require additional details or clarification to the recommendations we would be pleased to discuss those with you. Please direct any questions or concerns to the undersigned.

Sincerely,

Derek Jansen, P.Eng.

Trevor Hoard, C.E.T.

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Appendix J

2022 Bridge 5-E OSIM Report, HP Engineering Inc.

Structure Condition Summary Form

Structure Name	5-E
Structure Number	TS-BR-00057
Date of Inspection	May 04, 2022
Project No.	18015
Consultant	HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Barriers	Barrier/ Parapet Walls (interior)	Sq.m	100.00	100.00	0.00	40.00	40.00	20.00	10000	4600	46	00	00
Decks	Deck Top - Thin Slab	Sq.m	120.00	100.00	0.00	10.00	50.00	40.00	12000	3300	28	00	00
	Soffit - Thin Slab	Sq.m	120.00	100.00	0.00	10.00	50.00	40.00	12000	3300	28	00	00
Beams/ Main Longitudinal Elements	Girders	Sq.m	200.00	100.00	0.00	10.00	50.00	40.00	20000	5500	28	00	00
	Floor Beams - Concrete	Sq.m	200.00	100.00	0.00	75.00	20.00	5.00	20000	12850	64	00	00
Abutment	Wingwalls	Sq.m	350.00	100.00	0.00	0.00	50.00	50.00	35000	7000	20	00	00
	Abutment Walls	Sq.m	900.00	100.00	0.00	70.00	20.00	10.00	90000	54450	61	00	00
									199000	91000			

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Township of Centre Wellington

Municipal Structure Inspection Form

Structure Name: 5-E
Structure No: TS-BR-00057
MTO Site No:

Inventory Data

Structure Name:	5-E	Hwy No.					
Crossing Over:	Road	Crossing Under:	Road				
Road Name:	Fourth Line						
Location:	Fourth Line						
Owner:	TCW, Township of Centre Wellington (100 %)						
		Heritage Status:	N				
Latitude/Northing:		Longitude/Easting:					
MTO Region:		Road Class:	5				
MTO District:		Lane Type:					
Old County:		Posted Speed:		Lanes:	2		Eramosa
Geo Twp.:	Eramosa	AADT:		Trucks:	0	%	<NONE>
Structure Type:	Through Girders	Min Vert. Clear.:	m				3&4
Material:	C - Cast In Place	No. of Spans:	1				<NONE>
Articulation:							
Deck Length:	13.3 m	Special Routes:	☐ Transit ☐ Truck				
Deck Width:	6.4 m		☐ School ☐ Bicycle				
Deck Area:	85.1 m2	Detour Length:	9.00 km	Skew Angle:	degrees		
Trav Deck Wdt	5.5 m		m	Structure Dir :	N-S		

Key Photo



Historical Data

Year Built: 1923 Superstruct. Year: Year of Last Major Rehab:

Last OSIM Inspection: Contract No. When Built:

Last Enhanced OSIM: Last Evaluation:

Last Enhanced Access: Current Load Limit: t t t

Last Underwater Insp. Bylaw No.:

Last Condition Survey:. Bylaw Exp. Date:

Township of Centre Wellington

Municipal Structure Inspection Form

Structure Name: 5-E
Structure No: TS-BR-00057
MTO Site No:

Field Inspection Information

Inspection Date: May 04, 2022 | Inspection Type ☒ OSIM ☐ Enhanced OSIM | BCI: 0.0

Inspector: Tashi Dwivedi, P.Eng., (H.P. Engineering) | Eng. Responsible:

Others in Party: Charlemagne Charles and Sagar Chhayani, (H.P. Engineering)

Access Equip: ☐ Lift ☐ Ladder ☐ Boat ☐ Bridge Master Other:

Other Equipment: Hammer, Tape, Camera, Chest waders

Weather: Sunny | Temperature: 18 °C

Additional Investigations Required

Investigation	Priority: None	Priority: Normal	Priority: Urgent	Estimated Cost
Detailed Deck Condition Survey	☒	☐	☐	0.00
Delamination Survey of Asphalt-Covered Deck	☒	☐	☐	0.00
Concrete Substructure Condition Survey	☒	☐	☐	0.00
Detailed Coating Condition Survey	☒	☐	☐	0.00
Detailed Timber Investigation	☒	☐	☐	0.00
Post-Tension Strand Investigation	☒	☐	☐	0.00
Underwater Investigation	☒	☐	☐	0.00
Fatigue Investigation	☒	☐	☐	0.00
Seismic Investigation	☒	☐	☐	0.00
Structure Evaluation	☒	☐	☐	0.00
Monitoring of Deformations, Movements and Settlements	☒	☐	☐	0.00
Monitoring of Crack Widths	☒	☐	☐	0.00
			Total Cost:	0.00

Overall Structure Notes

Recommended Work On Structure: Major Rehab / replacement

Timing of Recommended Work: ADEQ

Next Inspection Date: May 2024 | Estimated Load Limit: 0 t 0 t 0 t

Overall

It is recommended that a rehabilitation /replacement study ($20,000.00)

BCI Change

Justification

The inspection was conducted on May 04, 2022 by Charlemagne Charles (HP Engineering), Sagar Chhayani (HP Engineering). The bridge was closed at the time of the inspection. The following was noted during the inspection:

- The current approach barriers are substandard, severely damaged and should be replaced. Severe concrete desintegration, severe spalls with exposed corroded reinforcement.
- Some post are detached from railings. .
- Severe concrete deterioration was observed at the base of both deck barriers.
- Moderate to severe scaling throughout the deck top with multiple medium spalls.
- A wide crack was noted at the north abutment.
- Spalls with exposed corroded reinforcement observed at both ends of the concrete girders.
- Areas of apparent delamination with wide horizontal cracks noted at both ends of the concrete floor beams.
- Several large spalls with exposed corroded rebar noted at the soffit; scaling, delamination, cracks and spalls noted throughout.
- Spalls, scaling and concrete disintegration and severe honeycombing at NE and NW wingwalls.
- Post missing at southwest approach.
- Conduit on west side of the structure observed broken at the time of inspection.
- Large spall with exposed corroded rebar noted on top of southwest concrete barriers
- Abutments: two wide cracks at mid-section and 1 vertical caral at northeast cornet of north abutment.

Township of Centre Wellington

Municipal Structure Inspection Form

Structure Name: 5-E
Structure No: TS-BR-00057
MTO Site No:

Element Data

Repair/Rehabilitation Required

Associated Work

	Comments	Estimated Cost
Approaches		0.00
Detours		100.000.00
Traffic Control		60,000.00
Utilities		0.00
Right-of-Way		0.00
Environmental Study		100,000.00
Other		0.00
Contingencies	10%	0.00
Engineering		0.00

Total Associated Work Cost	260,000.00
Total Repair/Rehabilitation Cost	979,000.00
Total Cost	1,239,000.00



Photo 1 Structure from north approach



Photo 2 Structure from south approach



Photo 3 North approach from centre of structure



Photo 4 South approach from centre of structure



Photo 5 East elevation



Photo 6 West elevation



Photo 7 Severe concrete deterioration at base of deck barrier



Photo 8 Full depth disintegration of concrete post in approach barrier system



Photo 9 Underside of structure



Photo 10 Severe spalling with exposed corroded rebar at underside of girder



Photo 11 Spalling with exposed corroded rebar at soffit



Photo 12 Severe concrete disintegration at NE wingwall



Photo 13 Wide crack, scaling and spall at north abutment wall



Photo 14 South abutment wall

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Appendix K

Bridge 7-E Inspection Update Report, K. Smart Associates Ltd., May 2021

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
85 McINTYRE DRIVE
KITCHENER, ONTARIO N2R 1H6
TELEPHONE (519) 748-1199
FAX (519) 748-6100
Email: ksmart@ksmart.on.ca

June 1, 2021 File No. 21-056

Mr. Adam Dickieson, C.E.T., Engineering Services Coordinator
and
Mr. Colin Baker, P. Eng., Managing Director of Infrastructure

Township of Centre Wellington
7444 Wellington Road #21
P.O. Box 10
Elora, ON N0B 1S0

RE: 7-E BRIDGE INSPECTION
MAY 2021 UPDATE REPORT

Dear Adam and Colin,

K. Smart Associates Limited has been retained to inspect several structures including Structure 7-E in the Township of Centre Wellington that have been previously identified as having specific suspected structural deficiencies. This report is an update to previous reports for Structure 7-E. On May 13, 2021, we attended this site to review the condition of the structure. Our observations and recommendations are as follows:

Type:	Single span concrete side girder bridge
Location:	Third Line between Sideroad 30 & Wellington County Road 22
Existing Load Posting:	5 tonnes (reduced from 10 tonnes since October 2020 Inspection)
Concern:	Severely deteriorated area at SE soffit
	East girder missing much of its concrete and reinforcement at top
	SE bearing contact is minimal

OBSERVATIONS

General inspection of the entire structure was completed. The structure was photographed with close-ups of any defects or deteriorations; refer to Appendix A for inspection photos. Our observations include the following:

- The side traffic barriers/bridge girders are the main structural element for this type of bridge. Floor beams transfer loading to these girders which are supported by concrete abutments.
- There is at least 250mm of concrete missing from the top of the east concrete girder throughout; even more concrete is missing at each end. Reinforcement bars are exposed and corroded; one longitudinal bar has completely detached from the concrete beam.
- The east girder has a large portion of concrete hanging at the south end. Efflorescence stalactites have also formed at the underside of the girder.
- The west concrete girder is severely spalled and scaled with exposed corroded reinforcement bar.
- Disintegration of the top of the west girder is occurring similar to the east.
- There is a very large and deep delaminated area in the soffit at the first bay from the south that is completely separated from the deck. The reinforcement bar in this area is exposed and corroded.

- There are cracks with efflorescence at other areas of the soffit; typically at all four corners of the bridge.
- The southeast and northeast corner of the bridge is bearing only on remains of deteriorated concrete (rocks and sand with no cement powder remaining).
- The floor beams are in fair to poor condition. The bottom of the beams exhibit cracking and spalling.
- The bottom two feet of the abutments have been refaced; condition of the refacing suggests this work was completed several years ago.
- The bottom of the exterior concrete barriers are severely spalled with exposed corroded reinforcement. Some areas have stalactites.
- There is severe erosion of the embankments at all four corners of the structure.
- A build-up of granular material used to exist overtop of the structure and at the approaches; the Township removed this build-up at some point after the Spring 2017 inspection.
- The approach steel beam guide rail exhibits multiple locations of impact damage. Some of the rails at the west are shredded and pose a safety risk to motorists.
- The granular wearing surface overtop of the structure exhibits large potholes; regular re-grading of the roadway overtop of the structure is recommended.
- There is active leakage through areas of deterioration/disintegration.
- The bridge load posting has been reduced to 5 tonnes since the October 2020 report recommendation;
- The Township has installed vehicle height limiters and signage in an attempt to prohibit large (heavy) vehicles from crossing the structure. The signs indicate a vertical clearance of 2.8m. The signs had been struck and were not functioning at the time of inspection, indicating that large vehicles have been using the bridge.

RECOMMENDATION

The bridge has lost much of its original load carrying capacity due to the severe disintegration of the east and west girders, particularly the east girder. The northeast and southeast corners of the superstructure bear on severely deteriorated concrete. Risk of a punch-through failure exists at the first bay from the south abutment due to a large spall of the soffit in this location. Damaged steel beam guide rail is also in need of replacement.

The current load posting of 5 tonnes was reduced from the previous 10 tonnes per the October 2020 inspection report recommendation.

This structure exhibits serious structural issues due to advanced deterioration.

Given the current condition of the structure, we strongly recommend the complete closure of this bridge to take place as soon as possible.

Next Scheduled Inspection: Summer 2021 *Frequency of Inspections: Every 3 Months*

If you have any questions or concerns, or if we can be of further service, please contact the undersigned anytime.

All of which is respectfully submitted,

Allan Garnham, P.Eng. Patrick Mayne, P.Eng.



1. North Approach (looking south)



2. South Approach (looking north)



3. East Elevation (looking west)



4. West Elevation (looking east)



5. East Girder Top (looking east)



6. West Girder Top (looking west)



7. Soffit Delam at South



8. Soffit Delam at South (2)



9. SE Bearing (2)



10. SE Bearing

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Appendix L

2022 Bridge 7-E OSIM Report, HP Engineering Inc.

Structure Condition Summary Form

Structure Name	THIRD LINE
Structure Number	7-E
Date of Inspection	May 04, 2022
Project No.	18015
Consultant	HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approaches	Wearing Surface	Sq.m	6.00	60.00	0.00	60.00	0.00	0.00	360	270	75	00	00
	Wearing Surface	Sq.m	25.00	50.00	0.00	47.00	0.00	3.00	1250	881	71	00	12
Decks	Deck Top - Thin Slab	Sq.m	120.00	50.00	0.00	23.00	15.00	12.00	6000	2790	47	08	00
	Soffit - Thin Slab	Sq.m	120.00	53.94	0.00	35.94	10.00	8.00	6473	3715	57	01	00
Beams/ Main Longitudinal	Girders	Sq.m	200.00	82.00	0.00	0.00	41.00	41.00	16400	3280	20	01	00
Elements	Floor Beams - Concrete	Sq.m	200.00	28.71	0.00	18.71	5.00	5.00	5742	3207	56	01	00
Abutment	Abutment Walls	Sq.m	900.00	19.72	0.00	10.72	5.00	4.00	17748	9036	51	00	00
									53973	23178			

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Structure Name 7-E

THIRD LINE

HP Engineering Inc.

Municipal Structure Inspection Form

MTO Site Number: 35-282

BCI: 45.00

Inventory Data:

Structure Name:	7-E						
Main Hwy/Road #		On ☑ / Under ☐	Crossing Type:	Navig. Water ☑	Non-Navig Water ☐	Rail ☐	Ped. ☐	Road ☐	Other ☐
Road Name	Third Line						
Structure Location	1.6 km South of Sideroad 30						
Latitude	N 43° 41' 14.7"		Longitude	W 80° 17' 22.7"			
Owner(s)	Township of Centre Wellington		Heritage Designation	Not Cons. ☐	Cons. /not App ☐	List/not Desig. ☐	Desig./not List ☐	Desig.& List ☐
MTO Region *	-	-	Road Class	Freeway ☐	Collector ☐	Arterial ☐	Local ☑
MTO District *	-	-	Posted Speed	80	No. of Lanes:	1		
Current County*	-	-	AADT	1533	% Trucks	2.00%		
Geographic Twp. *		Eramosa	Special Routes:	Transit ☐	School ☐	Truck ☐	Bicycle ☐		
Structure Type*	5	Half-through Beams of Girders		Detour Length	9	(km)		
Total Deck Length	10	(m)		Fill on Structure		(m)		
Overall Str. Width	5.8	(m)		Skew Angle		(degrees)		
Total Deck Area	58	(sq. m)		Direction of Structure	N-S			
Roadway Width	4.8	(m)		No. of Spans	1			
Span Lengths.	8.5					(m)		

Historical Data:

Year Built	1920		Last Biennial Inspection	30/07/2018
Current Load Limit	10	(tonnes)	Last BridgeMaster Inspection	
Load Limit By-Law #			Last Evaluation	
By-Law Expiry Date			Last Underwater Inspection	
Min. Vertical Clearance		(m)	Last Condition Survey	

Rehab History : (Date/description)

Field Inspection Information:

Date of Inspection:	May 04, 2022	
Inspector:	Tashi Dwivedi, P.Eng., (H.P. Engineering)	
Others in Party:	Charlemagne Charles and Sagar Chhayani, (H.P. Engineering)	
Equipment Used:	Hammer, tape, Camera, Chest waders	
Weather	Sunny	
Temperature	19	°C

Additional Investigations Required		Priority			Estimated Cost
		None	Normal	Urgent	
Detailed Deck Condition Survey:					
DART Survey:					
Detailed Coating Condition Survey:					
Underwater Investigation					
Fatigue Investigation:					
Seismic Investigation:					
Rehabilitation/Replacement Study:					$20,000.00
Load Posting - Estimated Load	0			Total Cost	$20,000.00

Special Notes:

Spalls with exposed corroded reinforcement noted at ends of girders. Several areas of delamination noted at underside of girders. Delamination was noted throughout soffit, and a large spall with exposed corroded reinforcement was observed at the south end of the soffit. It is recommended that this structure be replaced within 1 to 5 years.

Next Detailed Inspection: May 2024

HP Engineering Inc.

Municipal Structure Inspection Form **MTO Site Number:** **35-282**

Repair and Rehabilitation Required		Priority				Estimated Construction Cost
Element	Repair and Rehabilitation Required	6-10 years	1 - 5 years	Within 1 year	Urgent	
	Replacement of Structure		X			$667,000.00
						$667,000.00

Associated Work:	Comments	Estimated Cost
Approaches		
Detours		$100,000.00
Traffic Control		$60,000.00
Utilities		
Right of Way		
Environmental Study		$100,000.00
Other		
Contingencies		
	Total Cost	$260,000.00

Justification

Replacement cost is based on the same geometry as the existing structure. Other unknown project constraints could result in significant escalation of the estimated cost. A replacement/rehabilitation study should also be conducted.

Construction Cost	$667,000.00
Associated Costs	$260,000.00
TOTAL Estimated Cost	$927,000.00

Municipal Structure Inspection Form **MTO Site Number** **35-282**

Element Data

Element Group	900	Abutments				**Length**		
Element Name	901	Abutment Walls				**Width**	5.80	
Location	North & south sides of structure					**Height**	1.70	
Material	Cast-in-place concrete					**Count**	2	
Element Type	Conventional closed		**Element code**	1		**Total Qnty.**	19.72	
Environment	Moderate					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Sq. m.	0	10.72	5	4			

Comments:
Medium vertical cracks on bottom portion of abutment wall. Medium cracks and map cracks with efflorescence at SE abutment. Northeast, southwest and northwest wingwall could not be inspected due to vegetation grown around it.

Recommended Work:	Rehab	☐	Replace	☒	**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒ 6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	1500	Signs				**Length**		
Element Name	1501	Sign				**Width**		
Location	NE, NW, SE & SW of structrue					**Height**		
Material	Steel					**Count**	10	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	10	
Environment	-					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Each	0	8	0	2			

Comments:
All signs appeared to be in generally good condition with hazard signs at SE and NW corners leaning. 4 new signs added for road closure.

Recommended Work:	Rehab	☐	Replace	☐	**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☐ 6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	1600	Approaches				**Length**	15.00	
Element Name	1606	Barriers (app)				**Width**		
Location	East & west sides of structure					**Height**		
Material	Steel					**Count**	4	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	60	
Environment	Severe					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	m.	0	0	40	20			

Comments:
Light to medium checks and splits noted throughout. Severe rot noted on 16 posts. Severe impact damage at southwest and southeast, near end treatment. End treatments and barriers are substandard and should be replaced.

Recommended Work:	Rehab	☐	Replace	☒	**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒ 6-10 yrs ☐	Urgent ☐	1 year ☐	

Municipal Structure Inspection Form **MTO Site Number** **35-282**

Element Data

Element Group	1600	Approaches					**Length**	6.00	
Element Name	1601	Wearing surface (app)					**Width**	5.00	
Location	North & south sides of structure						**Height**		
Material	Gravel						**Count**	2	
Element Type	N/A			**Element code**	N/A		**Total Qnty.**	60	
Environment	Severe						**Limited Insp.**		
Protection System	None						**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		-	-	
	Sq. m.	0	60	0	0				

Comments:

The gravel wearing surface appeared to be in generally good condition with some vegetation growing along the side of roadway.

Recommended Work: Rehab ☐ Replace ☐ Urgent ☐ 1-5 yrs ☐ 6-10 yrs ☐

Maint. Needs - - Urgent ☐ 1 year ☐

Element Group	500	Beams/MLE's					**Length**	5.80	
Element Name	502	Floor Beams					**Width**	0.35	
Location	Underside of structure						**Height**	0.30	
Material	Cast-in-place concrete						**Count**	3	
Element Type	Rectangular-solid			**Element code**	4		**Total Qnty.**	28.71	
Environment	Moderate						**Limited Insp.**		
Protection System	None						**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		1	Load Carrying capacity	
	Sq. m.	0	18.71	5	5				

Comments:

Spalls with exposed corroded reinforcement noted at ends of girders. Several areas of delamination noted at underside of girders.

Medium horizontal cracks noted at the bottom section of floor beams.

Recommended Work: Rehab ☐ Replace ☒ Urgent ☐ 1-5 yrs ☒ 6-10 yrs ☐

Maint. Needs - - Urgent ☐ 1 year ☐

Element Group	1600	Barrier					**Length**	10	
Element Name	1601	Deck barrier					**Width**		
Location	East & west sides of structure						**Height**	0.85	
Material	Concrete						**Count**	0	
Element Type	Concrete barrier wall			**Element code**	#N/A		**Total Qnty.**	8.5	
Environment	Severe						**Limited Insp.**		
Protection System	None						**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		8	Pedestrian & vehicular hazard	
	Sq. m.	0	0	0	8.5				

Comments:

Severe disintegration noted throughout with exposed corroded reinforcement. Top concrete walls are severely disintegrated with exposed corroded reinforcement. Steel beam railing is placed in front of concrete wall.

Recommended Work: Rehab ☐ Replace ☒ Urgent ☐ 1-5 yrs ☒ 6-10 yrs ☐

Maint. Needs - - Urgent ☐ 1 year ☐

Municipal Structure Inspection Form **MTO Site Number** **35-282**

Element Data

Element Group	500	Beams/MLE's				**Length**	10.00		
Element Name	501	Girders				**Width**	0.40		
Location	Underside of structure					**Height**	1.45		
Material	Cast-in-place concrete					**Count**	2		
Element Type	Rectangular-solid			**Element code**	4	**Total Qnty.**	82		
Environment	Severe					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	1	Load Carrying capacity		
	Sq. m.	0	0	41	41				

Comments:

Severe concrete deterioration noted throughout. Reinforcing steel is exposed for entire length. Localized spalls noted at underside.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-	
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐		

Element Group	100	Decks				**Length**	10.00		
Element Name	102	Deck top				**Width**	5.00		
Location	Top of deck					**Height**			
Material	Cast-in-place concrete					**Count**	1		
Element Type	Cast-in-place conc on supports, composite			**Element code**	1	**Total Qnty.**	50		
Environment	Severe					**Limited Insp.**	X		
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	08	Pedestrain/ Vehicular Hazard		
	Sq. m.	0	23	15	12				

Comments:

The concrete deck top could not be observed at the time of the inspection due to the gravel wearing surface. Condition data is based on the condition of the deck sofffit.

Recommended Work:	Rehab	☒	Replace	☐		**Maint. Needs**	-	-	
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐		

Element Group	100	Decks				**Length**	9.30		
Element Name	103	Soffit Thin Slab				**Width**	5.80		
Location	Underside of deck					**Height**			
Material	Concrete					**Count**	1		
Element Type	N/A			**Element code**	N/A	**Total Qnty.**	53.94		
Environment	Benign					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	1	Load Carrying capacity		
	Sq. m.	0	35.94	10	8				

Comments:

Several wide longitudianl cracks at corners of deck soffit. Delamination was noted throughout. A large spall with exposed corroded reinforcement was observed at the south end of the soffit.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-	
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐		

Municipal Structure Inspection Form **MTO Site Number** 35-282

Element Data

Element Group	100	Decks				**Length**	10.00		
Element Name	101	Wearing surface				**Width**	5.00		
Location	Top of deck					**Height**			
Material	Gravel					**Count**	1		
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	50		
Environment	Severe					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-		
	Sq. m.	0	47	0	3				

Comments:

The gravel wearing surface was in good condition with small potholes noted throughout. Accumulation of debris / sand along the edge of roadway.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	12	Bridge Surface Repair
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year	☒

Element Group	1400	Embankments and Streams				**Length**			
Element Name	1403	Slope Protections				**Width**			
Location	NE, NW, SE & SW sides of structure					**Height**			
Material	Other					**Count**	0		
Element Type	Vegetation		**Element code**	11		**Total Qnty.**	0		
Environment	-					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-		
	Each	0	0	0	0				

Comments:

No slope protection was observed at the time of the inspection.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year	☐

Element Group	1400	Embankments and Streams				**Length**			
Element Name	1401	Streams and Waterways				**Width**			
Location	Under structure					**Height**			
Material	Other					**Count**	1		
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	1		
Environment	-					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-		
	All	0	1	0	0				

Comments:

The stream flowed from west to east with low flow and a medium volume of water. No flow obstructions noted.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year	☐

Municipal Structure Inspection Form **MTO Site Number** **35-282**

Element Data

Element Group	1400	Embankments and Streams				**Length**		
Element Name	1402	Embankments				**Width**		
Location	NE, NW, SE & SW of structure					**Height**		
Material	Other					**Count**	4	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	4	
Environment	-					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Each	0	0	4	0			

Comments:

The embankments were very steep, well vegetated and eroded.

Recommended Work:	Rehab		Replace			**Maint. Needs**	-	-
	Urgent		1-5 yrs		6-10 yrs		Urgent	1 year

Element Group	1300	Foundations				**Length**		
Element Name	1301	Foundation (below ground level)				**Width**		
Location	Below structure					**Height**		
Material	Unknown					**Count**		
Element Type	Spread		**Element code**	4		**Total Qnty.**	1	
Environment	-					**Limited Insp.**	X	
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	N/A	0	1	0	0			

Comments:

The foundation could not be observed at the time of the inspection. No sign of instability was noted.

Recommended Work:	Rehab		Replace			**Maint. Needs**	-	-
	Urgent		1-5 yrs		6-10 yrs		Urgent	1 year



Photo 1 Structure from north approach



Photo 2 Structure from south approach



Photo 3 North approach from centre of structure



Photo 4 South approach from centre of structure



Photo 5 East elevation



Photo 6 West elevation



Photo 7 Collision damage noted at west approach barrier



Photo 8 Traffic Barrier Disintegration with exposed corroded reinforcing



Photo 9 Delamination and spalls with exposed corroded reinforcing on soffit



Photo 10 Medium cracks and map cracks with efflorescence



Photo 11 Spall with exposed corroded reinforcing and efflorescence on girder & floor beam



Photo 12 Exposed corroded reinforcement with severe scaling noted at ballast wall



Photo 13 Spalls noted at south abutment and southeast wingwall interface.

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Appendix A.3

Technical Memorandum - Evaluation of Structure Improvement Types

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Technical Memorandum - Evaluation of Structure Improvement Types

Date: December 17, 2024 **Project No.:** 300058117.0000

Project Name: Bridge and Transportation Network Study for Bridges 2-WG, 3-E, 5-E, & 7-E

Client Name: Township of Centre Wellington

Submitted To: Project File Report

Submitted By: Andrew Dawson, P.Eng.

Reviewed By: Matthew Brooks, P.Eng.

As part of the Bridges and Transportation Network Study of Bridges 2-WG, 3-E, 5-E, and 7-E, R.J. Burnside & Associates Limited (Burnside) has completed a review of alternatives for improvements to the existing bridges for consideration during the overall study in evaluating the individual site and the overall transportation network.

1.0 Design Alternatives

The study has identified the following six options for consideration for improvements to the bridge structures:

1. Rehabilitation
2. Replacement, Two-lane
   a) Single Span, Slab on Prestressed Girder Bridge
   b) Single Span, Precast Concrete Rigid Frame
   c) Precast, Concrete Twin-Cell Concrete Box Culverts
   d) Multi-cell, Round Corrugated Steel Pipe (CSP) Culverts
3. Replacement, Narrow Two-Lane - Prefabricated Modular Bridge

It is noted that options using Corrugated Metal Box Structures were also investigated. However, due to the radius required for these structures, they are not as hydraulically efficient as rectangular-shaped structures such as precast concrete rigid frames. The additional span needed to provide an equivalent hydraulic / end area, also requires additional rise. The increased rise of the structure results in a need to excavate deeper or increase the road profile. Due to limitations of increasing the road profile due to associated impacts on Regional flood elevations, the large span Metal Box culverts are not suitable for these site

and were not evaluated further since it would not meet the requirements for permitting and approvals by Conservation Authorities.

The structure type alternatives considered are limited to certain maximum spans based on the achievable spans of the structure types or by the general site geometry such as existing channel width or by the amount of fill between the existing watercourse and the proposed road. For the purpose of this study, the applicable span range for each structure type is provided in Table 1.

Table 1: Applicable Span Range for Structure Types

Structure Type	Applicable Span Range
Rehabilitation	Same as Existing
Single Span Slab on Prestressed Girder	6 m to 40 m +/-
Single Span Precast Concrete Rigid Frame	Up to 16 m
Twin Cell Precast Concrete Box Culverts	Up to 2 x 6.4 m cells = 12.8 m total
Multi-Cell Round Corrugated Steel Pipes	Up to 4 x 3 m cells = 12 m total
Prefabricated Modular Bridge	6 m to 40 m +/-

The ability to utilize each structure type will depend on the span determined to be required based on the hydraulic and preliminary site geometry assessment of each site.

1.1 Rehabilitation

This alternative considers the option of repairing the existing elements of the current bridge. Based on the current condition of the bridge, the rehabilitation program would require the following improvements:

- Reconstruction of the main load-carrying elements (through girders or concrete truss).
- External or Near-surface-mounted strengthening of the existing main load-carrying elements (through girder barriers, concrete truss, and / or floor beams) to compensate for section loss of embedded reinforcing steel and to gain additional capacity.
- Concrete Deck overlay or replacement.
- Waterproofing and paving.
- Partial depth concrete repairs and / or refacing of the substructure.
- Installation of erosion and scour protection.

The work required to reopen these bridges and / or to increase their load capacity would be extensive and involve costly procedures for strengthening of the existing bridge elements to reinstate capacity that has been lost due to the vintage of the structure and deterioration of the main structural elements and the embedded reinforcing steel.

With rehabilitation, the available platform width would remain as a sub-standard single-lane bridge. The load-carrying capacity of the bridge would also remain limited. The achievable load-carrying capacity with external or near-surface-mounted strengthening would need to be determined at a detailed design stage, but given the vintage of the substructure, it would be expected that the maximum load that could be accomplished would be 12 to 18 tonnes.

To achieve strengthening, it is anticipated that building out the underside of the structures may be required. This would result in a negative impact on the hydraulic capacity of the structure by lowering the soffit of the bridge. The lowered soffit would result in increased flooding upstream, which would be required to be offset by the installation of a relief flow culvert immediately adjacent to the bridge.

The condition of the bridge structure may be improved, and the overall service life of the structure can be increased with rehabilitation; however, it is anticipated that rehabilitating the structure would extend the service life by a maximum of approximately 15 years.

1.2 Replacement –Standard Two-Lane Bridge

Two-lane replacement structure options consider removal of the existing bridge and replacement with a new, two-lane vehicular structure. The proposed structures considered in these alternatives would be of sufficient width to carry a 9.1 m driving platform consisting of 3.35 m lanes and 1.2 m wide shoulders to meet the Township's typical cross-section. The roadway width would taper to match the existing road width beyond the structure but could be widened in the future as required.

With a two-lane structure designed to meet vehicular load requirements, this alternative allows for increased traffic utilization in the future if it were to be required. It also permits larger farm equipment to use the structure to access the agriculture lands surrounding the study area.

Where a bridge-type structure is considered, a total structure width (perpendicular to the road centreline) of 9.8 m would be required to provide the desired platform width and parapet walls. Wingwalls would be utilized to maintain the infrastructure within the Township right-of-way (R.O.W.).

For Precast Rigid Frame structures, a total structure width (perpendicular to road centreline) of approximately 13.0 m would be required to meet the desired platform width, while providing the required additional low slope hazard-free zone adjacent to base-plate mounted steel beam guide rail barriers over the structure. Precast modular block retaining walls (or similar) could be used at the four corners of the bridge to allow for grading around the bridge to tie-into the 2 Horizontal to 1 Vertical side slopes of the approach road.

Several different bridge types were evaluated to review which structure type would be most suitable for use in providing the proposed standard two-lane width. Further details are provided in Table 3, below.

1.3 Replacement – Narrow Two-Lane, Prefabricated Modular Bridge

Consideration has also been given to the use of a narrower bridge driving platform, in consideration of the low volumes of traffic experienced by this structure. Through consultation with local residents, comments have been received that replacement structures should be

designed to carry agricultural equipment, in consideration of the agricultural land-use within the study area. As such, this alternative reviews the use of a narrow bridge structure capable of carrying agricultural equipment.

As per the MTO Structural Manual, dated August 2021 – Section 2, Appendix A Guidelines for the Design of Bridges on Low Volume Roads, the minimum lane shoulder and bridge widths are outlined in Table 2 below.

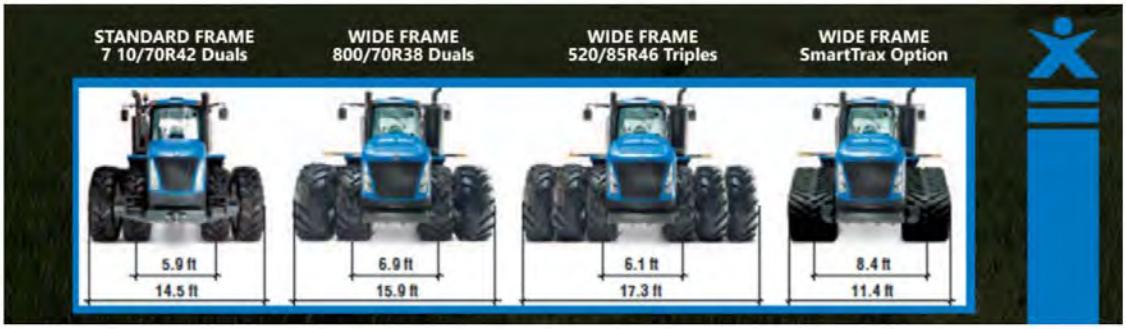
Table 2: Minimum Lane, Shoulder, and Bridge Widths

AADT	Design Speed (km/h)	# of Lanes	Minimum Lane Width (m)	Minimum Shoulder Width (m)	Minimum Bridge Width (m)
≤ 200	≤ 60	1	3.0	0.5	4.0 (4.9 m max)
		2	2.75	0.25	6.0
	≥ 70	2	3.0	0.5	7.0
≥ 200 and ≤ 400	≤ 40	1	3.0	0.5	4.0 (4.9 m max)
		2	2.75	0.25	6.0
	50 to 60	2	3.0	0.5	7.0
	≥ 70	2	3.3	0.6	7.5

Table 2, Note 3 (MTO Structural Manual) also states that ‘Farm or other special vehicles may require larger widths. Consultation shall be made with local officials. It may also be acceptable to have a lower barrier to accommodate these farm or other special vehicles’.

A brief desktop investigation was conducted to research the current width of agricultural equipment. As noted in the image below, large articulated 4-wheel drive tractors can range in width from 11.4 ft (3.5 m) to 17.3 ft (5.3 m).

Figure 1: Agricultural Equipment



(Reference - https://agtiretalk.com/4wd-tractor-traction-pulling-550-hp-implement/)

In addition to the width of a tractor, Burnside has reviewed the width of tillage implements. The transport width of field cultivators ranges from 14 ft (4.3 m) to 19 ft -6” (5.9 m). [Reference - https://www.sunflowermfg.com/tillage-equipment/field-cultivators.html]

Based on the width of agricultural equipment noted above, it would be prudent to provide a wider bridge deck width, which is in line with Table 1, Note 6, (MTO Structural Manual) which states ‘Two lane bridge is also an acceptable alternative if a 4.9 m single lane bridge cannot accommodate the traffic (i.e., farm or special vehicles, sight distances, etc.)’. As noted in Table 1 above, the minimum width of a two-lane bridge would be 6.0 m between barriers. A 6.0 m wide driving platform would also provide clearance for the majority of farm equipment. As such, this Narrow Bridge alternative will consider a driving platform width of 6.0 m.

2.0 Evaluation of Alternatives

Each alternative will be evaluated based on its ability to improve the physical and technical environments at the sites, which is the intent of this Technical Memo. Table 3 overleaf is a summary of the criteria that were considered, the noted deficiencies and the effectiveness of each option to address the problems and opportunities.

Table 3: Evaluation of Structure Type Alternatives

Alternative	Rehabilitation	Replace –Two Lane, Single Span Slab on Girder Bridge	Replace – Two Lane, Single-Span Precast Concrete Rigid Frame	Replace – Two Lane, Twin Cell Precast Concrete Box Culverts	Replace – Two-Lane, Multi-Cell Round CSP Culverts	Replace – Narrow Two-Lane, Pre-Fabricated Modular Bridge
Applicable Span Range	**Same as Existing**	**Over 6 m**	**Up to 16 m**	**Up to 2 x 6.4 m = 12.8 m**	**Up to 4 x 3 m = 12 m**	**Over 6.0 m**
Geometry – Width	Single lane driving platform. Does not conform to Township standards for two-lane structure. Some wide frame agricultural equipment unable to cross structure. Narrowing to single lane at bridge requires right-of-way control and increases potential for accidents.	9.8 m wide Bridge to provide 9.1 m, two-lane driving platform to meet Township standards. Wide enough for all typical farm equipment.	9.8 m wide Bridge to provide 9.1 m, two-lane driving platform to meet Township standards. Wide enough for all typical farm equipment.	18 m +/- long culverts to provide 9.1 m, two-lane driving platform with 2:1 slopes per Township standards. Wide enough for all typical farm equipment.	18 m +/- long culverts to provide 9.1 m, two-lane driving platform with 2:1 slopes per Township standards. Wide enough for all typical farm equipment.	6.0 m wide driving platform. Meets absolute minimum width standards for two lane bridge on low-volume road. Does not conform to Township standards. Does not provide side clearances. Wide enough for most farm equipment. Narrow lanes increase potential for accidents.
Weight = 5	**Score = 1.0**	**Score = 5.0**	**Score = 5.0**	**Score = 5.0**	**Score = 5.0**	**Score = 3.0**
Load Carrying Capacity	Requires load posting to limit vehicle weight. Limits use by heavy vehicles and farm equipment. Main load carrying elements are exposed to traffic - impact by vehicle could cause significant capacity reduction or failure.	No load limitations. Designed to current standards for load carrying capacity.	No load limitations. Designed to current standards for load carrying capacity.	No load limitations. Designed to current standards for load carrying capacity.	No load limitations. Designed to current standards for load carrying capacity.	No load limitations. Designed to current standards for load carrying capacity.
Weight = 10	**Score = 3.0**	**Score = 10.0**	**Score = 10.0**	**Score = 10.0**	**Score = 10.0**	**Score = 10.0**
Maintenance	Jointless construction which minimizes maintenance needs. Increased potential for required repairs to impact damage to barriers from ploughs or farm equipment due to narrow width.	Integral abutment, jointless construction minimizes maintenance.	Jointless construction which minimizes maintenance needs.	Jointless construction which minimizes maintenance needs.	Jointless construction which minimizes maintenance needs.	Maintenance required on joints at deck / abutment interface. Wearing surface timber planks require replacement every 10 to 15 years. Increased potential for required repairs to impact damage to barriers from ploughs or farm equipment due to narrow width.
Weight = 5	**Score = 3.0**	**Score = 5.0**	**Score = 5.0**	**Score = 5.0**	**Score = 5.0**	**Score = 1.0**
Property Impacts	No additional property easements / acquisition required.	Permission to grade / easement for ditching required for road widening on approaches to bridge.	Permission to grade / easement for ditching required for road widening on approaches to bridge.	Retaining walls or property acquisition required for permanent infrastructure extending beyond R.O.W.	Retaining walls or property acquisition required for permanent infrastructure extending beyond R.O.W.	No additional property easements / acquisition required.
Weight = 5	**Score = 5.0**	**Score = 3.0**	**Score = 3.0**	**Score = 2.0**	**Score = 2.0**	**Score = 5.0**
Environmental	No disturbance to creek bed. Open-bottom structure. Requires temporary flow diversion for substructure work.	Open bottom structure. Abutments constructed beyond creek bed. Minor disturbance to creek bed for removal of existing	Open bottom structure. Footings constructed beyond creek bed. Minor disturbance to creek bed for removal of existing substructure.	Closed bottom structure not preferred by GRCA. Requires excavation of existing creek bed. Requires temporary by-	Closed bottom structure not preferred by GRCA. Requires excavation of existing creek bed. Requires temporary by-pass of all flows in	Open bottom structure. Footings constructed beyond creek bed. Minor disturbance to creek bed for removal of existing substructure.

Alternative	Rehabilitation	Replace –Two Lane, Single Span Slab on Girder Bridge	Replace – Two Lane, Single-Span Precast Concrete Rigid Frame	Replace – Two Lane, Twin Cell Precast Concrete Box Culverts	Replace – Two-Lane, Multi-Cell Round CSP Culverts	Replace – Narrow Two-Lane, Pre-Fabricated Modular Bridge
		substructure. Requires temporary partial flow diversion for substructure work.	Requires temporary partial flow diversion for substructure work.	pass of all flows in watercourse.	watercourse. Footprint extends beyond natural watercourse.	Requires temporary partial flow diversion for substructure work.
Weight = 10	**Score = 9.0**	**Score = 8.0**	**Score = 8.0**	**Score = 4.0**	**Score = 2.0**	**Score = 8.0**
Hydraulics	No improvements to hydraulics. Potential negative impact to upstream flooding if beam strengthening lowers soffit.	Most efficient opening area due to rectangular shape. Depth from road to soffit varies from approximately 800 mm to 900 mm depending on span (12 m to 15 m).	Slightly less efficient opening area due to haunches. Depth from road to effective soffit varies from approx. 850 mm to 1000 mm depending on span (12 m to 16 m). Reduced clearance to minimum soffit due to haunches.	Less efficient opening area due to 'pier' between cells. Second shallowest depth from road soffit - approximately 800 mm. Moderate potential for debris blockage due to multi-cell.	Inefficient opening area due to round shape. Shallowest depth from road soffit to pipe obvert - approximately 700 mm. High potential for debris blockage due to multiple small spans.	Most efficient opening area due to rectangular shape. Depth from road to soffit varies from approximately 800 mm to 900 mm depending on span (12 m to 15 m).
Weight = 10	**Score = 3.0**	**Score = 8.0**	**Score = 7.0**	**Score = 6.0**	**Score = 3.0**	**Score = 8.0**
Heritage	Existing bridge remains and any built heritage is conserved.	Built Heritage lost with structure removal. New structure is somewhat similar (concrete bridge). Option for commemorative design detail in barriers	Built Heritage lost with structure removal. New structure is somewhat similar (concrete bridge). Option for commemorative design detail in barriers	Built Heritage lost with structure removal. New structure not of comparable type to previous.	Built Heritage lost with structure removal. New structure not of comparable type to previous.	Built Heritage lost with structure removal. New structure not of comparable type to previous.
Weight = 5	**Score = 5.0**	**Score = 4.0**	**Score = 4.0**	**Score = 4.0**	**Score = 4.0**	**Score = 4.0**
Pedestrian Use	No designated shoulder or opportunity for cars to provide additional space.	Designated shoulder. Vehicles can use opposite lane for extra space if no oncoming vehicles.	Designated shoulder. Vehicles can use opposite lane for extra space if no oncoming vehicles.	Designated shoulder. Vehicles can use opposite lane for extra space if no oncoming vehicles.	Designated shoulder. Vehicles can use opposite lane for extra space if no oncoming vehicles.	No shoulder beyond travelled lane for use by pedestrian. Pedestrians would be crossing bridge within travelled lane
Weight = 10	**Score = 4.0**	**Score = 8.0**	**Score = 8.0**	**Score = 8.0**	**Score = 8.0**	**Score = 5.0**
Construction Cost (+/-) (evaluated using costs based on 12 m span)	$500,000	$1,400,000	$1,250,000	$1,100,000	$750,000	$1,100,000
Weight = 20	**Score = 20.0**	**Score = 7.1**	**Score = 9.3**	**Score = 11.4**	**Score = 16.4**	**Score = 11.4**
Construction Duration	10 to 12 Weeks	20 to 22 weeks	18 to 20 Weeks	12 to 14 Weeks	10 to 12 Weeks	14 to 16 Weeks
Weight = 5	**Score = 5.0**	**Score = 3.0**	**Score = 3.5**	**Score = 4.5**	**Score = 5.0**	**Score = 4.5**
Service Life	15 years	75 Years	75 Years	75 Years	50 Years	75 Years
Weight = 10	**Score = 2.0**	**Score = 10.0**	**Score = 10.0**	**Score = 10.0**	**Score = 6.7**	**Score = 10.0**
Total Score /95	60.0	70.1	71.8	66.9	64.1	66.9
Ranking	**6**	**2**	**1**	**3**	**5**	**3**

3.0 Summary & Recommendations

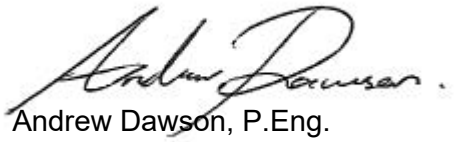
As outlined in Table 3 above, the preferred structure type is the replacement of the bridge with a Single-Span Precast Concrete Rigid Frame, where the site-specific parameters related to geometry and hydraulics permit. However, it is noted that the alternative design option of a slab-on-girder bridge scores closely and only differs in scoring for the criteria of hydraulics, costs and construction duration. Comparison of the two options should be further evaluated during the detailed design stage when more refined details can be utilized for the scoring of these metrics.

As previously indicated, the use of certain structure types may be limited based on the site-specific geometry or spans required to meet the hydraulic requirements as determined through site-specific analysis. The evaluation above is intended to be used to rank the structure types for further consideration once site-specific details are identified. Where required spans exceed the limit of a Single-Span, Precast Concrete Rigid Frame, it is recommended that a Single-Span, Slab on Prestressed Concrete Girder structure type be utilized.

Regardless of the exact structure type utilized, it can be concluded that the use of an open-bottom bridge structure which provides a 9.1 m driving platform is preferred.

If you have any questions or comments do not hesitate to contact the undersigned.

R.J. Burnside & Associates Limited



Andrew Dawson, P.Eng.
Project Engineer
AD:smm

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Appendix A.4

Technical Memorandum - Hydrology and Hydraulic Report

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Technical Memorandum – Hydrology and Hydraulic Report

Date: January 3, 2025 **Project No.:** 300058117.0000

Project Name: Bridge and Transportation Network Study for Bridges 2-WG, 3-E, 5-E, & 7-E

Client Name: Township of Centre Wellington

Submitted To: Project File Report

Submitted By: Andrew Dawson, P.Eng., and Jennifer Koen, C.E.T.

Reviewed By: Matthew Brooks, P.Eng.

1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) has been retained by the Township of Centre Wellington (Township) to complete a Transportation Network Study for Bridges 2-WG, 3-E, 5-E, and 7-E, which includes sizing replacement structures and completing the hydraulic analysis of the four (4) bridges. The structures are located in the southeast quadrant of the Township. Bridge 2-WG is located on the 3rd Line, approximately 330 m north of Eramosa-Garafraxa Townline (43.715787, -80.307996). Bridge 3-E is located on the 6th Line approximately 1.9 km north of Wellington Road 22 (43.719140, -80.261847). Bridge 5-E is located on the 4th Line, approximately 1.5 km north of Wellington Road 22 (43.697129, -80.279041). Bridge 7-E is located on the 3rd Line approximately 1.5 km north of Wellington Road 22 (43.687440, .80.289633).

This Report provides commentary and methodology used in the hydrological and hydraulic analysis of the existing structures while providing recommendations for the proposed replacement structures.

2.0 Background Information

A detailed topographic survey was completed by Burnside in June 2024 to obtain the existing bridge geometry, roadway and driveway elevations, building locations, existing ground topographic data, etc.

This survey data has been used in the analysis of the existing bridges and used for the preliminary design of the proposed replacement structures.

Burnside has contacted the Grand River Conservation Authority (GRCA) to obtain relevant hydraulic modelling for the project area. The GRCA has an estimated floodplain model and does not have an engineered HEC-RAS model for use in these bridge replacements. Burnside created new short-reach HEC-RAS models based on LiDAR and localized Survey Data.

This hydrology and hydraulic study is being conducted to assess the existing conditions of the current bridge structures and determine the required geometry that would be needed for replacement options being considered as alternatives in the Bridges and Transportation Network Study. Replacement structures are being considered based on the poor physical condition of the existing structures, which have either been closed to vehicular traffic (Bridges 3-E, 5-E, & 7-E) or load limited (Bridge 2-WG). Site photos are provided in Appendix A.

The contour data used for this project is derived from the LiDAR data from Ontario GeoHub. The structures are within the LiDAR2016to18_DTM-LkErie-W. This data is in CGVD2013 vertical datum.

3.0 Design Criteria

The hydrologic and hydraulic design criteria will incorporate the policies and criteria of three agencies, the Ministry of Transportation (MTO), the Township, and the GRCA.

The following criteria has been used in the hydraulic analysis of the existing and proposed structures:

- The existing bridges are located on Low-Volume Roads and in accordance with the MTO Highway Drainage Design Standards WC-1, 1.2.1, the Design flow for the bridge analysis is the 4% Annual Exceedance Probability (AEP), which is also referred to as the 25-year peak flow.
- In accordance with the MTO Highway Drainage Design Standards WC-2, 3.3.1, there are no freeboard requirements for Low-Volume Roads.
- In accordance with the MTO Highway Drainage Design Standards WC-2, 3.3.2, the minimum Clearance to the soffit shall be ≥ 0.0 m.
- In accordance with the MTO Roadside Design Manual, a barrier system is recommended on all crossings where the severity index of the fore slopes or culvert obstructions exceeds that of the guide rail.
- As per the policies of the GRCA, the pre- to post-development conditions shall not result in negative impacts to the flood levels or erosion potential.

4.0 Hydraulic Analysis

4.1 General

In accordance with the design criteria outlined in Section 3.0, three design considerations have been used in the analysis of all Structures, and have been summarized as follows:

- Analyze the existing bridges under the 4% AEP Storm Event to determine the existing flood impacts.
- Determine the required size of the crossing to convey the 4% AEP flow.
- Size the bridge crossing to maintain or improve the backwater flood elevation during all design flood events.

4.2 Hydraulic Model

The HEC-RAS version 6.5 computer model developed by the U.S. Army Corps of Engineers has been utilized. This model estimates the change in water surface elevation between selected valley cross-sections and routines to account for local increases in water levels due to bridge / culverts, and / or other flow obstructions. The model is intended for utilization in the analysis of water surface profiles of steady state, gradually varied, one-dimensional flow in natural, and man-made channels.

A number of considerations are required in the selection of data and variables to be used in the application of the HEC-RAS model to the floodplains of the study area, as follows:

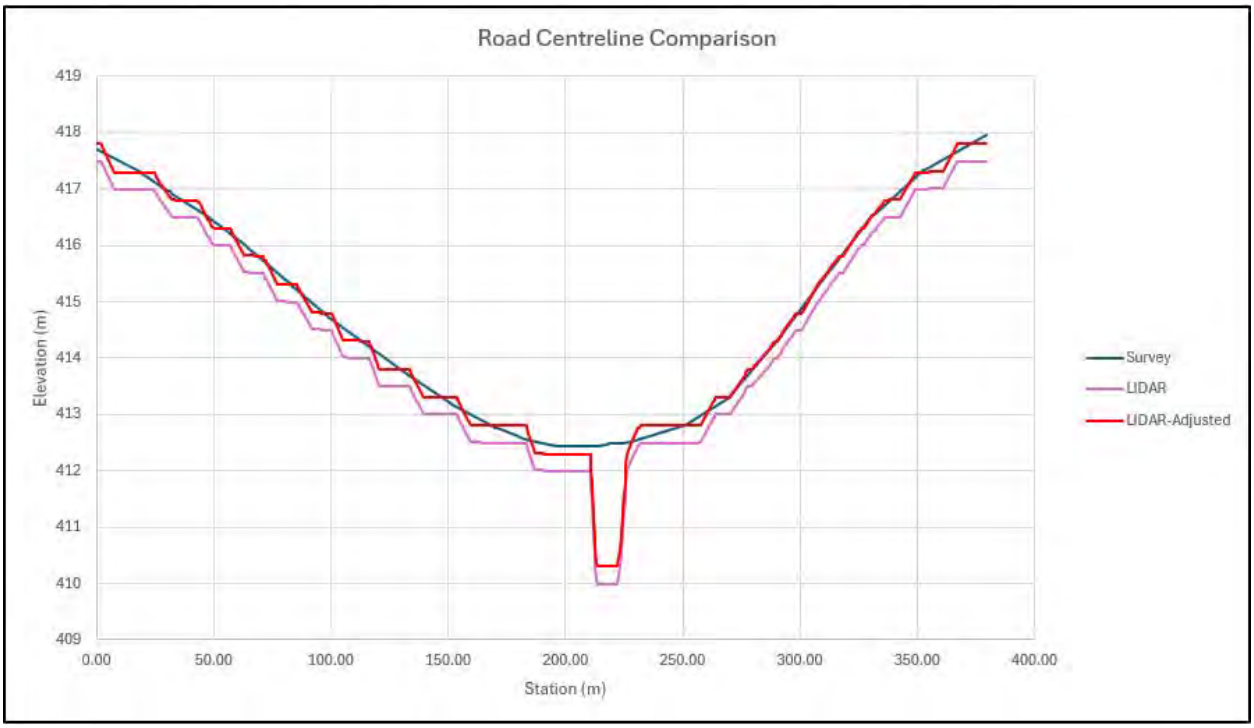
- Cross-sections;
- Hydraulic Structures and Computational Routines;
- Hydraulic Parameters; and
- Boundary Conditions.

5.0 Bridge 2-WG

5.1 Ground Truthing

Burnside has compiled the topographic survey data and the LiDAR data, as noted in Section 2.0 above. To assess the vertical tolerance between the data sets, a ground truthing exercise has been completed. The LiDAR package was combined in the HEC-RAS Mapper and the road centreline was compared to that of the road centreline obtained in the survey. The LiDAR data was approximately 0.3 m below the survey data; therefore, the LiDAR data was raised by 0.3 m to tie into the survey, which is shown in Figure 1 below.

Figure 1: Road Centreline Comparison – 2-WG



Following ground truthing, a comparison was made between the locally surveyed bottom of watercourse elevations and the LiDAR derived bottom of watercourse elevations further downstream. The LiDAR derived downstream elevations were 0.38 m to 0.88 m above the most downstream watercourse elevation from the topographic survey. Based on knowledge of general topography of the site, gained during field visits, it is Burnside's opinion that the downstream LiDAR derived elevations are not an accurate representation of the watercourse channel and, as such, the short reach hydraulic model was limited on the downstream side to the limits of the topographic data. It is recommended that during detailed design, permission to enter the downstream property be acquired to allow more accurate collection of watercourse cross-section information downstream of the bridge using topographic or bathymetric survey and the model be updated accordingly.

5.2 Hydrology

Peak flows for the hydraulic analysis have been based on flows calculated in Visual Otthymo (VO) and the Unified Ontario Flood Method (UOFM).

Key hydrologic parameters calculated in ArcHydro include drainage areas, catchment lengths, catchment slope, soils, and land use. The remaining hydrologic parameters including CN, I_a, have been calculated by Burnside and outlined in Table 1 below and in Appendix B.

Table 1: Hydrology Parameters – 2-WG

Catchment ID	Catchment Area (ha)	Runoff Coefficient	Time of Concentration (hr)	I_a (mm)	CN (II)
2WG-1	153.24	0.18	1.86	7.8	56
2WG-2	230.56	0.16	1.79	7.9	51
2WG-3	51.28	0.23	1.19	7.0	66
2WG-4	271.60	0.24	1.55	7.4	64
2WG-5	199.08	0.20	1.99	8.2	57
2WG-6	300.52	0.27	1.97	7.9	67
2WG-7	128.72	0.23	1.98	7.9	62
2WG-8	109.00	0.18	1.78	7.8	55
2WG-9	110.92	0.20	1.89	7.9	55
2WG-10	86.84	0.19	1.84	8.2	55
2WG-11	25.76	0.24	1.07	7.1	67
2WG-12	229.28	0.22	2.19	7.9	60
2WG-13	118.16	0.26	2.14	7.8	69
2WG-14	134.04	0.21	2.09	7.6	60

The 24-hour SCS Type-II rainfall distribution was used for the 1:2, 1:5, 1:10, 1:25, 1:50, and 1:100-year Storm Event calculations. The Regional Storm Event was based on the Hurricane Hazel storm. The SCS storm distributions were based on the MTO IDF curve tool (see Appendix B).

Table 2: Summarized VO Peak Flows – 2-WG

50% AEP / 2-year (m^3/s)	20% AEP / 5-year (m^3/s)	10% AEP / 10-year (m^3/s)	4% AEP / 25-year (m^3/s)	2% AEP / 50-year (m^3/s)	1% AEP / 100-year (m^3/s)	Regional (m^3/s)
7.64	13.16	17.09	23.09	27.67	32.47	84.63

As per the MTO Highway Drainage Design Standards manual, dated March 2024, the Unified Ontario Flood Method (UOFM) shall be used in the design of water crossing infrastructure when accurate flow data is not available.

The UOFM shall be applied as follows:

- If the flow value from the UOFM is higher than from any other applicable method, the UOFM mean quantile values shall be used as Design Flows.
- If the flow value from the UOFM is lower than from any other applicable method, the value at the upper limit of the range shall be applied in design.

Table 3: Summarized UOFM Flows – 2-WG

AEP / Return Period	Lower Limit (m^3/s)	Mean Values (m^3/s)	Upper Limit (m^3/s)
50% / 2-year	4.24	5.97	8.36
10% / 10-year	7.04	10.35	15.12
4% / 25-year	8.37	12.50	18.74
2% / 50-year	9.14	14.06	21.51
1% / 100-year	10.01	15.65	24.56

Since the UOFM flows are lower than the VO flows noted above, the UOFM upper limit flows will be used for the 2- to 100-year storms and the VO Regional flow will be used in the analysis of Bridge 2-WG. A summary of the flows used in the hydraulic modelling is provided below in Table 4 and included in Appendix C.

Table 4: Summarized Peak Flows – 2-WG

50% AEP / 2-year (m^3/s)	10% AEP / 10-year (m^3/s)	4% AEP / 25-year (m^3/s)	2% AEP / 50-year (m^3/s)	1% AEP / 100-year (m^3/s)	Regional (m^3/s)
8.36	15.12	18.74	21.51	24.56	84.63

5.3 Hydraulic Analysis

5.3.1 Existing Bridge

The existing structure has been observed to convey all storms up to the 1% AEP / 100-year Storm Event with a calculated 4% AEP / 25-year headwater elevation of 411.13 m at Cross-Section 193.69. The lowest roadway profile elevation of 3rd Line within the project area is 412.75 m, while the lowest edge of travelled lane is 412.70 m based on field measurements and survey data. Therefore, the existing freeboard for the 4% AEP design storm is 1.57 m (412.70 - 411.13).

Existing Conditions summary hydraulic output files have been provided in Appendix D.

5.3.2 Proposed Bridge Replacement

Alternatives were considered to replace the existing structure whereby improving conveyance and aquatic habitat through the crossing in accordance with the design criteria outlined in Section 3.0 above.

Table 5 illustrates the proposed bridge characteristics versus the existing bridge.

Table 5: Structure Comparison – 2-WG

Crossing Characteristic	Existing Conditions	Proposed Conditions
Structure Information		
Material & Type	Concrete Through Girder	Concrete Rigid Frame
Open Footing (Y/N)	Y	Y
Span (m)	10.67	14.94
Soffit U/S (m)	NE = 411.559 SE = 411.498	411.45 (at haunch) 411.75 (mid-span)
Soffit D/S (m)	NW = 411.521 SW = 411.483	411.45 (at haunch) 411.75 (mid-span)
Hydraulic Length (m)	6.4	13.0
Barrier Length, from CL Bridge (m)	8.27	N/A
Barrier Height, from CL Road (m)	0.92	N/A
Roadway Information		
Road Surface (Gravel / Paved)	Gravel	Gravel
Low Point in Road Elev. (m)	412.75	412.83
Low Point Edge of Lane Elev. (m)	412.70	412.73
Road Width (m)	5.5	9.1
Guide Rail (Y/N)	N	Y
Watercourse Information		
Tailwater Conditions	Normal Depth	
Normal Depth Slope (m/m)	0.005	
Channel Invert U/S (m)	409.28	409.28
Channel Invert D/S (m)	409.07	409.07

Based on the MTO Roadside Design Manual guide rail should be installed to improve the safety of errant vehicles reaching the watercourse. As guide rail acts as an obstruction to the flow in the event the crossing overtops the roadway, the guide rail has been modelled as a solid barrier up to 50% of the height to account for the possibility that the guide rail is blocked by debris during a flood and therefore does not allow effective flow passage.

Table 6 below illustrates the Proposed Headwater Elevations versus Existing Conditions.

Table 6: Headwater Comparison at Cross Section 193.69 – 2-WG

Discharge Names	Total Discharge (cms)	Existing Headwater Elevation (m)	Proposed Headwater Elevation (m)	Headwater Difference (m)	Pr. Clearance to Effective Soffit Elevation	Pr. Freeboard to Edge of Travelled Lane
					411.53 (m)	**412.73 (m)**
50% AEP / 2-year	8.36	410.73	410.72	-0.01	0.81	2.01
10% AEP / 10-year	15.12	411.02	411.02	0.00	0.51	1.71
4% AEP / 25-year	**18.74**	**411.13**	**411.13**	**0.00**	**0.40**	**1.60**
2% AEP / 50-year	21.51	411.22	411.21	-0.01	0.32	1.52
1% AEP / 100-year	24.56	411.3	411.29	-0.02	0.24	1.44
Regional	84.63	413.17	413.07	-0.10	-1.54	-0.34

The proposed structure conveys the 1% AEP Storm Event and also exceeds the design criteria outlined in Section 3.0 above.

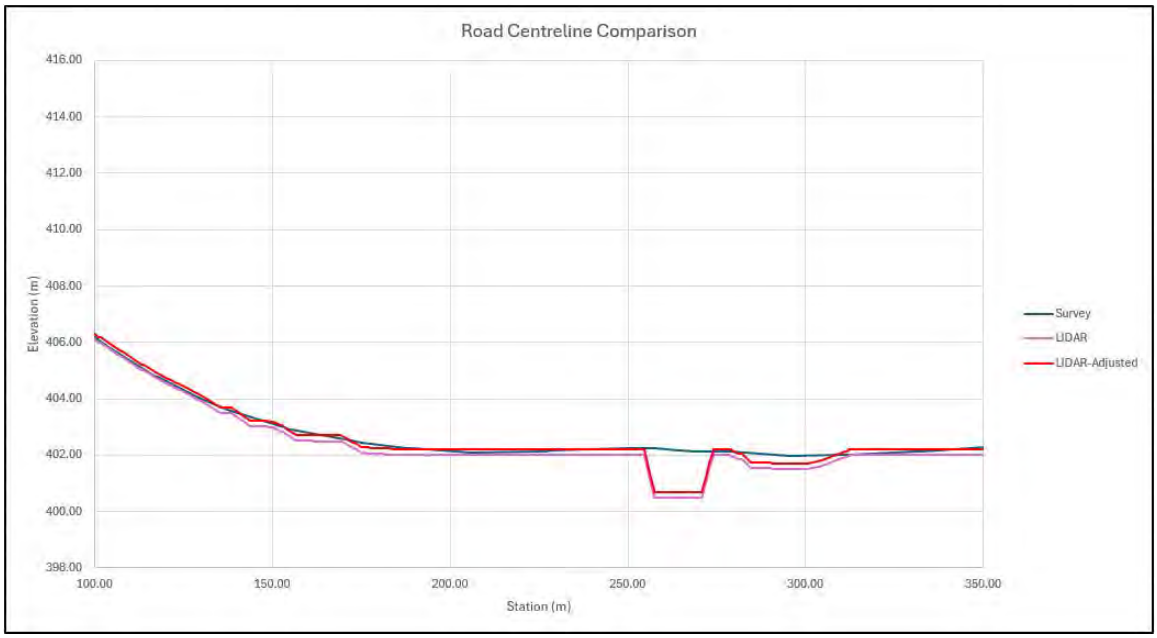
Proposed summary hydraulic output files for Bridge 2-WG have been provided in Appendix D. Summary comparison tables between existing and proposed conditions have been provided in Appendix D. Preliminary Plan and Profile Drawings have been provided in Appendix E.

6.0 Bridge 3-E

6.1 Ground Truthing

Burnside has compiled the topographic survey data and the LiDAR data, as noted in Section 2.0 above. To assess the vertical tolerance between the data sets, a ground truthing exercise has been completed. The LiDAR package was combined in the HEC-RAS Mapper and the road centreline was compared to that of the road centreline obtained in the survey. The LiDAR data was approximately 0.2 m below the survey data; therefore, the LiDAR data was raised by 0.2 m to tie into the survey, which is shown in Figure 2 below.

Figure 2: Road Centreline Comparison – 3-E



6.2 Hydrology

As stated previously, Peak flows for the hydraulic analysis have been based on flows calculated in VO and UOFM.

Key hydrologic parameters calculated in ArcHydro include drainage areas, catchment lengths, catchment slope, soils, and land use. The remaining hydrologic parameters including CN, I_a, have been calculated by Burnside and outlined in Table 7 below and in Appendix B.

Table 7: Hydrology Parameters – 3-E

Catchment ID	Catchment Area (ha)	Runoff Coefficient	Time of Concentration (hr)	I_a (mm)	CN (II)
3E-1	351.84	0.20	2.25	7.6	59
3E-2	415.84	0.20	2.65	8.2	57
3E-3	161.56	0.16	1.77	8.1	51
3E-4	84.72	0.20	1.50	8.0	55
3E-5	290.88	0.17	2.09	8.3	51
3E-6	391.92	0.22	2.20	8.4	57
3E-7	81.24	0.17	1.53	8.7	49
3E-8	338.84	0.18	2.34	8.2	51
3E-9	249.68	0.23	2.41	8.4	58
3E-10	145.33	0.25	2.25	7.7	65

Catchment ID	Catchment Area (ha)	Runoff Coefficient	Time of Concentration (hr)	I_a (mm)	CN (II)
3E-11	241.80	0.19	1.81	8.3	53
3E-12	383.04	0.19	3.18	8.3	55
3E-13	73.84	0.29	1.73	8.8	66
3E-14	99.92	0.26	1.66	8.4	63
3E-15	159.16	0.21	1.50	7.1	63
3E-16	147.08	0.22	1.42	7.4	63
3E-17	147.40	0.14	1.43	8.6	44
3E-18	126.36	0.18	2.08	8.4	54
3E-19	198.16	0.19	1.67	8.6	54
3E-20	126.24	0.22	1.86	7.9	61
3E-21	133.24	0.22	1.31	8.1	61
3E-22	119.48	0.18	1.78	8.1	55
3E-23	111.92	0.25	1.81	8.7	64

The 24-hour SCS Type-II rainfall distribution was used for the 1:2, 1:5, 1:10, 1:25, 1:50, and 1:100-year Storm Event calculations. The Regional Storm Event was based on the Hurricane Hazel storm. The SCS storm distributions were based on the MTO IDF curve tool (see Appendix B).

Table 8: Summarized VO Peak Flows – 3-E

50% AEP / 2-year (m^3/s)	20% AEP / 5-year (m^3/s)	10% AEP / 10-year (m^3/s)	4% AEP / 25-year (m^3/s)	2% AEP / 50-year (m^3/s)	1% AEP / 100-year (m^3/s)	Regional (m^3/s)
11.38	19.84	25.92	35.31	42.54	50.17	139.57

As per the MTO Highway Drainage Design Standards manual, dated March 2024, the UOFM shall be used in the design of water crossing infrastructure when accurate flow data are not available.

The UOFM shall be applied as follows:

- If the flow value from the UOFM is higher than from any other applicable method, the UOFM mean quantile values shall be used as Design Flows.
- If the flow value from the UOFM is lower than from any other applicable method, the value at the upper limit of the range shall be applied in design.

Table 9: Summarized UOFM Flows – 3-E

AEP / Return Period	Lower Limit (m^3/s)	Mean Values (m^3/s)	Upper Limit (m^3/s)
50% / 2-year	6.26	8.82	12.34
10% / 10-year	9.71	14.29	20.86
4% / 25-year	11.31	16.88	25.32
2% / 50-year	12.18	18.74	28.67
1% / 100-year	13.20	20.63	32.38

Since the UOFM flows are lower than the VO flows noted above, the UOFM upper limit flows will be used for the 2- to 100-year storms and the VO Regional flow will be used in the analysis of Bridge 3-E. A summary of the flows used in the hydraulic modelling is provided below in Table 10 and included in Appendix C.

Table 10: Summarized Peak Flows – 3-E

50% AEP / 2-year (m^3/s)	10% AEP / 10-year (m^3/s)	4% AEP / 25-year (m^3/s)	2% AEP / 50-year (m^3/s)	1% AEP / 100-year (m^3/s)	Regional (m^3/s)
12.34	20.86	25.32	28.67	32.38	139.57

6.3 Hydraulic Analysis

6.3.1 Existing Bridge

The existing structure has been observed to convey all storms up to the 100-year Storm Event with a calculated 4% AEP / 25-year headwater elevation of 401.47 m at Cross-Section 259.45. The lowest roadway profile elevation of 6th Line within the project area is 401.96 m, while the lowest edge of travelled lane is 401.91 m based on field measurements and survey data. Therefore, the existing freeboard of 0.44 m (401.91 - 401.47) exceeds the minimum freeboard requirements as outlined in Section 3.0. Existing Conditions summary hydraulic output files have been provided in Appendix D.

6.3.2 Proposed Bridge Replacement

Alternatives were considered to replace the existing structure whereby improving conveyance and aquatic habitat through the crossing in accordance with the design criteria outlined in Section 3.0 above.

Table 11 illustrates the proposed bridge characteristics versus the existing bridge.

Table 11: Structure Comparison – 3-E

Crossing Characteristic	Existing Conditions	Proposed Conditions
Structure Information		
Material & Type	Concrete Bowstring Arch	Concrete Deck on Prestressed Concrete Box Girder Bridge
Open Footing (Y/N)	Y	Y
Span (m)	13.67	18.0
Soffit U/S (m)	401.56	401.61/401.70
Soffit D/S (m)	401.56	401.69/401.60
Hydraulic Length (m)	5.75	9.8
Barrier Length, from CL Bridge (m)	Upstream: 7.41 m (S), 12.94 m (N) Downstream: 7.4 m (S), 11.06 m (N)	14.9
Barrier Height, from CL Road (m)	1.1 m - modelled as half height (0.65 m) due to open railing. Arch is 14.5 m long with height estimated as 2.7 m+/-.	0.73
Roadway Information		
Road Surface (Gravel / Paved)	Gravel	Paved
Low Point in Road Elev. (m)	401.96	402.10
Low Point Edge of Lane Elev. (m)	401.91	402.01
Road Width (m)	5.0	9.2
Guide Rail (Y/N)	N	Y
Watercourse Information		
Tailwater Conditions	Normal Depth	
Normal Depth Slope (m/m)	0.0015	
Channel Invert U/S (m)	399.58	399.58
Channel Invert D/S (m)	399.26	399.26

Based on the MTO Roadside Design Manual guide rail should be installed to improve the safety of errant vehicles reaching the watercourse. As guide rail acts as an obstruction to the flow in the event the crossing overtops the roadway, the guide rail has been modelled as a solid barrier up to 50% of the height to account for the possibility that the guide rail is blocked by debris during a flood and therefore does not allow effective flow passage.

Table 12 below illustrates the Proposed Headwater Elevations versus Existing Conditions.

Table 12: Headwater Comparison at Cross Section 259.45 – 3-E

Discharge Names	Total Discharge (cms)	Existing Headwater Elevation (m)	Proposed Headwater Elevation (m)	Headwater Difference (m)	Pr. Clearance to Soffit Elevation	Pr. Freeboard to Edge of Travelled Lane
					401.61 (m)	**402.01 (m)**
50% AEP / 2-year	12.34	401.27	401.27	0.00	0.34	0.74
10% AEP / 10-year	20.86	401.39	401.38	-0.01	0.23	0.63
4% AEP / 25-year	**25.32**	**401.47**	**401.44**	**-0.03**	**0.17**	**0.57**
2% AEP / 50-year	28.67	401.52	401.49	-0.03	0.12	0.52
1% AEP / 100-year	32.38	401.76	401.56	-0.20	0.05	0.45
Regional	139.57	402.72	402.68	-0.04	-1.07	-0.67

The proposed structure conveys the 1% AEP (100-year) Storm Event and also exceeds the design criteria outlined in Section 3.0 above.

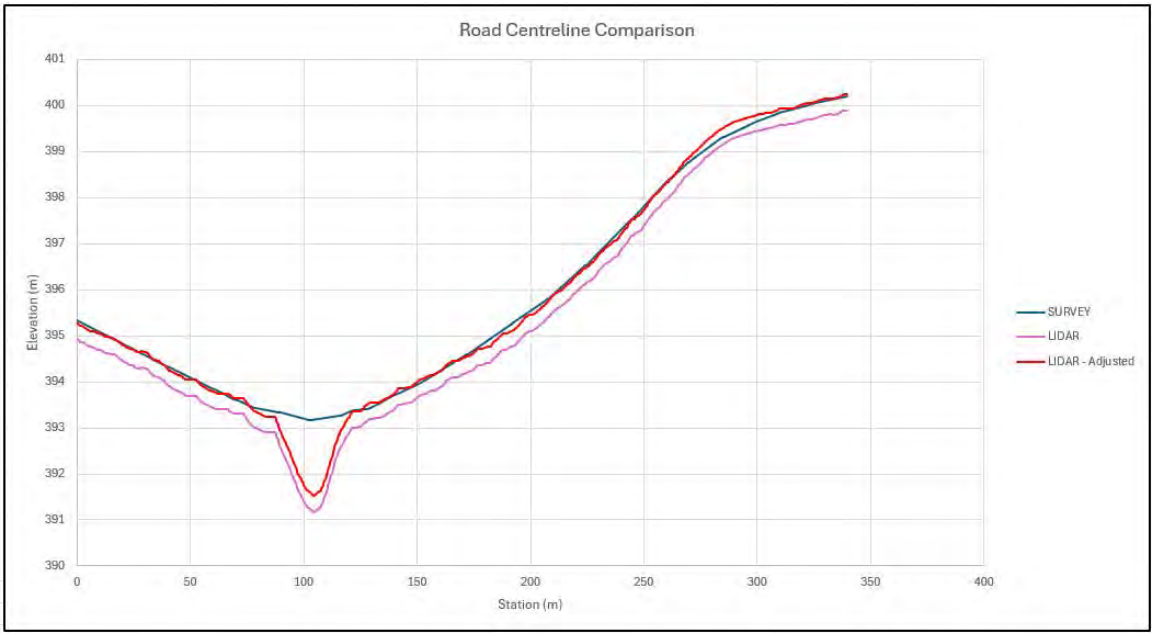
Proposed summary hydraulic output files for Bridge 3-E have been provided in Appendix D. Summary comparison tables between existing and proposed conditions have been provided in Appendix D. Preliminary Plan and Profile Drawings have been provided in Appendix E.

7.0 Bridge 5-E

7.1 Ground Truthing

Burnside has compiled the topographic survey data and the LiDAR data, as noted in Section 2.0 above. To assess the vertical tolerance between the data sets, a ground truthing exercise has been completed. The LiDAR package was combined in the HEC-RAS Mapper and the road centreline was compared to that of the road centreline obtained in the survey. The LiDAR data was approximately 0.35 m below the survey data; therefore, the LiDAR data was raised by 0.35 m to tie into the survey, which is shown in Figure 3 below.

Figure 3: Road Centreline Comparison – 5-E



7.2 Hydrology

As stated previously, Peak flows for the hydraulic analysis have been based on flows calculated in VO and UOFM.

Key hydrologic parameters calculated in ArcHydro include drainage areas, catchment lengths, catchment slope, soils, and land use. The remaining hydrologic parameters including CN, I_a, have been calculated by Burnside and outlined in Table 13 below and in Appendix B.

Table 13: Hydrology Parameters – 5-E

Catchment ID	Catchment Area (ha)	Runoff Coefficient	Time of Concentration (hr)	I_a (mm)	CN (II)
3E-1	351.84	0.20	2.25	7.6	59
3E-2	415.84	0.20	2.65	8.2	57
3E-3	161.56	0.16	1.77	8.1	51
3E-4	84.72	0.20	1.50	8.0	55
3E-5	290.88	0.17	2.09	8.3	51
3E-6	391.92	0.22	2.20	8.4	57
3E-7	81.24	0.17	1.53	8.7	49
3E-8	338.84	0.18	2.34	8.2	51
3E-9	249.68	0.23	2.41	8.4	58
3E-10	145.33	0.25	2.25	7.7	65

Catchment ID	Catchment Area (ha)	Runoff Coefficient	Time of Concentration (hr)	I_a (mm)	CN (II)
3E-11	241.80	0.19	1.81	8.3	53
3E-12	383.04	0.19	3.18	8.3	55
3E-13	73.84	0.29	1.73	8.8	66
3E-14	99.92	0.26	1.66	8.4	63
3E-15	159.16	0.21	1.50	7.1	63
3E-16	147.08	0.22	1.42	7.4	63
3E-17	147.40	0.14	1.43	8.6	44
3E-18	126.36	0.18	2.08	8.4	54
3E-19	198.16	0.19	1.67	8.6	54
3E-20	126.24	0.22	1.86	7.9	61
3E-21	133.24	0.22	1.31	8.1	61
3E-22	119.48	0.18	1.78	8.1	55
3E-23	111.92	0.25	1.81	8.7	64
5E-1	329.71	0.24	2.00	7.9	64
5E-2	138.00	0.25	1.83	7.3	67
5E-3	158.28	0.20	1.96	7.4	61
5E-4	94.28	0.28	1.85	7.3	67
5E-5	134.36	0.26	1.85	7.4	67
5E-6	130.00	0.18	1.91	8.4	54

The 24-hour SCS Type-II rainfall distribution was used for the 1:2, 1:5, 1:10, 1:25, 1:50, and 1:100-year Storm Event calculations. The Regional Storm Event was based on the Hurricane Hazel storm. The SCS storm distributions were based on the MTO IDF curve tool (see Appendix B).

Table 14: Summarized VO Peak Flows – 5-E

50% AEP / 2-year (m^3/s)	20% AEP / 5-year (m^3/s)	10% AEP / 10-year (m^3/s)	4% AEP / 25-year (m^3/s)	2% AEP / 50-year (m^3/s)	1% AEP / 100-year (m^3/s)	Regional (m^3/s)
11.77	20.46	26.71	36.32	43.73	51.52	140.40

As per the MTO Highway Drainage Design Standards manual, dated March 2024, the UOFM shall be used in the design of water crossing infrastructure when accurate flow data are not available.

The UOFM shall be applied as follows:

- If the flow value from the UOFM is higher than from any other applicable method, the UOFM mean quantile values shall be used as Design Flows.
- If the flow value from the UOFM is lower than from any other applicable method, the value at the upper limit of the range shall be applied in design.

Table 15: Summarized UOFM Flows – 5-E

AEP / Return Period	Lower Limit (m^3/s)	Mean Values (m^3/s)	Upper Limit (m^3/s)
50% / 2-year	7.52	10.59	14.82
10% / 10-year	11.74	17.26	25.20
4% / 25-year	13.69	20.44	30.65
2% / 50-year	14.76	22.71	34.75
1% / 100-year	16.02	25.03	39.30

Since the UOFM flows are lower than the VO flows noted above, the UOFM upper limit flows will be used for the 2- to 100-year storms and the VO Regional flow will be used in the analysis of Bridge 5-E. A summary of the flows used in the hydraulic modelling is provided below in Table 16 and included in Appendix C.

Table 16: Summarized Peak Flows – 5-E

50% AEP / 2-year (m^3/s)	10% AEP / 10-year (m^3/s)	4% AEP / 25-year (m^3/s)	2% AEP / 50-year (m^3/s)	1% AEP / 100-year (m^3/s)	Regional (m^3/s)
14.82	25.20	30.65	34.75	39.30	140.40

7.3 Hydraulic Analysis

7.3.1 Existing Bridge

The existing structure has been observed to convey all storms up to the 10% AEP / 10-year Storm Event without overtopping of the road. The calculated 4% AEP / 25-year headwater elevation at Cross-Section 547.93 is 393.62 m. The lowest roadway profile elevation of 4th Line within the project area is 393.56 m, while the lowest edge of travelled lane is 393.54 m based on field measurements and survey data. Therefore, there is no freeboard, and the roadway overtops 0.08 m (393.54 – 383.62) in the model, during the 4% AEP / 25-year Storm Event. However, it is noted that there are requirements for freeboard outlined in the MTO guidelines on Low-Volume Roads.

Under the 4% AEP / 25-year design storm, the water surface elevation (393.62 m) in existing conditions is above the underside of the soffit elevation (392.57 m) by 1.05 m. This existing does not meet the desired criteria of providing a soffit elevation above the 4% AEP / 25-year flood elevations.

Existing Conditions summary hydraulic output files have been provided in Appendix D.

7.3.2 Proposed Bridge Replacement

Alternatives were considered to replace the existing structure whereby improving conveyance and aquatic habitat through the crossing in accordance with the design criteria outlined in Section 3.0 above.

Due to the existing conditions of this site, which has substantial overtopping of the road during the Regional Storm Event, increases to road profile elevations had to be limited to avoid negative impacts of increased upstream flooding. Due to this, the opportunity to increase the soffit elevation to attempt to meet the desired clearance criteria was limited. Several span options were evaluated; however, it was determined that once the span length reached a certain value (16 m +/-), the required additional depth of the superstructure (between centreline of road elevation and soffit), resulted in increases to the road profile that lead to substantial increases to the Regional flood elevations. Through these iterations, it was found that the 14.94 m span structure was able to provide a replacement structure that met existing or improved flood elevations within allowable tolerances. When a larger 18.0 m span structure was evaluated, the Regional storm flood elevations increased by 0.19 m, due to the associated increases to the road profile related to the deeper superstructure. The 0.19 m increase would be considered a negative impact and not acceptable as a solution. As such, the 14.94 m span concrete rigid frame bridge is believed to be the most practical solution for the replacement, given the site constraints.

Table 17 illustrates the proposed bridge characteristics versus the existing bridge.

Table 17: Structure Comparison – 5-E

Crossing Characteristic	Existing Conditions	Proposed Conditions
Structure Information		
Material & Type	Concrete Through Girder	Concrete Rigid Frame
Open Footing (Y/N)	Y	Y
Span (m)	12.19	14.94
Soffit U/S (m)	392.56	392.37 (at haunch) 392.68 (midspan)
Soffit D/S (m)	392.56	392.37 (at haunch) 392.68 (midspan)
Hydraulic Length (m)	6.35	13.0
Barrier Length, from CL Bridge (m)	5.6	N/A
Barrier Height, from CL Road (m)	1.2 (barrier) / 1.0 (railing)	N/A
Roadway Information		
Road Surface (Gravel / Paved)	Gravel	Paved
Low Point in Road Elev. (m)	393.56	393.72
Low Point Edge of Lane Elev. (m)	393.54	393.62
Road Width (m)	5.75	9.8
Guide Rail (Y/N)	N	Y
Watercourse Information		
Tailwater Conditions	Normal Depth	
Normal Depth Slope (m/m)	0.005	
Channel Invert U/S (m)	390.04	390.04
Channel Invert D/S (m)	390.38	390.38

Based on the MTO Roadside Design Manual guide rail should be installed to improve the safety of errant vehicles reaching the watercourse. As guide rail acts as an obstruction to the flow in the event the crossing overtops the roadway, the guide rail has been modelled as a solid barrier up to 50% of the height to account for the possibility that the guide rail is blocked by debris during a flood and therefore does not allow effective flow passage.

Table 18 below illustrates the Proposed Headwater Elevations versus Existing Conditions.

Table 18: Headwater Comparison at Cross Section 547.93 – 5-E

Discharge Names	Total Discharge (cms)	Existing Headwater Elevation (m)	Proposed Headwater Elevation (m)	Headwater Difference (m)	Pr. Clearance to Effective Soffit Elevation	Pr. Freeboard to Edge of Travelled Lane
					392.58 (m)	**393.62 (m)**
50% AEP / 2-year	14.82	393.02	393.01	-0.01	-0.43	0.61
10% AEP / 10-year	25.20	393.43	393.40	-0.03	-0.82	0.22
4% AEP / 25-year	**30.65**	**393.62**	**393.57**	**-0.05**	**-0.99**	**0.05**
2% AEP / 50-year	34.75	393.73	393.68	-0.05	-1.10	-0.06
1% AEP / 100-year	39.30	393.82	393.80	-0.02	-1.22	-0.18
Regional	140.40	394.62	394.67	0.05	-2.09	-1.05

The proposed structure conveys the 4% AEP / 25-year Storm Event and improves the 1% through 50% AEP (2- through 100-year) headwater elevations and keeps the Regional flood elevations within an acceptable modelling tolerance of 0.05 m. As previously mentioned, site constraints limited the ability to provide the required soffit clearance for the structure, but the proposed solution offers overall improvement to the clearance provided as compared to existing conditions.

Proposed summary hydraulic output files for Bridge 5-E have been provided in Appendix D. Summary comparison tables between existing and proposed conditions have been provided in Appendix D.

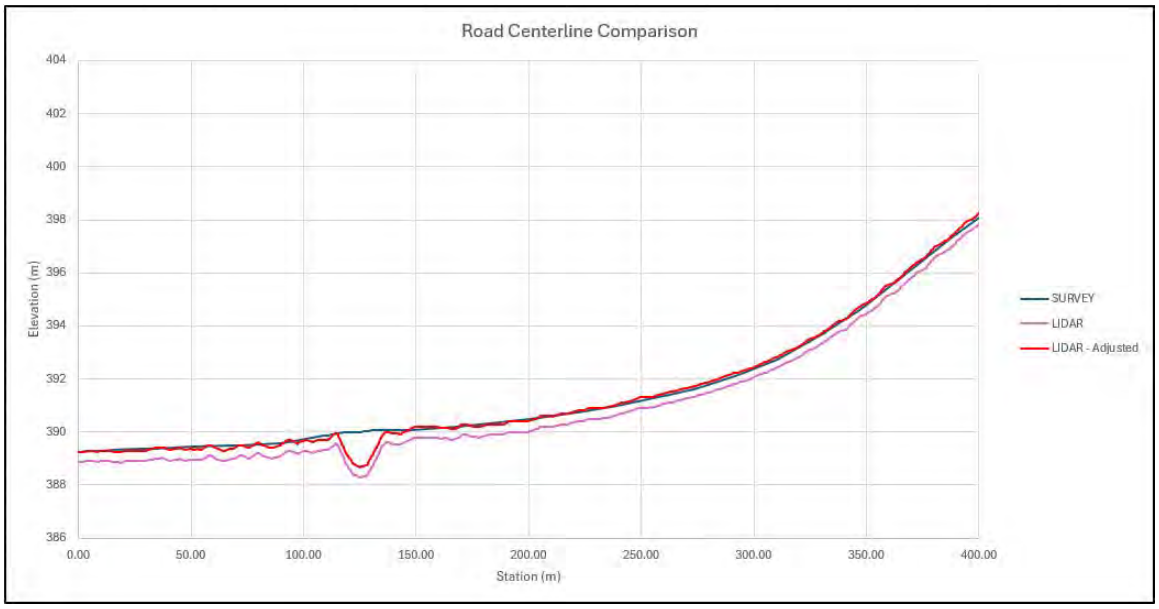
8.0 Bridge 7-E

8.1 Ground Truthing

Burnside has compiled the topographic survey data and the LiDAR data, as noted in Section 2.0 above. To assess the vertical tolerance between the data sets, a ground truthing exercise has been completed. The LiDAR package was combined in the HEC-RAS Mapper and the road centreline was compared to that of the road centreline obtained in the survey. The LiDAR data was approximately 0.4 m below the survey data; therefore, the LiDAR data was raised by 0.4 m to tie into the survey, which is shown in Figure 4 below.

The merged LiDAR and topographic survey surface was transformed into a TIF file to import into the HEC RAS 2D environment. Modifications were made to the proposed terrain file to represent the grading required to support the proposed bridge.

Figure 4: Road Centreline Comparison – 7-E



8.2 Hydrology

As stated previously, Peak flows for the hydraulic analysis have been based on flows calculated in VO and UOFM.

Key hydrologic parameters calculated in ArcHydro include drainage areas, catchment lengths, catchment slope, soils, and land use. The remaining hydrologic parameters including CN, I_a, have been calculated by Burnside and outlined in Table 19 below and in Appendix B.

Table 19: Hydrology Parameters – 7-E

Catchment ID	Catchment Area (ha)	Runoff Coefficient	Time of Concentration (hr)	I_a (mm)	CN (II)
2WG-1	153.24	0.18	1.86	7.8	56
2WG-2	230.56	0.16	1.79	7.9	51
2WG-3	51.28	0.23	1.19	7.0	66
2WG-4	271.60	0.24	1.55	7.4	64
2WG-5	199.08	0.20	1.99	8.2	57
2WG-6	300.52	0.27	1.97	7.9	67
2WG-7	128.72	0.23	1.98	7.9	62
2WG-8	109.00	0.18	1.78	7.8	55

Catchment ID	Catchment Area (ha)	Runoff Coefficient	Time of Concentration (hr)	I_a (mm)	CN (II)
2WG-9	110.92	0.20	1.89	7.9	55
2WG-10	86.84	0.19	1.84	8.2	55
2WG-11	25.76	0.24	1.07	7.1	67
2WG-12	229.28	0.22	2.19	7.9	60
2WG-13	118.16	0.26	2.14	7.8	69
2WG-14	134.04	0.21	2.09	7.6	60
7E-1	244.28	0.25	2.19	8.1	64
7E-2	121.48	0.22	1.68	7.7	63
7E-3	154.31	0.25	2.39	8.3	65
7E-4	144.96	0.21	1.56	8.1	60
7E-5	137.16	0.26	1.25	7.7	68
7E-6	86.88	0.26	1.25	9.0	66
7E-7	30.96	0.26	0.82	8.3	69

The 24-hour SCS Type-II rainfall distribution was used for the 1:2, 1:5, 1:10, 1:25, 1:50, and 1:100-year Storm Event calculations. The Regional Storm Event was based on the Hurricane Hazel storm. The SCS storm distributions were based on the MTO IDF curve tool (see Appendix B).

Table 20: Summarized VO Peak Flows – 7-E

50% AEP / 2-year (m^3/s)	20% AEP / 5-year (m^3/s)	10% AEP / 10-year (m^3/s)	4% AEP / 25-year (m^3/s)	2% AEP / 50-year (m^3/s)	1% AEP / 100-year (m^3/s)	Regional (m^3/s)
8.32	14.26	18.47	24.84	29.76	34.86	84.85

As per the MTO Highway Drainage Design Standards manual, dated March 2024, the UOFM shall be used in the design of water crossing infrastructure when accurate flow data are not available.

The UOFM shall be applied as follows:

- If the flow value from the UOFM is higher than from any other applicable method, the UOFM mean quantile values shall be used as Design Flows.
- If the flow value from the UOFM is lower than from any other applicable method, the value at the upper limit of the range shall be applied in design.

Table 21: Summarized UOFM Flows – 7-E

AEP / Return Period	Lower Limit (m^3/s)	Mean Values (m^3/s)	Upper Limit (m^3/s)
50% / 2-year	5.45	7.67	10.74
10% / 10-year	8.94	13.14	19.19
4% / 25-year	10.59	15.81	23.72
2% / 50-year	11.54	17.75	27.16
1% / 100-year	12.62	19.72	30.96

Since the UOFM flows are lower than the VO flows noted above, the UOFM upper limit flows will be used for the 2- to 100-year storms and the VO Regional flow will be used in the analysis of Bridge 7-E. A summary of the flows used in the hydraulic modelling is provided below in Table 22 and included in Appendix C.

Table 22: Summarized Peak Flows – 7-E

50% AEP / 2-year (m^3/s)	10% AEP / 10-year (m^3/s)	4% AEP / 25-year (m^3/s)	2% AEP / 50-year (m^3/s)	1% AEP / 100-year (m^3/s)	Regional (m^3/s)
10.74	19.19	23.72	27.15	30.96	84.85

8.3 Hydraulic Analysis

The HEC-RAS version 6.5 computer model developed by the U.S. Army Corps of Engineers has been utilized. A 2D HEC-RAS model was developed for the hydraulic analysis of Bridge 7-E. A 2D model was selected to better model the channel geometry downstream of the bridge and to identify any spills from the channel that would be difficult to capture in a 1D model.

A number of considerations are required in the selection of data and variables to be used in the application of the HEC-RAS model to the floodplains of the study area, as follows:

- Terrain Data;
- Land Cover Data;
- Hydraulic Structures, Breaklines, and Computational Routines;
- Hydraulic Parameters; and
- Boundary Conditions.

The 2D model geometry is generally summarized as follows:

- Nominal mesh cell size of 10 m x 10 m.
- Breaklines were drawn through the channel centerline to orient cells along the channel. Breaklines were used to refine the channel mesh using a cell spacing of 5 m x 5 m.
- Breaklines were drawn along areas of high ground (channel banks, road centerlines, etc.) to orient cell faces to capture the high ground. Breaklines were used to refine the road mesh using a cell spacing of 5 m x 5 m.

Figure 5 shows the mesh defined in the HEC RAS 2D model.

Figure 5: HEC RAS 2D Model Defined Mesh – Bridge 7-E

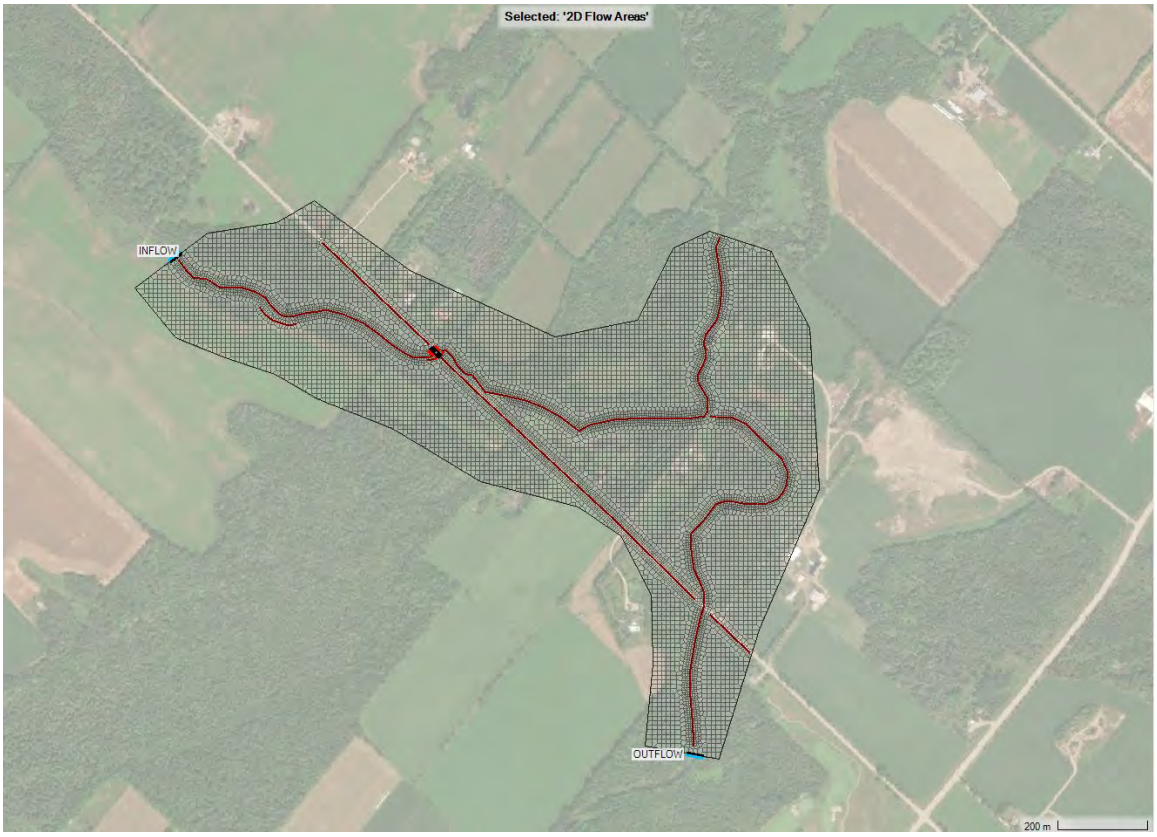


Table 23 outlines the simulation settings in the 2D HEC RAS model.

Table 23: HEC RAS 2D Simulation Settings

	Bridge 7-E
Nominal Grid Size	10 m x 10 m
Number of Cells	10,247
Computational Time Step	1 Second
Simulation Time	24 Hours
Equation Set	SWE-ELM
Theta (0.6-1.0)	1
Water Surface Tolerance	0.003
Maximum Iterations (2D)	20
Initial Conditions Time	0

8.3.1 HEC RAS 2D Boundary Conditions

The peak flows summarized in Table 22 above were used as the input boundary conditions. Quasi-Steady State hydrographs were simulated, which is an appropriate assumption for sizing structures (bridges / culverts) in the 2D environment.

The following boundary conditions summarized in Table 24 were input into the model. The location of the inflow and outflow boundary condition lines are shown in Figure 5 above.

Table 24: HEC RAS 2D Boundary Conditions

Name	Representation	Type	Value
Bridge 7-E BCLINE: Inflow	Inflow	Flow Hydrograph	Quasi-Steady State Hydrogrpah EG Slope: 0.006 m/m
Bridge 7-E BCLINE: Outflow	Outflow	Normal Depth	Friction Slope: 0.006 m/m

The same boundary conditions were used in the existing and the proposed model.

8.3.2 Land Cover Layer

A land classification layer was defined in HEC RAS. Figure 6 illustrates the polygons used to define each Manning's 'n' value. Table 25 outlines the Manning's 'n' value defined for each land type. Note that these values and the polygons are the same under both the existing and proposed conditions.

Table 25: Manning's 'n' Values

ID	Colour in Figure	Land Use	Manning's 'n'
1	Dark Green	Forest	0.080
2	Light Green	Crop	0.030
3	Light Blue	Road	0.013
4	Light Brown	Channel	0.050
5	Black	Building	1
6	Purple	Lawn	0.020

Figure 6: HEC RAS 2D Model Land Classifications - Bridge 7-E



8.3.3 Existing Bridge

The existing structure has been observed to convey up to the 10% AEP / 10-year Storm Event. For storms greater than the 10% AEP / 10-year event, the structure is observed to be overtopped. The existing structure does not align with the lowest elevation in the profile road. The low point was not captured by the topographic survey, as such has been interpreted from the LiDAR to be at an elevation of approximately 388.9 m, 238 m southeast of the structure. The water surface elevation is shown to overtop the low point of the road within the 2D model for storm events greater than the 50% AEP / 2-year event.

Existing Conditions summary hydraulic output files have been provided in Appendix D.

8.3.4 Proposed Bridge Replacement

Alternatives were considered to replace the existing structure whereby improving conveyance and aquatic habitat through the crossing in accordance with the design criteria outlined in Section 3.0 above.

Table 26 illustrates the proposed bridge characteristics versus the existing bridge.

Table 26: Structure Comparison – 7-E

Crossing Characteristic	Existing Conditions	Proposed Conditions
Structure Information		
Material & Type	Concrete Through Girder	Concrete Rigid Frame
Open Footing (Y/N)	Y	Y
Span (m)	8.17	11.58
Soffit U/S (m)	389.24 (underside of floor beam)	389.59 (at mid-span) 389.29 (at ends)
Soffit D/S (m)	389.24 (underside of floor beam)	
Hydraulic Length (m)	6.35	13
Barrier Length, from CL Bridge (m)	4.85 m, each direction	N/A
Barrier Height, from CL Road (m)	0.85 m	N/A
Roadway Information		
Road Surface (Gravel / Paved)	Gravel	Paved
Low Point in Road Elev. (m)	388.9	388.9
Low Point Edge of Lane Elev. (m)	388.9	388.9
Road Width (m)	8.5	9.2
Guide Rail (Y/N)	N	Y
Watercourse Information		
Tailwater Conditions	Normal Depth	
Channel Invert U/S (m)	387.37	387.37
Channel Invert D/S (m)	387.29	387.29

Based on the MTO Roadside Design Manual guide rail should be installed to improve the safety of errant vehicles reaching the watercourse. As guide rail acts as an obstruction to the flow in the event the crossing overtops the roadway, the guide rail has been modelled as a solid barrier up to 50% of the height to account for the possibility that the guide rail is blocked by debris during a flood and therefore does not allow effective flow passage.

Table 27 below illustrates the Proposed Headwater Elevations versus Existing Conditions.

Table 27: Headwater Comparison at SA/2D Connection – Bridge 7-E

Discharge Names	Total Discharge (cms)	Existing Headwater Elevation (m)	Proposed Headwater Elevation (m)	Headwater Difference (m)	Pr. Clearance to Effective Soffit Elevation	Pr. Freeboard to Edge of Travelled Lane
					389.46 (m)	**388.90 (m)**
50% AEP / 2-year	10.74	388.87	388.9	0.03	0.56	0
10% AEP / 10-year	19.19	389.18	389.19	0.01	0.27	-0.29
4% AEP / 25-year	**23.72**	**389.29**	**389.3**	**0.01**	**0.16**	**-0.4**
2% AEP / 50-year	27.15	389.37	389.38	0.01	0.08	-0.48
1% AEP / 100-year	30.96	389.46	389.45	-0.01	0.01	-0.55
Regional	84.85	390.07	390.06	-0.01	-0.6	-1.16

The proposed structure conveys the 4% AEP Storm Event through the bridge with 0.16 m of clearance to the proposed soffit elevation. This exceeds the minimum required clearance design criteria for low-volume bridges. The road is shown to overtop for storms larger than the 50% AEP (2-year) Storm Events; however, there are no requirements for freeboard for low-volume road bridges. As discussed above, the low point in the road does not align with the bridge structure and, as such, it is difficult to design a structure to reduce the headwater elevation such that the risk of overtopping is reduced. The 2-year headwater elevation is slightly increased by 0.03 m under the proposed condition; however, this increase is generally negligible and within modelling tolerances and is not shown to negatively impact the surrounding area. There is also a slight increase of 0.01 m under the 10- to 50-year storm, however, this increase is generally negligible and within the modelling tolerances. Negative impacts to the surrounding areas are not noted as a result. As the proposed structure generally matches or improves the headwater elevation, it is recommended as the proposed replacement.

Proposed summary hydraulic output files for Bridge 7-E have been provided in Appendix D. Summary comparison figures between existing and proposed conditions have been provided in Appendix D. There are slight increases to the floodplain elevations immediately upstream and downstream of the proposed structure under the 2- to100-year design storms modelled; however, the increases are all less than 0.1 m and are not shown to negatively impact the surrounding area. Under the Regional Storm Event, there are increases in the water surface elevation greater than 0.1 m under the proposed condition to the southeast of the proposed structure near the roadway. Optimization during detailed design could address this increase. It is important to note that the depth of water overtopping the roadway is less than 0.3 m in the proposed condition. Preliminary Plan and Profile Drawings have been provided in Appendix E.

9.0 Recommendations and Conclusions

Burnside has completed a hydraulic analysis of the four existing bridge crossings and provided recommendations for replacement structure sizes for consideration in the evaluation of alternatives as outlined in Section 6.0 above. The proposed structure geometry is considered preliminary for the purposes of evaluating alternatives and may be further refined during the detailed design stages of the proposed replacements, should replacement be recommended as part of the Bridge and Transportation Network Study.

All options provide overall improvement by reducing the headwater elevations under proposed conditions and providing increased clearances. The required clearances for the 25-year design storm are met at all bridges except Bridge 5-E. Although the desired clearances are not met under proposed conditions for Bridge 5-E, there is an overall improvement, and we believe the proposed new structure represents the most practical solution for the replacement.

Further refinement of the bridge design and associated road profiles and guide rail can be completed during the detailed design phase to further optimize designs.

R.J. Burnside & Associates Limited



Andrew Dawson, P.Eng.,
Project Engineer

ASD:tc

Enclosure(s) Appendix A Site Photos
Appendix B Hydrology Calculations
Appendix C VO & The Unified Ontario Flood Method
Appendix D Hydraulic Modelling Outputs
Appendix E Drawings

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Appendix A

Site Photos



Photo 1 Bridge 2-WG



Photo 2 Bridge 3-E



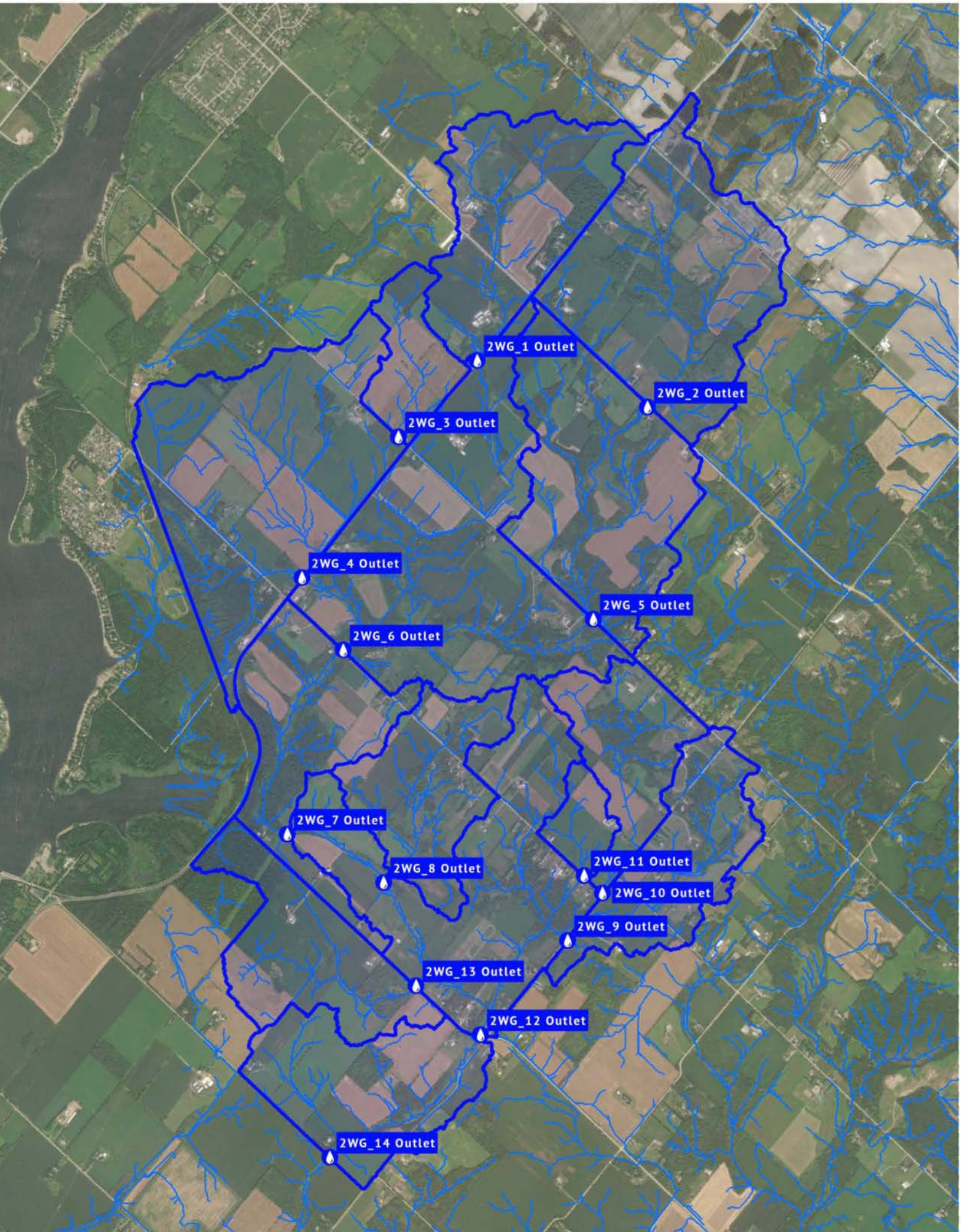
Photo 3 Bridge 5-E



Photo 4 Bridge 7-E

Appendix B

Hydrology Calculations


2WG_1 Outlet
2WG_2 Outlet
2WG_3 Outlet
2WG_4 Outlet
2WG_5 Outlet
2WG_6 Outlet
2WG_7 Outlet
2WG_8 Outlet
2WG_11 Outlet
2WG_10 Outlet
2WG_9 Outlet
2WG_13 Outlet
2WG_12 Outlet
2WG_14 Outlet

Project Name: Centre Wellington 4 Bridges EA - 2-WG
Project No.: 300058117.2
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 2WG-1

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	25.2	31.68	85.96		1.2	
AB						
B						
BC						
C						
CD						
D	5.2	1.28	2.72			

Total area (ha):	153.2	Composite CN(I):	34	Ia (mm) NVCA	7.8
Pervious area (ha):	152.0	Composite CN(II):	56	Ia (mm) NRSCS	41.6
Impervious area (ha):	1.2	Composite CN(III):	74		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	85.96						2.72
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	31.68						1.28
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	25.2						5.2
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	1.2						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	153.24
Runoff Coefficient	0.18
Length (m)	3082
h_1 (m)	479.8
h_2 (m)	449.5
Dh (m)	30.3
Slope (%)	0.98

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		166.62	48.80	72.84		103.37
Tp (hr)		1.86	0.54	0.81		1.15

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	166.33	659.00				112.62
Tp (hr)	1.86	7.36				1.26

Project Name: Centre Wellington 4 Bridges EA - 2-WG
Project No: 300058117.2
Location:
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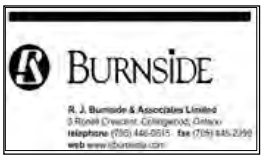
Date: 23-Sep-2024
Date Modified: 19-Dec-2024



Catchment 2WG-1-SHIFT to 2WG-6

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	2928.71					**2928.71**
h_1 (m)	449.50					
h_2 (m)	424.50					
Δh (m)	25.00					
Slope (%)	0.85					
x	4.6					**N/A**
V (m/s)	0.43					**N/A**
Tc (min)	114.85					**114.85**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA - 2-WG
Project No.: 300058117.2
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **2WG-2**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	33.76	91.39	82.8		4.64	
AB						
B	11.6	0.04	3			
BC						
C			0.04			
CD						
D	3.28		0.04			

Total area (ha):	230.6	Composite CN(I):	30	Ia (mm) NVCA	7.9
Pervious area (ha):	226.0	Composite CN(II):	51	Ia (mm) NRSCS	50.8
Impervious area (ha):	4.6	Composite CN(III):	70		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	82.8		3.00		0.04		0.04
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	91.36		0.04				
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	33.76		11.60				3.28
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	4.64						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	230.56
Runoff Coefficient	0.16
Length (m)	3303
h_1 (m)	488.9
h_2 (m)	444.6
Dh (m)	44.3
Slope (%)	1.34

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		160.50	54.01	80.61		96.58
Tp (hr)		1.79	0.60	0.90		1.08

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	160.38	677.21				103.34
Tp (hr)	1.79	7.56				1.15

Project Name:	Centre Wellington 4 Bridges EA - 2-WG
Project No:	300058117.2
Location:	
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Date:	23-Sep-2024
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Catchment 2WG-2 SHIFT to 2WG-5

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	2066.92					**2066.92**
h_1 (m)	444.60					
h_2 (m)	431.00					
Δh (m)	13.60					
Slope (%)	0.66					
x	4.6					**N/A**
V (m/s)	0.37					**N/A**
Tc (min)	92.32					**92.32**

x = Land Cover Coefficient **(see below)**

0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA - 2-WG
Project No.: 300058117.2
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **2WG-3**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A		6.12	32		1.12	
AB						
B		0.08	11.96			
BC						
C						
CD						
D						

Total area (ha):	51.3	Composite CN(I):	45	Ia (mm) NVCA	7.0
Pervious area (ha):	50.2	Composite CN(II):	66	Ia (mm) NRSCS	27.4
Impervious area (ha):	1.1	Composite CN(III):	82		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	32		11.96				
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	6.12		0.08				
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope							
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	1.12						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	51.28
Runoff Coefficient	0.23
Length (m)	1791
h_1 (m)	468.9
h_2 (m)	443.2
Dh (m)	25.7
Slope (%)	1.43

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		106.71	29.20	43.59		57.98
Tp (hr)		1.19	0.33	0.49		0.65

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	106.65	272.38				54.17
Tp (hr)	1.19	3.04				0.60

Project Name:	Centre Wellington 4 Bridges EA - 2-WG
Project No:	300058117.2
Location:	
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Date:	23-Sep-2024
Date Modified:	19-Dec-2024

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Catchment 2WG-2 SHIFT to 2WG-4

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1243.63					**1243.63**
h_1 (m)	443.20					
h_2 (m)	426.30					
Δh (m)	16.90					
Slope (%)	1.36					
x	4.6					**N/A**
V (m/s)	0.54					**N/A**
Tc (min)	38.65					**38.65**

x = Land Cover Coefficient **(see below)**

0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA - 2-WG
Project No.: 300058117.2
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **2WG-4**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	4.84	66.08	51.92		10.48	
AB						
B	8	16.12	67.04			
BC						
C	12.2	2.04	32.88			
CD						
D						

Total area (ha):	271.6	Composite CN(I):	43	Ia (mm) NVCA	7.4
Pervious area (ha):	261.1	Composite CN(II):	64	Ia (mm) NRSCS	28.6
Impervious area (ha):	10.5	Composite CN(III):	80		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	51.92		67.04		32.88		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	66.08		16.12		2.04		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	4.84		8.00		12.20		
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	10.48						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	271.60
Runoff Coefficient	0.24
Length (m)	2642
h_1 (m)	456.1
h_2 (m)	426.3
Dh (m)	29.8
Slope (%)	1.13

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		138.53	59.70	89.10		86.69
Tp (hr)		1.55	0.67	0.99		0.97

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	138.35	437.29				90.13
Tp (hr)	1.54	4.88				1.01

Project Name: Centre Wellington 4 Bridges EA - 2-WG
Project No: 300058117.2
Location:
Designer: J.Koen
Date: 23-Sep-2024
Date Modified: 19-Dec-2024

Catchment 2WG-4 SHIFT to 2WG-6

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	779.36					**779.36**
h_1 (m)	426.30					
h_2 (m)	424.50					
Δh (m)	1.80					
Slope (%)	0.23					
x	4.6					**N/A**
V (m/s)	0.22					**N/A**
Tc (min)	58.76					**58.76**

x = Land Cover Coefficient **(see below)**

0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA - 2-WG
Project No.: 300058117.2
Location:
Created By: J.Koen
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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **2WG-5**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	20.56	37.68	60.16		2.96	
AB						
B	17	27.6				
BC						
C	24.28	3.44	3.16			
CD						
D	2.24					

Total area (ha):	199.1	Composite CN(I):	36	Ia (mm) NVCA	8.2
Pervious area (ha):	196.1	Composite CN(II):	57	Ia (mm) NRSCS	38.3
Impervious area (ha):	3.0	Composite CN(III):	76		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	60.16				3.16		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	37.68		27.60		3.44		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	20.56		17.00		24.28		2.24
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	2.96						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	199.08
Runoff Coefficient	0.20
Length (m)	3333
h_1 (m)	460
h_2 (m)	431
Dh (m)	29
Slope (%)	0.87

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		178.26	55.53	82.88		115.40
Tp (hr)		1.99	0.62	0.93		1.29

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	177.88	712.64				129.46
Tp (hr)	1.99	7.96				1.45

Project Name: Centre Wellington 4 Bridges EA - 2-WG
Project No: 300058117.2
Location:
Designer: J.Koen
Date: 23-Sep-2024
Date Modified: 19-Dec-2024



Catchment 2WG-5 SHIFT to 2WG-6

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	2053.21					**2053.21**
h_1 (m)	431.00					
h_2 (m)	424.50					
Δh (m)	6.50					
Slope (%)	0.32					
x	4.6					**N/A**
V (m/s)	0.26					**N/A**
Tc (min)	132.22					**132.22**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA - 2-WG
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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **2WG-6**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	3.2	30.92	39.04		1.95	
AB						
B	3.84	65.48	29.12		1.95	
BC						
C	36.08	46.48	8.52		1.95	
CD						
D	9.64	17.88	2.52		1.95	

Total area (ha):	300.5	Composite CN(I):	46	Ia (mm) NVCA	7.9
Pervious area (ha):	292.7	Composite CN(II):	67	Ia (mm) NRSCS	25.0
Impervious area (ha):	7.8	Composite CN(III):	82		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	39.04		29.12		8.52		2.52
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	30.92		65.48		46.48		17.88
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	3.2		3.84		36.08		9.64
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	1.95		1.95		1.95		1.95
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	300.52
Runoff Coefficient	0.27
Length (m)	3868
h_1 (m)	458.5
h_2 (m)	424.5
Dh (m)	34
Slope (%)	0.88

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		176.69	65.34	97.53		129.28
Tp (hr)		1.97	0.73	1.09		1.44

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	176.32	622.91				149.48
Tp (hr)	1.97	6.96				1.67

Project Name: Centre Wellington 4 Bridges EA - 2-WG
Project No: 300058117.2
Location:
Designer: J.Koen
Date: 23-Sep-2024
Date Modified: 19-Dec-2024

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Catchment 2WG-6 SHIFT to 2WG-7

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1771.37					**1771.37**
h_1 (m)	424.50					
h_2 (m)	420.10					
Δh (m)	4.40					
Slope (%)	0.25					
x	4.6					**N/A**
V (m/s)	0.23					**N/A**
Tc (min)	128.77					**128.77**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA - 2-WG
Project No.: 300058117.2
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **2WG-7**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	15.44	22.92	26		1.08	
AB						
B	0.12	3.68	13.88		1.08	
BC						
C	15.64	18.2	9.6		1.08	
CD						
D						

Total area (ha):	128.7	Composite CN(I):	40	Ia (mm) NVCA	7.9
Pervious area (ha):	125.5	Composite CN(II):	62	Ia (mm) NRSCS	32.5
Impervious area (ha):	3.2	Composite CN(III):	79		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	26		13.88		9.60		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	22.92		3.68		18.20		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	15.44		0.12		15.64		
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	1.08		1.08		1.08		
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	128.72
Runoff Coefficient	0.23
Length (m)	2624
h_1 (m)	434.5
h_2 (m)	420.1
Dh (m)	14.4
Slope (%)	0.55

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		177.17	51.15	76.34		114.61
Tp (hr)		1.98	0.57	0.85		1.28

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	176.52	667.22				128.34
Tp (hr)	1.97	7.45				1.43

Project Name: Centre Wellington 4 Bridges EA - 2-WG
Project No: 300058117.2
Location:
Designer: J.Koen
Date: 23-Sep-2024
Date Modified: 19-Dec-2024



Catchment 2WG-7 SHIFT to 2WG-12

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	2335.19					**2335.19**
h_1 (m)	420.10					
h_2 (m)	413.20					
Δh (m)	6.90					
Slope (%)	0.30					
x	4.6					**N/A**
V (m/s)	0.25					**N/A**
Tc (min)	155.65					**155.65**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA - 2-WG
Project No.: 300058117.2
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **2WG-8**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	6.56	37.96	24		0.74	
AB						
B	6.12	16.4	16.48		0.74	
BC						
C						
CD						
D						

Total area (ha):	109.0	Composite CN(I):	34	Ia (mm) NVCA	7.8
Pervious area (ha):	107.5	Composite CN(II):	55	Ia (mm) NRSCS	41.6
Impervious area (ha):	1.5	Composite CN(III):	74		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	24		16.48				
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	37.96		16.40				
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	6.56		6.12				
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	0.74		0.74				
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	109.00
Runoff Coefficient	0.18
Length (m)	2471
h_1 (m)	438.5
h_2 (m)	418.4
Dh (m)	20.1
Slope (%)	0.81

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		159.20	44.23	66.02		93.56
Tp (hr)		1.78	0.49	0.74		1.04

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	158.82	613.54				99.27
Tp (hr)	1.77	6.85				1.11

Project Name: Centre Wellington 4 Bridges EA - 2-WG
Project No: 300058117.2
Location:
Designer: J.Koen
Date: 23-Sep-2024
Date Modified: 19-Dec-2024

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Catchment 2WG-8 SHIFT to 2WG-12

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1535.95					**1535.95**
h_1 (m)	418.40					
h_2 (m)	413.20					
Δh (m)	5.20					
Slope (%)	0.34					
x	4.6					**N/A**
V (m/s)	0.27					**N/A**
Tc (min)	95.64					**95.64**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA - 2-WG
Project No.: 300058117.2
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **2WG-9**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	12.84	41	1.88		1.4	
AB						
B	1.2	16.88	14.8		1.4	
BC						
C	4.44	8.96	4.72		1.4	
CD						
D						

Total area (ha):	110.9	Composite CN(I):	34	Ia (mm) NVCA	7.9
Pervious area (ha):	106.7	Composite CN(II):	55	Ia (mm) NRSCS	41.6
Impervious area (ha):	4.2	Composite CN(III):	74		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	1.88		14.80		4.72		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	41		16.88		8.96		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	12.84		1.20		4.44		
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	1.4		1.40		1.40		
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	110.92
Runoff Coefficient	0.20
Length (m)	2967
h_1 (m)	440.1
h_2 (m)	414.6
Dh (m)	25.5
Slope (%)	0.86

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		168.98	44.05	65.76		105.78
Tp (hr)		1.89	0.49	0.73		1.18

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	168.61	692.65				115.96
Tp (hr)	1.88	7.73				1.29

Project Name:	Centre Wellington 4 Bridges EA - 2-WG
Project No:	300058117.2
Location:	
Designer:	J.Koen
Date:	23-Sep-2024
Date Modified:	19-Dec-2024

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Catchment 2WG-9 SHIFT to 2WG-12

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1131.51					**1131.51**
h_1 (m)	414.60					
h_2 (m)	413.20					
Δh (m)	1.40					
Slope (%)	0.12					
x	4.6					**N/A**
V (m/s)	0.16					**N/A**
Tc (min)	116.55					**116.55**

x = Land Cover Coefficient **(see below)**

0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA - 2-WG
Project No.: 300058117.2
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **2WG-10**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	4.04	34.12	11.48		1.4	
AB						
B	1.16	11.2	5.56			
BC						
C	15.36	2.52				
CD						
D						

Total area (ha):	86.8	Composite CN(I):	34	Ia (mm) NVCA	8.2
Pervious area (ha):	85.4	Composite CN(II):	55	Ia (mm) NRSCS	41.6
Impervious area (ha):	1.4	Composite CN(III):	74		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	11.48		5.56				
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	34.12		11.20		2.52		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	4.04		1.16		15.36		
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	1.4						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	86.84
Runoff Coefficient	0.19
Length (m)	2684
h_1 (m)	440.1
h_2 (m)	418.1
Dh (m)	22
Slope (%)	0.82

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		164.78	40.33	60.19		99.57
Tp (hr)		1.84	0.45	0.67		1.11

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	164.39	651.97				107.41
Tp (hr)	1.84	7.28				1.20

Project Name:	Centre Wellington 4 Bridges EA - 2-WG
Project No:	300058117.2
Location:	
Designer:	J.Koen
Date:	23-Sep-2024
Date Modified:	19-Dec-2024

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Catchment 2WG-10 SHIFT 2WG-12

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1537.63					**1537.63**
h_1 (m)	418.10					
h_2 (m)	413.20					
Δh (m)	4.90					
Slope (%)	0.32					
x	4.6					**N/A**
V (m/s)	0.26					**N/A**
Tc (min)	98.69					**98.69**

x = Land Cover Coefficient **(see below)**

x = 0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name:	Centre Wellington 4 Bridges EA - 2-WG
Project No.:	300058117.2
Location:	
Created By:	J.Koen
Checked By:	
Date Created:	23-Sep-2024
Date Modified:	19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **2WG-11**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A		0.76	16.56			
AB						
B		2.6	5.84			
BC						
C						
CD						
D						

Total area (ha):	**25.8**	**Composite CN(I):**	46	**Ia (mm) NVCA**	**7.1**
Pervious area (ha):	**25.8**	**Composite CN(II):**	**67**	**Ia (mm) NRSCS**	**26.2**
Impervious area (ha):	**0.0**	**Composite CN(III):**	82		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	16.56		5.84				
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	0.76		2.60				
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope							
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family							
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	25.76
Runoff Coefficient	0.24
Length (m)	1246
h_1 (m)	433.5
h_2 (m)	419.6
Dh (m)	13.9
Slope (%)	1.12

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		95.85	23.32	34.81		48.08
Tp (hr)		1.07	0.26	0.39		0.54

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	95.72	224.15				42.74
Tp (hr)	1.07	2.50				0.48

Project Name:	Centre Wellington 4 Bridges EA - 2-WG
Project No:	300058117.2
Location:	
Designer:	J.Koen
Date:	23-Sep-2024
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Catchment 2WG-11 SHIFT to 2WG-12

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1413.12					**1413.12**
h_1 (m)	419.60					
h_2 (m)	413.20					
Δh (m)	6.40					
Slope (%)	0.45					
x	4.6					**N/A**
V (m/s)	0.31					**N/A**
Tc (min)	76.08					**76.08**

x = Land Cover Coefficient **(see below)**

0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA - 2-WG
Project No.: 300058117.2
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **2WG-12**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	8.6	44.24	8.44			
AB						
B	11	93.84	45.44		2.88	
BC						
C	9.56	2.44	2.84			
CD						
D						

Total area (ha):	229.3	Composite CN(I):	39	Ia (mm) NVCA	7.9
Pervious area (ha):	226.4	Composite CN(II):	60	Ia (mm) NRSCS	35.3
Impervious area (ha):	2.9	Composite CN(III):	77		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	8.44		45.44		2.84		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	44.24		93.84		2.44		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	8.6		11.00		9.56		
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family			2.88				
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	229.28
Runoff Coefficient	0.22
Length (m)	3670
h_1 (m)	439.2
h_2 (m)	413.2
Dh (m)	26
Slope (%)	0.71

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		195.95	61.22	91.38		135.05
Tp (hr)		2.19	0.68	1.02		1.51

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	195.40	801.02				157.98
Tp (hr)	2.18	8.94				1.76

Project Name:	Centre Wellington 4 Bridges EA - 2-WG
Project No:	300058117.2
Location:	
Designer:	J.Koen
Date:	23-Sep-2024
Date Modified:	19-Dec-2024

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Catchment 2WG-12 SHIFT to 2WG-14

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1602.3					**1602.3**
h_1 (m)	413.20					
h_2 (m)	409.70					
Δh (m)	3.50					
Slope (%)	0.22					
x	4.6					**N/A**
V (m/s)	0.21					**N/A**
Tc (min)	124.21					**124.21**

x = Land Cover Coefficient **(see below)**

0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA - 2-WG
Project No.: 300058117.2
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **2WG-13**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	2.96		6.36			
AB						
B	24.16	12.92	71.24		0.52	
BC						
C						
CD						
D						

Total area (ha):	118.2	Composite CN(I):	48	Ia (mm) NVCA	7.8
Pervious area (ha):	117.6	Composite CN(II):	69	Ia (mm) NRSCS	22.8
Impervious area (ha):	0.5	Composite CN(III):	84		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	6.36		71.24				
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope			12.92				
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	2.96		24.16				
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family			0.52				
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	118.16
Runoff Coefficient	0.26
Length (m)	2882
h_1 (m)	428.7
h_2 (m)	415.8
Dh (m)	12.9
Slope (%)	0.45

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		191.28	51.48	76.84		133.77
Tp (hr)		2.14	0.57	0.86		1.49

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	190.45	654.24				156.08
Tp (hr)	2.13	7.31				1.74

Project Name:	Centre Wellington 4 Bridges EA - 2-WG
Project No:	300058117.2
Location:	
Designer:	J.Koen
Date:	23-Sep-2024
Date Modified:	19-Dec-2024

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Catchment 2WG-13 SHIFT to 2WG-12

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	860.89					**860.89**
h_1 (m)	415.80					
h_2 (m)	413.20					
Δh (m)	2.60					
Slope (%)	0.30					
x	4.6					**N/A**
V (m/s)	0.25					**N/A**
Tc (min)	56.76					**56.76**

x = Land Cover Coefficient **(see below)**

x = 0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA - 2-WG
Project No.: 300058117.2
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **2WG-14**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	7.68	27.64	29.04		1.4	
AB						
B	4.76	28.96	33.16		1.4	
BC						
C						
CD						
D						

Total area (ha):	134.0	Composite CN(I):	39	Ia (mm) NVCA	7.6
Pervious area (ha):	131.2	Composite CN(II):	60	Ia (mm) NRSCS	33.9
Impervious area (ha):	2.8	Composite CN(III):	78		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	29.04		33.16				
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	27.64		28.96				
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	7.68		4.76				
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	1.4		1.40				
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	134.04
Runoff Coefficient	0.21
Length (m)	2251
h_1 (m)	418.6
h_2 (m)	409.7
Dh (m)	8.9
Slope (%)	0.40

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		187.53	55.50	82.84		115.57
Tp (hr)		2.09	0.62	0.93		1.29

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	186.64	720.39				129.71
Tp (hr)	2.08	8.04				1.45

Ontario IDF CURVE LOOKUP

Active coordinate

43° 42' 45" N, 80° 18' 14" W (43.712500,-80.304167)

Retrieved: Wed, 25 Sep 2024 14:39:19 GMT



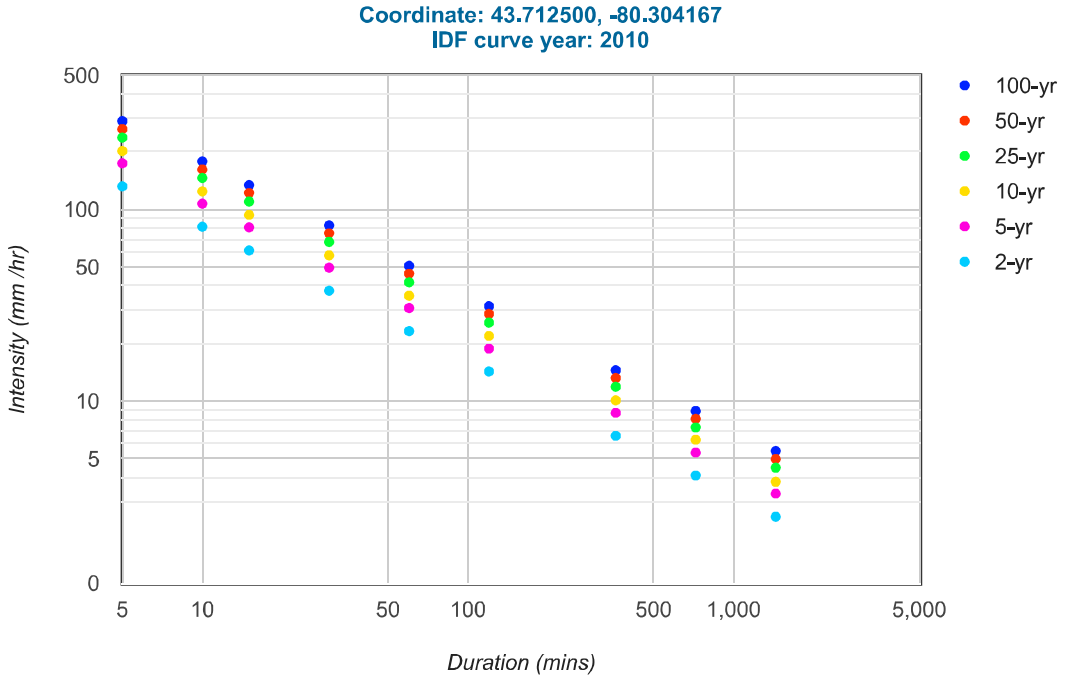
Location summary

These are the locations in the selection.

IDF Curve: 43° 42' 45" N, 80° 18' 14" W (43.712500,-80.304167)

Results

An IDF curve was found.



Coefficient summary

IDF Curve: 43° 42' 45" N, 80° 18' 14" W (43.712500,-80.304167)

Retrieved: Wed, 25 Sep 2024 14:39:19 GMT

Data year: 2010
IDF curve year: 2010

Return period	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
A	23.2	30.6	35.5	41.7	46.2	50.8
B	-0.699	-0.699	-0.699	-0.699	-0.699	-0.699

Statistics

Rainfall intensity (mm hr^{-1})

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	131.8	81.2	61.1	37.7	23.2	14.3	6.6	4.1	2.5
5-yr	173.8	107.1	80.6	49.7	30.6	18.8	8.7	5.4	3.3
10-yr	201.6	124.2	93.6	57.6	35.5	21.9	10.1	6.3	3.8
25-yr	236.9	145.9	109.9	67.7	41.7	25.7	11.9	7.3	4.5
50-yr	262.4	161.6	121.8	75.0	46.2	28.5	13.2	8.1	5.0
100-yr	288.5	177.7	133.9	82.5	50.8	31.3	14.5	8.9	5.5

Rainfall depth (mm)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	11.0	13.5	15.3	18.8	23.2	28.6	39.8	49.0	60.4
5-yr	14.5	17.8	20.2	24.8	30.6	37.7	52.5	64.6	79.6
10-yr	16.8	20.7	23.4	28.8	35.5	43.7	60.9	75.0	92.4
25-yr	19.7	24.3	27.5	33.8	41.7	51.4	71.5	88.1	108.5
50-yr	21.9	26.9	30.4	37.5	46.2	56.9	79.2	97.6	120.3
100-yr	24.0	29.6	33.5	41.2	50.8	62.6	87.1	107.3	132.2

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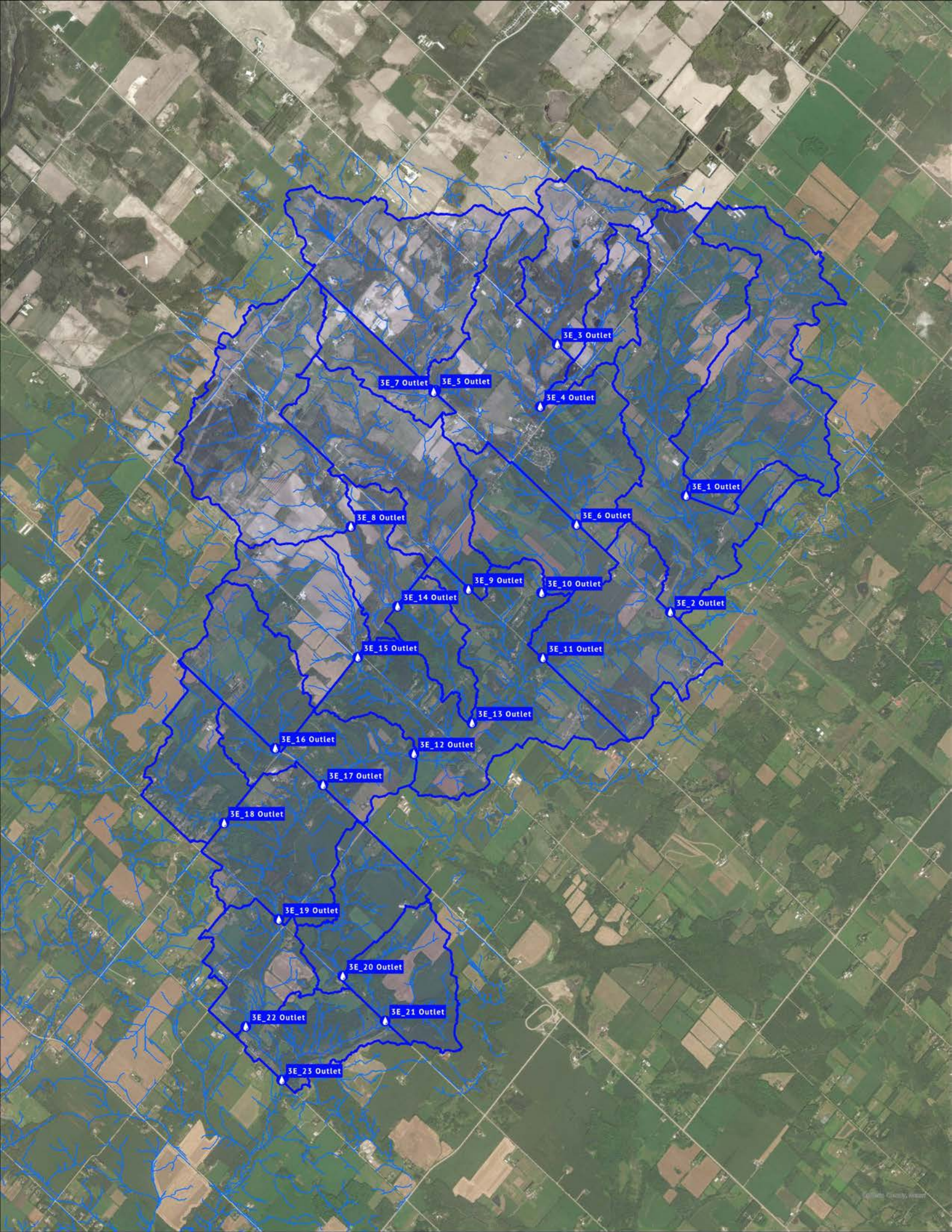
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3E_12 Outlet
3E_17 Outlet
3E_18 Outlet
3E_19 Outlet
3E_20 Outlet
3E_22 Outlet
3E_21 Outlet
3E_23 Outlet

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 3E-1

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	7.96	99.16	167.64		4.28	
AB						
B	13.84	9.2	15.64			
BC						
C	20.96	5	8.16			
CD						
D						

Total area (ha):	351.8	Composite CN(I):	37	Ia (mm) NVCA	7.6
Pervious area (ha):	347.6	Composite CN(II):	59	Ia (mm) NRSCS	36.8
Impervious area (ha):	4.3	Composite CN(III):	77		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	167.64		15.64		8.16		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	99.16		9.20		5.00		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	7.96		13.84		20.96		
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	4.28						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	351.84
Runoff Coefficient	0.20
Length (m)	5150
h_1 (m)	497.6
h_2 (m)	438.4
Dh (m)	59.2
Slope (%)	1.15

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		201.77	65.96	98.45		145.79
Tp (hr)		2.25	0.74	1.10		1.63

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	201.52	848.72				174.04
Tp (hr)	2.25	9.48				1.94

Project Name:	Centre Wellington 4 Bridges EA
Project No:	58117.3
Location:	
Designer:	J.Koen
Date:	25-Sep-2024
Date Modified:	19-Dec-2024

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Catchment 3E-1 SHIFT to 3E-2

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1536.99					**1536.99**
h_1 (m)	438.40					
h_2 (m)	431.10					
Δh (m)	7.30					
Slope (%)	0.47					
x	4.6					**N/A**
V (m/s)	0.32					**N/A**
Tc (min)	80.80					**80.80**

x = Land Cover Coefficient **(see below)**

x = 0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 3E-2

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	62.08	97.76	100.16		8.76	
AB						
B	9.48	17.96	29.24			
BC						
C	66.44	11.84	12.12			
CD						
D						

Total area (ha):	415.8	Composite CN(I):	36	Ia (mm) NVCA	8.2
Pervious area (ha):	407.1	Composite CN(II):	57	Ia (mm) NRSCS	39.9
Impervious area (ha):	8.8	Composite CN(III):	75		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	100.16		29.24		12.12		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	97.76		17.96		11.84		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	62.08		9.48		66.44		
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	8.76						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	415.84
Runoff Coefficient	0.20
Length (m)	6715
h_1 (m)	501.4
h_2 (m)	431.1
Dh (m)	70.3
Slope (%)	1.05

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		237.63	71.85	107.24		186.55
Tp (hr)		2.65	0.80	1.20		2.08

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	237.27	1156.51				237.78
Tp (hr)	2.65	12.91				2.66

Project Name: Centre Wellington 4 Bridges EA
Project No: 58117.3
Location:
Designer: J.Koen
Date: 25-Sep-2024
Date Modified: 19-Dec-2024

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Catchment 3E-2 SHIFT to 3E-11

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1845.81					**1845.81**
h_1 (m)	431.10					
h_2 (m)	426.20					
Δh (m)	4.90					
Slope (%)	0.27					
x	4.6					**N/A**
V (m/s)	0.24					**N/A**
Tc (min)	129.80					**129.80**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 3E-3

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	35.52	55.44	46.72		3.76	
AB						
B	2.52		9			
BC						
C						
CD						
D	8.36	0.16	0.08			

Total area (ha):	161.6	Composite CN(I):	30	Ia (mm) NVCA	8.1
Pervious area (ha):	157.8	Composite CN(II):	51	Ia (mm) NRSCS	50.8
Impervious area (ha):	3.8	Composite CN(III):	70		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	46.72		9.00				0.08
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	55.44						0.16
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	35.52		2.52				8.36
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	3.76						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	161.56
Runoff Coefficient	0.16
Length (m)	3467
h_1 (m)	499.8
h_2 (m)	448.5
Dh (m)	51.3
Slope (%)	1.48

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		158.11	45.93	68.56		96.53
Tp (hr)		1.77	0.51	0.77		1.08

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	158.05	669.75				103.27
Tp (hr)	1.76	7.48				1.15

Project Name: Centre Wellington 4 Bridges EA
Project No: 58117.3
Location:
Designer: J.Koen
Date: 25-Sep-2024
Date Modified: 19-Dec-2024

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Catchment 3E-3 SHIFT to 3E-6

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	2539.41					**2539.41**
h_1 (m)	448.50					
h_2 (m)	432.40					
Δh (m)	16.10					
Slope (%)	0.63					
x	4.6					**N/A**
V (m/s)	0.37					**N/A**
Tc (min)	115.55					**115.55**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 3E-4

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	17.84	24.4	20.28		4.88	
AB						
B	1.4		0.56			
BC						
C						
CD						
D	6.36	5.8	3.2			

Total area (ha):	84.7	Composite CN(I):	34	Ia (mm) NVCA	8.0
Pervious area (ha):	79.8	Composite CN(II):	55	Ia (mm) NRSCS	43.3
Impervious area (ha):	4.9	Composite CN(III):	74		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	20.28		0.56				3.2
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	24.4						5.8
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	17.84		1.40				6.36
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	4.88						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	84.72
Runoff Coefficient	0.20
Length (m)	3079
h_1 (m)	494.3
h_2 (m)	438.9
Dh (m)	55.4
Slope (%)	1.80

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		134.56	34.12	50.93		81.35
Tp (hr)		1.50	0.38	0.57		0.91

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	134.60	494.59				83.17
Tp (hr)	1.50	5.52				0.93

Project Name: Centre Wellington 4 Bridges EA
Project No: 58117.3
Location:
Designer: J.Koen
Date: 25-Sep-2024
Date Modified: 19-Dec-2024



Catchment 3E-4 SHIFT to 3E-6

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1725.29					**1725.29**
h_1 (m)	438.90					
h_2 (m)	432.40					
Δh (m)	6.50					
Slope (%)	0.38					
x	4.6					**N/A**
V (m/s)	0.28					**N/A**
Tc (min)	101.84					**101.84**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **3E-5**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	69.48	97.56	75		4.28	
AB						
B						
BC						
C						
CD						
D	24.24	13.88	6.44			

Total area (ha):	290.9	Composite CN(I):	30	Ia (mm) NVCA	8.3
Pervious area (ha):	286.6	Composite CN(II):	51	Ia (mm) NRSCS	50.8
Impervious area (ha):	4.3	Composite CN(III):	70		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	75						6.44
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	97.56						13.88
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	69.48						24.24
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	4.28						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	290.88
Runoff Coefficient	0.17
Length (m)	4026
h_1 (m)	486.5
h_2 (m)	443.3
Dh (m)	43.2
Slope (%)	1.07

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

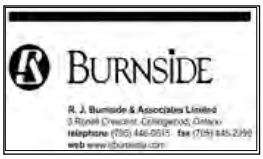
Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		187.05	61.97	92.50		123.33
Tp (hr)		2.09	0.69	1.03		1.38

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	186.78	880.71				140.82
Tp (hr)	2.09	9.83				1.57

Project Name: Centre Wellington 4 Bridges EA
Project No: 58117.3
Location:
Designer: J.Koen
Date: 25-Sep-2024
Date Modified: 19-Dec-2024



Catchment 3E-5 SHIFT to 3E-6

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	2582.98					**2582.98**
h_1 (m)	443.30					
h_2 (m)	432.40					
Δh (m)	10.90					
Slope (%)	0.42					
x	4.6					**N/A**
V (m/s)	0.30					**N/A**
Tc (min)	144.07					**144.07**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 3E-6

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	51.8	130.24	60		5.2	
AB						
B	1.24	1.48				
BC						
C	1.96	2.8				
CD						
D	94.84	23.28	13.88		5.2	

Total area (ha):	391.9	Composite CN(I):	36	Ia (mm) NVCA	8.4
Pervious area (ha):	381.5	Composite CN(II):	57	Ia (mm) NRSCS	38.3
Impervious area (ha):	10.4	Composite CN(III):	76		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	60						13.88
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	130.24		1.48		2.80		23.28
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	51.8		1.24		1.96		94.84
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	5.2						5.2
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	391.92
Runoff Coefficient	0.22
Length (m)	5448
h_1 (m)	500.1
h_2 (m)	432.4
Dh (m)	67.7
Slope (%)	1.24

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		196.69	67.80	101.20		147.79
Tp (hr)		2.20	0.76	1.13		1.65

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	196.50	884.34				177.07
Tp (hr)	2.19	9.88				1.98

Project Name: Centre Wellington 4 Bridges EA
Project No: 58117.3
Location:
Designer: J.Koen
Date: 25-Sep-2024
Date Modified: 19-Dec-2024



Catchment 3E-6 SHIFT to 3E-10

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1419.5					**1419.5**
h_1 (m)	432.40					
h_2 (m)	429.10					
Δh (m)	3.30					
Slope (%)	0.23					
x	4.6					**N/A**
V (m/s)	0.22					**N/A**
Tc (min)	106.67					**106.67**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **3E-7**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	17.12	36.28	9.84		0.84	
AB						
B						
BC						
C						
CD						
D	17.16					

Total area (ha):	81.2	Composite CN(I):	29	Ia (mm) NVCA	8.7
Pervious area (ha):	80.4	Composite CN(II):	49	Ia (mm) NRSCS	52.9
Impervious area (ha):	0.8	Composite CN(III):	69		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	9.84						
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	36.28						
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	17.12						17.16
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	0.84						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	81.24
Runoff Coefficient	0.17
Length (m)	2461
h_1 (m)	476
h_2 (m)	443.2
Dh (m)	32.8
Slope (%)	1.33

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		137.38	35.63	53.18		76.73
Tp (hr)		1.53	0.40	0.59		0.86

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	137.27	558.49				77.24
Tp (hr)	1.53	6.24				0.86

Project Name: Centre Wellington 4 Bridges EA
Project No: 58117.3
Location:
Designer: J.Koen
Date: 25-Sep-2024
Date Modified: 19-Dec-2024



Catchment 3E-7 SHIFT to 3E-6

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	2615.57					**2615.57**
h_1 (m)	443.20					
h_2 (m)	432.40					
Δh (m)	10.80					
Slope (%)	0.41					
x	4.6					**N/A**
V (m/s)	0.30					**N/A**
Tc (min)	147.48					**147.48**

x =	Land Cover Coefficient **(see below)**	
x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 3E-8

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	90.24	94.64	104.32		7.36	
AB						
B						
BC						
C						
CD						
D	16.76	12.64	12.88			

Total area (ha):	338.8	Composite CN(I):	31	Ia (mm) NVCA	8.2
Pervious area (ha):	331.5	Composite CN(II):	51	Ia (mm) NRSCS	48.8
Impervious area (ha):	7.4	Composite CN(III):	71		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	104.32						12.88
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	94.64						12.64
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	90.24						16.76
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	7.36						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	338.84
Runoff Coefficient	0.18
Length (m)	4399
h_1 (m)	478.8
h_2 (m)	440.9
Dh (m)	37.9
Slope (%)	0.86

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		209.82	68.83	102.73		144.25
Tp (hr)		2.34	0.77	1.15		1.61

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	209.36	1040.47				171.71
Tp (hr)	2.34	11.62				1.92

Project Name:	Centre Wellington 4 Bridges EA
Project No:	58117.3
Location:	
Designer:	J.Koen
Date:	25-Sep-2024
Date Modified:	19-Dec-2024

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Catchment 3E-8 SHIFT to 3E-14

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1286.79					**1286.79**
h_1 (m)	440.90					
h_2 (m)	433.90					
Δh (m)	7.00					
Slope (%)	0.54					
x	4.6					**N/A**
V (m/s)	0.34					**N/A**
Tc (min)	63.21					**63.21**

x = Land Cover Coefficient **(see below)**

x = 0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 3E-9

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	46.44	56.32	50.28		5.12	
AB						
B			0.84			
BC						
C	18.36	0.84	4.52			
CD						
D	39	15.12	12.84			

Total area (ha):	249.7	Composite CN(I):	37	Ia (mm) NVCA	8.4
Pervious area (ha):	244.6	Composite CN(II):	58	Ia (mm) NRSCS	36.8
Impervious area (ha):	5.1	Composite CN(III):	76		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	50.28		0.84		4.52		12.84
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	56.32				0.84		15.12
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	46.44				18.36		39
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	5.12						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	249.68
Runoff Coefficient	0.23
Length (m)	4601
h_1 (m)	465.5
h_2 (m)	432.4
Dh (m)	33.1
Slope (%)	0.72

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		215.80	63.15	94.26		160.49
Tp (hr)		2.41	0.71	1.05		1.79

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	215.20	994.42				196.54
Tp (hr)	2.40	11.10				2.19

Project Name: Centre Wellington 4 Bridges EA
Project No: 58117.3
Location:
Designer: J.Koen
Date: 25-Sep-2024
Date Modified: 19-Dec-2024



Catchment 3E-9 SHIFT to 3E-12

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	3473.82					**3473.82**
h_1 (m)	432.40					
h_2 (m)	419.70					
Δh (m)	12.70					
Slope (%)	0.37					
x	4.6					**N/A**
V (m/s)	0.28					**N/A**
Tc (min)	208.16					**208.16**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 3E-10

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	3.52	27.6	28.96		1.07	
AB						
B	2.72	8.92	23.76		1.07	
BC						
C	17.32	5.64	20.84		1.07	
CD						
D	2.84					

Total area (ha):	145.3	Composite CN(I):	44	Ia (mm) NVCA	7.7
Pervious area (ha):	142.1	Composite CN(II):	65	Ia (mm) NRSCS	27.4
Impervious area (ha):	3.2	Composite CN(III):	81		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	28.96		23.76		20.84		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	27.6		8.92		5.64		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	3.52		2.72		17.32		2.84
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	1.07		1.07		1.07		
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	145.33
Runoff Coefficient	0.25
Length (m)	3952
h_1 (m)	454.4
h_2 (m)	429.1
Dh (m)	25.3
Slope (%)	0.64

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		201.43	52.06	77.71		149.04
Tp (hr)		2.25	0.58	0.87		1.66

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	200.79	778.21				178.96
Tp (hr)	2.24	8.69				2.00

Project Name: Centre Wellington 4 Bridges EA
Project No: 58117.3
Location:
Designer: J.Koen
Date: 25-Sep-2024
Date Modified: 19-Dec-2024



Catchment 3E-10 SHIFT to 3E-12

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	3378.49					**3378.49**
h_1 (m)	429.10					
h_2 (m)	419.70					
Δh (m)	9.40					
Slope (%)	0.28					
x	4.6					**N/A**
V (m/s)	0.24					**N/A**
Tc (min)	232.07					**232.07**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 3E-11

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	47.08	79.84	26.52		3.64	
AB						
B	3.12	14.48	26.6			
BC						
C			0.04			
CD						
D	28.6	1.96	9.92			

Total area (ha):	241.8	Composite CN(I):	33	Ia (mm) NVCA	8.3
Pervious area (ha):	238.2	Composite CN(II):	53	Ia (mm) NRSCS	45.0
Impervious area (ha):	3.6	Composite CN(III):	73		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	26.52		26.60		0.04		9.92
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	79.84		14.48				1.96
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	47.08		3.12				28.6
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	3.64						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	241.80
Runoff Coefficient	0.19
Length (m)	3075
h_1 (m)	457.7
h_2 (m)	426.2
Dh (m)	31.5
Slope (%)	1.02

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		162.49	58.09	86.71		101.52
Tp (hr)		1.81	0.65	0.97		1.13

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	162.22	679.48				110.08
Tp (hr)	1.81	7.59				1.23

Project Name: Centre Wellington 4 Bridges EA
Project No: 58117.3
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Catchment 3E-11 SHIFT to 3E-12

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	2290.21					**2290.21**
h_1 (m)	426.20					
h_2 (m)	419.70					
Δh (m)	6.50					
Slope (%)	0.28					
x	4.6					**N/A**
V (m/s)	0.25					**N/A**
Tc (min)	155.76					**155.76**

x =	Land Cover Coefficient **(see below)**	
x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **3E-12**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	79.52	82.24	95.2		12.8	
AB						
B	16.44	19	2.68			
BC						
C	28.2	6.12	8.28			
CD						
D	21.32		11.24			

Total area (ha):	383.0	Composite CN(I):	34	Ia (mm) NVCA	8.3
Pervious area (ha):	370.2	Composite CN(II):	55	Ia (mm) NRSCS	41.6
Impervious area (ha):	12.8	Composite CN(III):	74		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	95.2		2.68		8.28		11.24
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	82.24		19.00		6.12		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	79.52		16.44		28.20		21.32
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	12.8						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	383.04
Runoff Coefficient	0.19
Length (m)	4851
h_1 (m)	437.9
h_2 (m)	419.7
Dh (m)	18.2
Slope (%)	0.38

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		284.98	85.37	127.42		216.41
Tp (hr)		3.18	0.95	1.42		2.42

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	283.58	1544.14				286.95
Tp (hr)	3.17	17.24				3.20

Project Name: Centre Wellington 4 Bridges EA
Project No: 58117.3
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Date: 25-Sep-2024
Date Modified: 19-Dec-2024

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Catchment 3E-12 SHIFT to 3E-17

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1288.02					**1288.02**
h_1 (m)	419.70					
h_2 (m)	415.30					
Δh (m)	4.40					
Slope (%)	0.34					
x	4.6					**N/A**
V (m/s)	0.27					**N/A**
Tc (min)	79.85					**79.85**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **3E-13**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	14.64	2.56	4.32			
AB						
B		0.72				
BC						
C		17.36	6.6			
CD						
D	21.8	0.04	5.8			

Total area (ha):	73.8	Composite CN(I):	45	Ia (mm) NVCA	8.8
Pervious area (ha):	73.8	Composite CN(II):	66	Ia (mm) NRSCS	26.2
Impervious area (ha):	0.0	Composite CN(III):	82		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	4.32				6.60		5.8
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	2.56		0.72		17.36		0.04
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	14.64						21.8
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family							
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	73.84
Runoff Coefficient	0.29
Length (m)	2518
h_1 (m)	437.9
h_2 (m)	422.3
Dh (m)	15.6
Slope (%)	0.62

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		154.74	39.97	59.66		105.75
Tp (hr)		1.73	0.45	0.67		1.18

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	154.24	541.39				115.91
Tp (hr)	1.72	6.05				1.29

Project Name: Centre Wellington 4 Bridges EA
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Catchment 3E-13 SHIFT to 3E-12

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1175.42					**1175.42**
h_1 (m)	422.30					
h_2 (m)	419.70					
Δh (m)	2.60					
Slope (%)	0.22					
x	4.6					**N/A**
V (m/s)	0.22					**N/A**
Tc (min)	90.55					**90.55**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
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Checked By:
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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 3E-14

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	24.6	2.52	27.8		0.88	
AB						
B			0.88			
BC						
C	1.68	0.12	11.76			
CD						
D	22.12		6.68		0.88	

Total area (ha):	99.9	Composite CN(I):	42	Ia (mm) NVCA	8.4
Pervious area (ha):	98.2	Composite CN(II):	63	Ia (mm) NRSCS	31.1
Impervious area (ha):	1.8	Composite CN(III):	80		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	27.8		0.88		11.76		6.68
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	2.52				0.12		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	24.6				1.68		22.12
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	0.88						0.88
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	99.92
Runoff Coefficient	0.26
Length (m)	2301
h_1 (m)	449.7
h_2 (m)	433.9
Dh (m)	15.8
Slope (%)	0.69

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		148.61	44.19	65.96		94.56
Tp (hr)		1.66	0.49	0.74		1.06

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	148.17	519.20				100.61
Tp (hr)	1.65	5.80				1.12

Project Name: Centre Wellington 4 Bridges EA
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Catchment 3E-14 SHIFT to 3E-13

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1837.68					**1837.68**
h_1 (m)	433.90					
h_2 (m)	422.30					
Δh (m)	11.60					
Slope (%)	0.63					
x	4.6					**N/A**
V (m/s)	0.37					**N/A**
Tc (min)	83.80					**83.80**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **3E-15**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	5.08	23.44	112.84		5.36	
AB						
B			6.48			
BC						
C	3.28	0.16	2.52			
CD						
D						

Total area (ha):	159.2	Composite CN(I):	41	Ia (mm) NVCA	7.1
Pervious area (ha):	153.8	Composite CN(II):	63	Ia (mm) NRSCS	31.1
Impervious area (ha):	5.4	Composite CN(III):	79		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	112.84		6.48		2.52		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	23.44				0.16		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	5.08				3.28		
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	5.36						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	159.16
Runoff Coefficient	0.21
Length (m)	2725
h_1 (m)	474.5
h_2 (m)	434.9
Dh (m)	39.6
Slope (%)	1.45

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		133.93	45.82	68.40		80.37
Tp (hr)		1.50	0.51	0.76		0.90

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	133.86	410.00				81.90
Tp (hr)	1.49	4.58				0.91

Project Name:	Centre Wellington 4 Bridges EA
Project No:	58117.3
Location:	
Designer:	J.Koen
Date:	25-Sep-2024
Date Modified:	19-Dec-2024

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Catchment 3E-15 SHIFT to 3E-12

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1524.35					**1524.35**
h_1 (m)	434.90					
h_2 (m)	419.70					
Δh (m)	15.20					
Slope (%)	1.00					
x	4.6					**N/A**
V (m/s)	0.46					**N/A**
Tc (min)	55.31					**55.31**

x = Land Cover Coefficient **(see below)**

0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **3E-16**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	5.68	29	76		5.44	
AB						
B			14.72			
BC						
C	3.08					
CD						
D	10.08		3.08			

Total area (ha):	147.1	Composite CN(I):	41	Ia (mm) NVCA	7.4
Pervious area (ha):	141.6	Composite CN(II):	63	Ia (mm) NRSCS	31.1
Impervious area (ha):	5.4	Composite CN(III):	79		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	76		14.72				3.08
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	29						
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	5.68				3.08		10.08
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	5.44						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	147.08
Runoff Coefficient	0.22
Length (m)	2590
h_1 (m)	469.5
h_2 (m)	430.5
Dh (m)	39
Slope (%)	1.51

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		127.42	44.09	65.80		76.13
Tp (hr)		1.42	0.49	0.73		0.85

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	127.38	386.49				76.47
Tp (hr)	1.42	4.32				0.85

Project Name: Centre Wellington 4 Bridges EA
Project No: 58117.3
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Designer: J.Koen
Date: 25-Sep-2024
Date Modified: 19-Dec-2024

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Catchment 3E-16 SHIFT to 3E-17

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	787.55					**787.55**
h_1 (m)	430.50					
h_2 (m)	415.30					
Δh (m)	15.20					
Slope (%)	1.93					
x	4.6					**N/A**
V (m/s)	0.64					**N/A**
Tc (min)	20.54					**20.54**

x =	Land Cover Coefficient **(see below)**	
x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **3E-17**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	71.48	30.52	35.32		3.64	
AB						
B			0.04			
BC						
C						
CD						
D	5.2		1.2			

Total area (ha):	147.4	Composite CN(I):	25	Ia (mm) NVCA	8.6
Pervious area (ha):	143.8	Composite CN(II):	44	Ia (mm) NRSCS	64.7
Impervious area (ha):	3.6	Composite CN(III):	65		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	35.32		0.04				1.2
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	30.52						
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	71.48						5.2
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	3.64						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	147.40
Runoff Coefficient	0.14
Length (m)	2023
h_1 (m)	442.2
h_2 (m)	415.3
Dh (m)	26.9
Slope (%)	1.33

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		128.47	45.24	67.52		65.79
Tp (hr)		1.43	0.51	0.75		0.73

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	128.37	540.04				63.56
Tp (hr)	1.43	6.03				0.71

Project Name: Centre Wellington 4 Bridges EA
Project No: 58117.3
Location:
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Date: 25-Sep-2024
Date Modified: 19-Dec-2024

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Catchment 3E-17 SHIFT to 3E-19

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1924.48					**1924.48**
h_1 (m)	415.30					
h_2 (m)	407.20					
Δh (m)	8.10					
Slope (%)	0.42					
x	4.6					**N/A**
V (m/s)	0.30					**N/A**
Tc (min)	107.48					**107.48**

x = Land Cover Coefficient **(see below)**

0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **3E-18**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	24.4	34.04	36.2		1.4	
AB						
B						
BC						
C	23.52	2.08	4.72			
CD						
D						

Total area (ha):	126.4	Composite CN(I):	33	Ia (mm) NVCA	8.4
Pervious area (ha):	125.0	Composite CN(II):	54	Ia (mm) NRSCS	45.0
Impervious area (ha):	1.4	Composite CN(III):	73		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	36.2				4.72		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	34.04				2.08		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	24.4				23.52		
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	1.4						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	126.36
Runoff Coefficient	0.18
Length (m)	3202
h_1 (m)	450
h_2 (m)	426
Dh (m)	24
Slope (%)	0.75

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		186.36	47.70	71.20		118.59
Tp (hr)		2.08	0.53	0.80		1.32

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	185.87	814.37				134.00
Tp (hr)	2.08	9.09				1.50

Project Name: Centre Wellington 4 Bridges EA
Project No: 58117.3
Location:
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Date: 25-Sep-2024
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Catchment 3E-18 SHIFT to 3E-19

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1797.25					**1797.25**
h_1 (m)	426.00					
h_2 (m)	407.20					
Δh (m)	18.80					
Slope (%)	1.05					
x	4.6					**N/A**
V (m/s)	0.47					**N/A**
Tc (min)	63.67					**63.67**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **3E-19**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	65.84	24.48	42.56		4.14	
AB						
B						
BC						
C	48.28	0.64	8.08		4.14	
CD						
D						

Total area (ha):	198.2	Composite CN(I):	33	Ia (mm) NVCA	8.6
Pervious area (ha):	189.9	Composite CN(II):	54	Ia (mm) NRSCS	45.0
Impervious area (ha):	8.3	Composite CN(III):	73		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	42.56				8.08		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	24.48				0.64		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	65.84				48.28		
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	4.14				4.14		
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	198.16
Runoff Coefficient	0.19
Length (m)	2789
h_1 (m)	439.5
h_2 (m)	407.2
Dh (m)	32.3
Slope (%)	1.16

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		149.42	52.35	78.13		89.54
Tp (hr)		1.67	0.58	0.87		1.00

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	149.24	584.45				93.90
Tp (hr)	1.67	6.53				1.05

Project Name: Centre Wellington 4 Bridges EA
Project No: 58117.3
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Catchment 3E-19 SHIFT to 3E-22

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1319.73					**1319.73**
h_1 (m)	407.20					
h_2 (m)	402.60					
Δh (m)	4.60					
Slope (%)	0.35					
x	4.6					**N/A**
V (m/s)	0.27					**N/A**
Tc (min)	80.99					**80.99**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 3E-20

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	16.96	12.16	64.56		1.34	
AB						
B						
BC						
C	16.84	7.36	5.68		1.34	
CD						
D						

Total area (ha):	126.2	Composite CN(I):	40	Ia (mm) NVCA	7.9
Pervious area (ha):	123.6	Composite CN(II):	61	Ia (mm) NRSCS	32.5
Impervious area (ha):	2.7	Composite CN(III):	78		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	64.56				5.68		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	12.16				7.36		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	16.96				16.84		
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	1.34				1.34		
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	126.24
Runoff Coefficient	0.22
Length (m)	3198
h_1 (m)	441.6
h_2 (m)	411.5
Dh (m)	30.1
Slope (%)	0.94

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		166.32	45.56	68.00		108.28
Tp (hr)		1.86	0.51	0.76		1.21

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	166.00	603.63				119.43
Tp (hr)	1.85	6.74				1.33

Project Name:	Centre Wellington 4 Bridges EA
Project No:	58117.3
Location:	
Designer:	J.Koen
Date:	25-Sep-2024
Date Modified:	19-Dec-2024

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Catchment 3E-20 SHIFT to 3E-21

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	723.31					**723.31**
h_1 (m)	411.50					
h_2 (m)	404.30					
Δh (m)	7.20					
Slope (%)	1.00					
x	4.6					**N/A**
V (m/s)	0.46					**N/A**
Tc (min)	26.27					**26.27**

x =	Land Cover Coefficient **(see below)**	
x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 3E-21

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	25.16	5.68	65.16		0.96	
AB						
B			12.08			
BC						
C						
CD						
D	21.36		2.84			

Total area (ha):	133.2	Composite CN(I):	40	Ia (mm) NVCA	8.1
Pervious area (ha):	132.3	Composite CN(II):	61	Ia (mm) NRSCS	32.5
Impervious area (ha):	1.0	Composite CN(III):	79		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	65.16		12.08				2.84
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	5.68						
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	25.16						21.36
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	0.96						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	133.24
Runoff Coefficient	0.22
Length (m)	2317
h_1 (m)	441.9
h_2 (m)	404.3
Dh (m)	37.6
Slope (%)	1.62

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		116.88	41.75	62.31		67.69
Tp (hr)		1.31	0.47	0.70		0.76

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	116.87	352.69				65.90
Tp (hr)	1.30	3.94				0.74

Project Name: Centre Wellington 4 Bridges EA
Project No: 58117.3
Location:
Designer: J.Koen
Date: 25-Sep-2024
Date Modified: 19-Dec-2024

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Catchment 3E-21 SHIFT to 3E-23

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1525.19					**1525.19**
h_1 (m)	404.30					
h_2 (m)	400.20					
Δh (m)	4.10					
Slope (%)	0.27					
x	4.6					**N/A**
V (m/s)	0.24					**N/A**
Tc (min)	106.58					**106.58**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **3E-22**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	12.64	42.2	35.44		3.32	
AB						
B	1.64	0.08				
BC						
C	19	5.12	0.04			
CD						
D						

Total area (ha):	119.5	Composite CN(I):	34	Ia (mm) NVCA	8.1
Pervious area (ha):	116.2	Composite CN(II):	55	Ia (mm) NRSCS	43.3
Impervious area (ha):	3.3	Composite CN(III):	73		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	35.44				0.04		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	42.2		0.08		5.12		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	12.64		1.64		19.00		
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	3.32						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	119.48
Runoff Coefficient	0.18
Length (m)	2916
h_1 (m)	433.4
h_2 (m)	402.6
Dh (m)	30.8
Slope (%)	1.06

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		159.19	43.55	65.00		96.18
Tp (hr)		1.78	0.49	0.73		1.07

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	158.95	624.07				102.80
Tp (hr)	1.77	6.97				1.15

Project Name: Centre Wellington 4 Bridges EA
Project No: 58117.3
Location:
Designer: J.Koen
Date: 25-Sep-2024
Date Modified: 19-Dec-2024

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Catchment 3E-22 SHIFT to 3E-23

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	796.13					**796.13**
h_1 (m)	402.60					
h_2 (m)	400.20					
Δh (m)	2.40					
Slope (%)	0.30					
x	4.6					**N/A**
V (m/s)	0.25					**N/A**
Tc (min)	52.54					**52.54**

x =	Land Cover Coefficient **(see below)**	
x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.3
Location:
Created By: J.Koen
Checked By:
Date Created: 23-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **3E-23**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	7.08	18.52	7.2		0.56	
AB						
B	2.36	9.04	5.44		0.56	
BC						
C	38.52	10.28	1.56		0.56	
CD						
D	4.24	5.44			0.56	

Total area (ha):	111.9	Composite CN(I):	42	Ia (mm) NVCA	8.7
Pervious area (ha):	109.7	Composite CN(II):	64	Ia (mm) NRSCS	29.8
Impervious area (ha):	2.2	Composite CN(III):	80		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	7.2		5.44		1.56		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	18.52		9.04		10.28		5.44
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	7.08		2.36		38.52		4.24
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	0.56		0.56		0.56		0.56
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	111.92
Runoff Coefficient	0.25
Length (m)	2141
h_1 (m)	410.9
h_2 (m)	400.2
Dh (m)	10.7
Slope (%)	0.50

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		162.34	49.28	73.55		101.27
Tp (hr)		1.81	0.55	0.82		1.13

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	161.69	563.85				109.73
Tp (hr)	1.81	6.30				1.23

Ontario IDF CURVE LOOKUP

Active coordinate

43° 43' 15" N, 80° 15' 45" W (43.720833,-80.262500)

Retrieved: Wed, 25 Sep 2024 18:11:45 GMT



Location summary

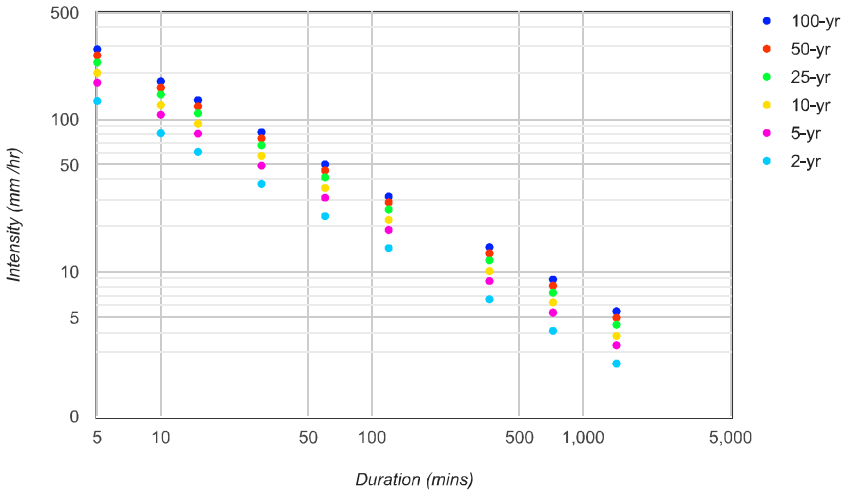
These are the locations in the selection.

IDF Curve: 43° 43' 15" N, 80° 15' 45" W (43.720833,-80.262500)

Results

An IDF curve was found.

Coordinate: 43.720833, -80.262500
IDF curve year: 2010



Coefficient summary

IDF Curve: 43° 43' 15" N, 80° 15' 45" W (43.720833,-80.262500)

Retrieved: Wed, 25 Sep 2024 18:11:45 GMT

Data year: 2010
IDF curve year: 2010

Return period	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
A	23.2	30.6	35.5	41.6	46.2	50.7
B	-0.699	-0.699	-0.699	-0.699	-0.699	-0.699

Statistics

Rainfall intensity (mm hr^{-1})

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	131.8	81.2	61.1	37.7	23.2	14.3	6.6	4.1	2.5
5-yr	173.8	107.1	80.6	49.7	30.6	18.8	8.7	5.4	3.3
10-yr	201.6	124.2	93.6	57.6	35.5	21.9	10.1	6.3	3.8
25-yr	236.3	145.6	109.6	67.5	41.6	25.6	11.9	7.3	4.5
50-yr	262.4	161.6	121.8	75.0	46.2	28.5	13.2	8.1	5.0
100-yr	288.0	177.4	133.6	82.3	50.7	31.2	14.5	8.9	5.5

Rainfall depth (mm)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	11.0	13.5	15.3	18.8	23.2	28.6	39.8	49.0	60.4
5-yr	14.5	17.8	20.2	24.8	30.6	37.7	52.5	64.6	79.6
10-yr	16.8	20.7	23.4	28.8	35.5	43.7	60.9	75.0	92.4
25-yr	19.7	24.3	27.4	33.8	41.6	51.3	71.3	87.9	108.3
50-yr	21.9	26.9	30.4	37.5	46.2	56.9	79.2	97.6	120.3
100-yr	24.0	29.6	33.4	41.2	50.7	62.5	86.9	107.1	132.0

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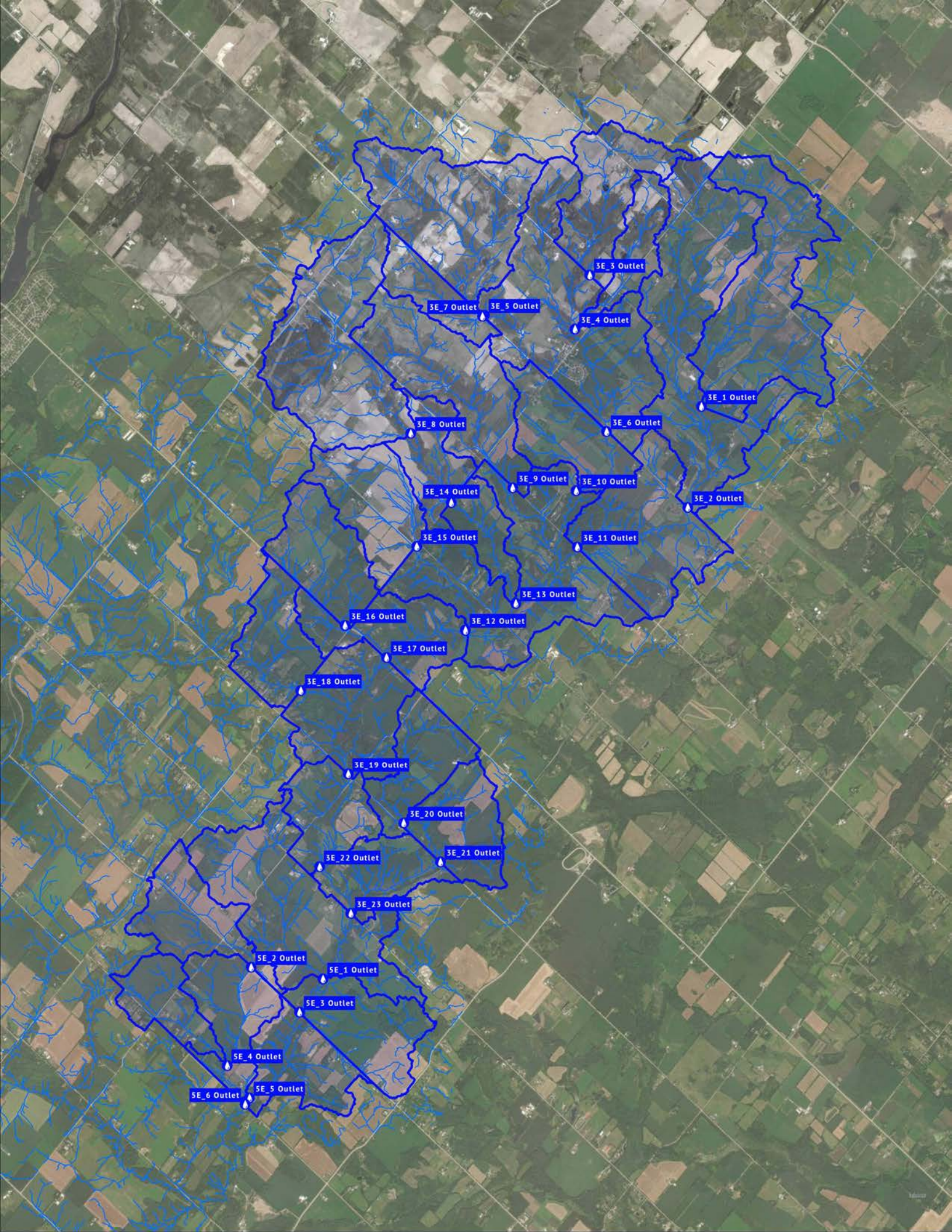
Last Modified: September 2016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5E_1 Outlet
5E_3 Outlet
5E_4 Outlet
5E_6 Outlet
5E_5 Outlet

Project Name:
Project No:
Location:
Designer:
Date:
Date Modified: 19-Dec-2024

Catchment 3E_23 SHIFT to 5E_1

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1103.71					**1103.71**
h_1 (m)	400.20					
h_2 (m)	397.50					
Δh (m)	2.70					
Slope (%)	0.24					
x	4.6					**N/A**
V (m/s)	0.23					**N/A**
Tc (min)	80.85					**80.85**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.5
Location:
Created By: J.Koen
Checked By:
Date Created: 24-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 5E-1

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	18.8	30.4	86.24		1.45	
AB						
B	13.72	53.76	48.24		1.45	
BC						
C	43.52	9.96	20.72		1.45	
CD						
D						

Total area (ha):	329.7	Composite CN(I):	43	Ia (mm) NVCA	7.9
Pervious area (ha):	325.4	Composite CN(II):	64	Ia (mm) NRSCS	28.6
Impervious area (ha):	4.4	Composite CN(III):	80		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	86.24		48.24		20.72		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	30.4		53.76		9.96		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	18.8		13.72		43.52		
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	1.45		1.45		1.45		
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	329.71
Runoff Coefficient	0.24
Length (m)	3532
h_1 (m)	426.2
h_2 (m)	397.5
Dh (m)	28.7
Slope (%)	0.81

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		178.93	68.88	102.81		124.12
Tp (hr)		2.00	0.77	1.15		1.39

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	178.50	651.23				141.96
Tp (hr)	1.99	7.27				1.59

Project Name:
Project No:
Location:
Designer:
Date:
Date Modified: 19-Dec-2024

Catchment 5E_1 SHIFT to 5E_3

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	653.45					**653.45**
h_1 (m)	397.50					
h_2 (m)	395.90					
Δh (m)	1.60					
Slope (%)	0.24					
x	4.6					**N/A**
V (m/s)	0.23					**N/A**
Tc (min)	47.85					**47.85**

x =	Land Cover Coefficient **(see below)**	
x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.5
Location:
Created By: J.Koen
Checked By:
Date Created: 24-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 5E-2

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	4.76	5.16	48.68		2.68	
AB						
B	4.24	23.12	33		2.68	
BC						
C	3.72	3.32	6.64			
CD						
D						

Total area (ha):	138.0	Composite CN(I):	46	Ia (mm) NVCA	7.3
Pervious area (ha):	132.6	Composite CN(II):	67	Ia (mm) NRSCS	25.0
Impervious area (ha):	5.4	Composite CN(III):	83		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	48.68		33.00		6.64		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	5.16		23.12		3.32		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	4.76		4.24		3.72		
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	2.68		2.68				
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	138.00
Runoff Coefficient	0.25
Length (m)	2700
h_1 (m)	425.9
h_2 (m)	407.4
Dh (m)	18.5
Slope (%)	0.69

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		163.60	50.31	75.09		107.38
Tp (hr)		1.83	0.56	0.84		1.20

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	163.12	524.96				118.18
Tp (hr)	1.82	5.86				1.32

Project Name:
Project No:
Location:
Designer:
Date:
Date Modified: 19-Dec-2024

Catchment 5E_2 SHIFT to 5E_5

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	2110.52					**2110.52**
h_1 (m)	407.40					
h_2 (m)	391.10					
Δh (m)	16.30					
Slope (%)	0.77					
x	4.6					**N/A**
V (m/s)	0.40					**N/A**
Tc (min)	87.01					**87.01**

x = Land Cover Coefficient **(see below)**

0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.5
Location:
Created By: J.Koen
Checked By:
Date Created: 24-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 5E-3

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	19.72	5.08	121.76		2.16	
AB						
B	2.16	5.48	1.92			
BC						
C						
CD						
D						

Total area (ha):	158.3	Composite CN(I):	40	Ia (mm) NVCA	7.4
Pervious area (ha):	156.1	Composite CN(II):	61	Ia (mm) NRSCS	33.9
Impervious area (ha):	2.2	Composite CN(III):	78		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	121.76		1.92				
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	5.08		5.48				
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	19.72		2.16				
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	2.16						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	158.28
Runoff Coefficient	0.20
Length (m)	2939
h_1 (m)	417.8
h_2 (m)	395.9
Dh (m)	21.9
Slope (%)	0.75

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		175.35	52.26	78.00		111.08
Tp (hr)		1.96	0.58	0.87		1.24

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	174.88	636.86				123.36
Tp (hr)	1.95	7.11				1.38

Project Name:
Project No:
Location:
Designer:
Date:
Date Modified: 19-Dec-2024

Catchment 5E_3 SHIFT to 5E_6

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1581.69					**1581.69**
h_1 (m)	395.90					
h_2 (m)	390.60					
Δh (m)	5.30					
Slope (%)	0.34					
x	4.6					**N/A**
V (m/s)	0.27					**N/A**
Tc (min)	99.00					**99.00**

x = Land Cover Coefficient **(see below)**

0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.5
Location:
Created By: J.Koen
Checked By:
Date Created: 24-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: **5E-4**

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A		12.52	24.56		1.58	
AB						
B	1.56	20.68	6.12		1.58	
BC						
C			8.4			
CD						
D	2		13.48			

Total area (ha):	92.5	Composite CN(I):	47	Ia (mm) NVCA	7.3
Pervious area (ha):	89.3	Composite CN(II):	67	Ia (mm) NRSCS	25.0
Impervious area (ha):	3.2	Composite CN(III):	83		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	24.56		6.12		8.40		13.48
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	12.52		20.68				
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope			1.56				2
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	1.58		1.58				
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	92.48
Runoff Coefficient	0.28
Length (m)	2662
h_1 (m)	414.9
h_2 (m)	399.7
Dh (m)	15.2
Slope (%)	0.57

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		165.90	44.46	66.35		114.11
Tp (hr)		1.85	0.50	0.74		1.27

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	165.32	567.72				127.64
Tp (hr)	1.85	6.34				1.43

Project Name:
Project No:
Location:
Designer:
Date:
Date Modified: 19-Dec-2024



Catchment 5E_4 SHIFT to 5E_5

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	697.88					**697.88**
h_1 (m)	399.70					
h_2 (m)	391.10					
Δh (m)	8.60					
Slope (%)	1.23					
x	4.6					**N/A**
V (m/s)	0.51					**N/A**
Tc (min)	22.78					**22.78**

x = Land Cover Coefficient **(see below)**

x = 0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.5
Location:
Created By: J.Koen
Checked By:
Date Created: 24-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 5E-5

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	3.24	17.28	25.52		0.44	
AB						
B	5.6	11	54.08		0.44	
BC						
C	0.04		16.28		0.44	
CD						
D						

Total area (ha):	134.4	Composite CN(I):	46	Ia (mm) NVCA	7.4
Pervious area (ha):	133.0	Composite CN(II):	67	Ia (mm) NRSCS	25.0
Impervious area (ha):	1.3	Composite CN(III):	82		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	25.52		54.08		16.28		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	17.28		11.00				
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	3.24		5.60		0.04		
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	0.44		0.44		0.44		
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	134.36
Runoff Coefficient	0.26
Length (m)	3082
h_1 (m)	414.9
h_2 (m)	391.1
Dh (m)	23.8
Slope (%)	0.77

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		165.65	48.59	72.53		113.71
Tp (hr)		1.85	0.54	0.81		1.27

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	165.23	552.62				127.07
Tp (hr)	1.85	6.17				1.42

Project Name:
Project No:
Location:
Designer:
Date:
Date Modified: 19-Dec-2024

Catchment 5E_5 SHIFT to 5E_6

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	106.06					**106.06**
h_1 (m)	391.10					
h_2 (m)	390.60					
Δh (m)	0.50					
Slope (%)	0.47					
x	4.6					**N/A**
V (m/s)	0.32					**N/A**
Tc (min)	5.60					**5.60**

x =	Land Cover Coefficient **(see below)**	
x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.5
Location:
Created By: J.Koen
Checked By:
Date Created: 24-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 5E-6

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	23.2	29.76	27.56		1.8	
AB						
B	22.36	0.92	7.92			
BC						
C	8.48	2.16	5.84			
CD						
D						

Total area (ha):	130.0	Composite CN(I):	33	Ia (mm) NVCA	8.4
Pervious area (ha):	128.2	Composite CN(II):	54	Ia (mm) NRSCS	43.3
Impervious area (ha):	1.8	Composite CN(III):	73		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	27.56		7.92		5.84		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	29.76		0.92		2.16		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	23.2		22.36		8.48		
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	1.8						
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	130.00
Runoff Coefficient	0.18
Length (m)	2944
h_1 (m)	415.7
h_2 (m)	390.6
Dh (m)	25.1
Slope (%)	0.85

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		170.88	47.02	70.18		105.47
Tp (hr)		1.91	0.53	0.78		1.18

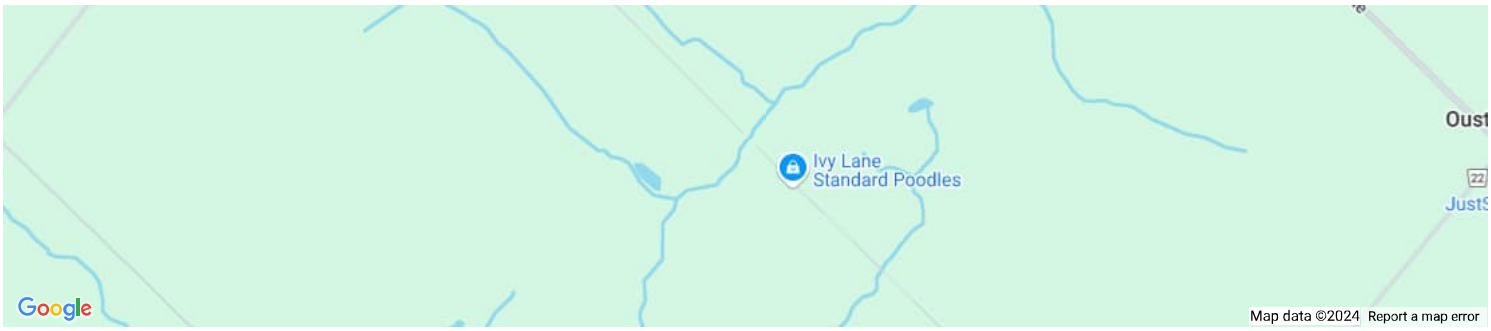
Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	170.50	706.35				115.52
Tp (hr)	1.90	7.89				1.29

Ontario IDF CURVE LOOKUP

Active coordinate

43° 41' 44" N, 80° 16' 45" W (43.695833,-80.279167)

Retrieved: Fri, 27 Sep 2024 13:47:54 GMT



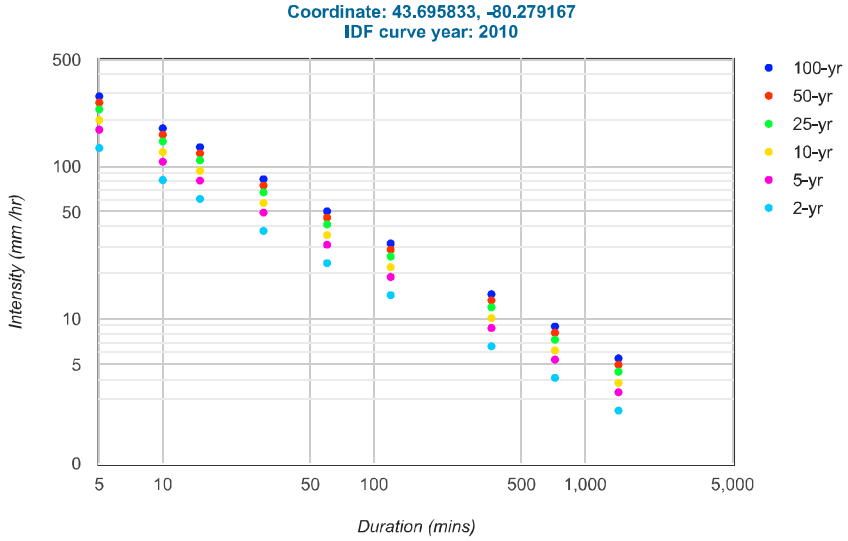
Location summary

These are the locations in the selection.

IDF Curve: 43° 41' 44" N, 80° 16' 45" W (43.695833,-80.279167)

Results

An IDF curve was found.



Coefficient summary

IDF Curve: 43° 41' 44" N, 80° 16' 45" W (43.695833,-80.279167)

Retrieved: Fri, 27 Sep 2024 13:47:54 GMT

Data year: 2010
IDF curve year: 2010

Return period	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
A	23.2	30.6	35.4	41.6	46.1	50.7
B	-0.699	-0.699	-0.699	-0.699	-0.699	-0.699

Statistics

Rainfall intensity (mm hr^{-1})

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	131.8	81.2	61.1	37.7	23.2	14.3	6.6	4.1	2.5
5-yr	173.8	107.1	80.6	49.7	30.6	18.8	8.7	5.4	3.3
10-yr	201.1	123.9	93.3	57.5	35.4	21.8	10.1	6.2	3.8
25-yr	236.3	145.6	109.6	67.5	41.6	25.6	11.9	7.3	4.5
50-yr	261.8	161.3	121.5	74.8	46.1	28.4	13.2	8.1	5.0
100-yr	288.0	177.4	133.6	82.3	50.7	31.2	14.5	8.9	5.5

Rainfall depth (mm)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	11.0	13.5	15.3	18.8	23.2	28.6	39.8	49.0	60.4
5-yr	14.5	17.8	20.2	24.8	30.6	37.7	52.5	64.6	79.6
10-yr	16.8	20.6	23.3	28.7	35.4	43.6	60.7	74.8	92.1
25-yr	19.7	24.3	27.4	33.8	41.6	51.3	71.3	87.9	108.3
50-yr	21.8	26.9	30.4	37.4	46.1	56.8	79.1	97.4	120.0
100-yr	24.0	29.6	33.4	41.2	50.7	62.5	86.9	107.1	132.0

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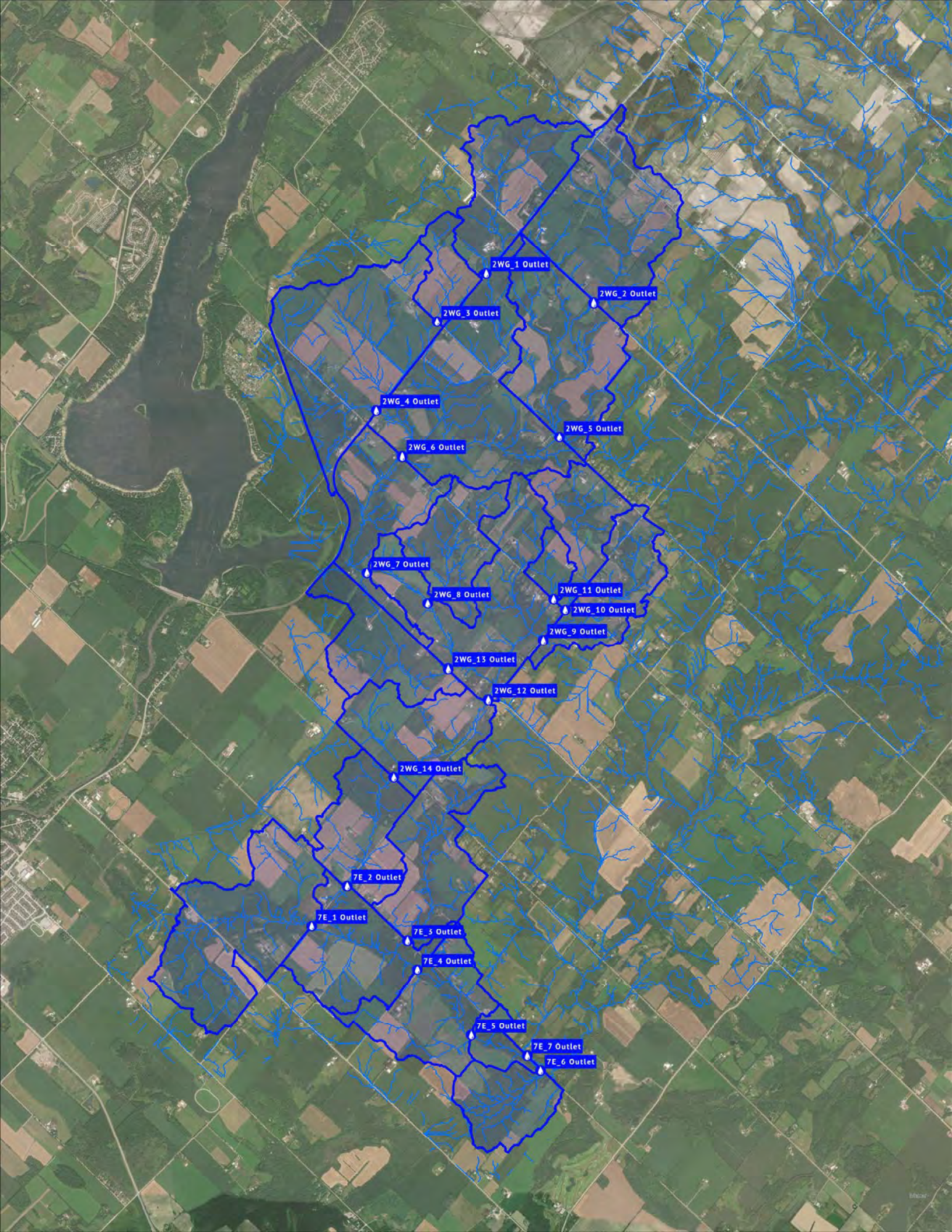
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2WG_14 Outlet
7E_2 Outlet
7E_1 Outlet
7E_3 Outlet
7E_4 Outlet
7E_5 Outlet
7E_7 Outlet
7E_6 Outlet

Project Name:
Project No:
Location:
Designer:
Date:
Date Modified: 19-Dec-2024

Catchment 2WG-14 SHIFT to 7E 2

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1678.32					**1678.32**
h_1 (m)	409.70					
h_2 (m)	405.80					
Δh (m)	3.90					
Slope (%)	0.23					
x	4.6					**N/A**
V (m/s)	0.22					**N/A**
Tc (min)	126.15					**126.15**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.7
Location:
Created By: J.Koen
Checked By:
Date Created: 24-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 7E-1

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	28.76	27.44	51.8		1.36	
AB						
B	3	14.8	50.44		1.36	
BC						
C		4.8	5.6			
CD						
D	46.44	4.16	2.96		1.36	

Total area (ha):	244.3	Composite CN(I):	43	Ia (mm) NVCA	8.1
Pervious area (ha):	240.2	Composite CN(II):	64	Ia (mm) NRSCS	28.6
Impervious area (ha):	4.1	Composite CN(III):	80		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	51.8		50.44		5.60		2.96
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	27.44		14.80		4.80		4.16
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	28.76		3.00				46.44
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	1.36		1.36				1.36
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	244.28
Runoff Coefficient	0.25
Length (m)	3793
h_1 (m)	428.4
h_2 (m)	403.2
Dh (m)	25.2
Slope (%)	0.66

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		195.88	63.61	94.94		142.18
Tp (hr)		2.19	0.71	1.06		1.59

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	195.28	764.06				168.60
Tp (hr)	2.18	8.53				1.88

Project Name:
Project No:
Location:
Designer:
Date:
Date Modified: 19-Dec-2024

Catchment 7E_1 SHIFT to 7E_4

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1448.52					**1448.52**
h_1 (m)	403.20					
h_2 (m)	396.70					
Δh (m)	6.50					
Slope (%)	0.45					
x	4.6					**N/A**
V (m/s)	0.31					**N/A**
Tc (min)	78.35					**78.35**

x = Land Cover Coefficient **(see below)**

0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.7
Location:
Created By: J.Koen
Checked By:
Date Created: 24-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 7E-2

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	4.68	15.44	29.28		1.36	
AB						
B	6.32	30.84	22.44		1.36	
BC						
C	2.32	7.44				
CD						
D						

Total area (ha):	121.5	Composite CN(I):	41	Ia (mm) NVCA	7.7
Pervious area (ha):	118.8	Composite CN(II):	63	Ia (mm) NRSCS	31.1
Impervious area (ha):	2.7	Composite CN(III):	79		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	29.28		22.44				
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	15.44		30.84		7.44		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	4.68		6.32		2.32		
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	1.36		1.36				
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	121.48
Runoff Coefficient	0.22
Length (m)	2315
h_1 (m)	423.3
h_2 (m)	405.8
Dh (m)	17.5
Slope (%)	0.76

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		150.86	46.87	69.96		91.47
Tp (hr)		1.68	0.52	0.78		1.02

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	150.46	499.95				96.47
Tp (hr)	1.68	5.58				1.08

Project Name:
Project No:
Location:
Designer:
Date:
Date Modified: 19-Dec-2024

Catchment 7E_2 SHIFT to 7E_4

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1835.76					**1835.76**
h_1 (m)	405.80					
h_2 (m)	396.70					
Δh (m)	9.10					
Slope (%)	0.50					
x	4.6					**N/A**
V (m/s)	0.32					**N/A**
Tc (min)	94.47					**94.47**

x = Land Cover Coefficient **(see below)**

0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.7
Location:
Created By: J.Koen
Checked By:
Date Created: 24-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 7E-3

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	0.32	26.12	17.72		0.73	
AB						
B	9.52	17.28	21.88		0.73	
BC						
C	35.6	9.28	6.56		0.73	
CD						
D	7.84					

Total area (ha):	154.3	Composite CN(I):	44	Ia (mm) NVCA	8.3
Pervious area (ha):	152.1	Composite CN(II):	65	Ia (mm) NRSCS	27.4
Impervious area (ha):	2.2	Composite CN(III):	81		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	17.72		21.88		6.56		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	26.12		17.28		9.28		
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	0.32		9.52		35.60		7.84
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	0.73		0.73		0.73		
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	154.31
Runoff Coefficient	0.25
Length (m)	3414
h_1 (m)	418
h_2 (m)	403.1
Dh (m)	14.9
Slope (%)	0.44

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		214.02	57.57	85.93		154.46
Tp (hr)		2.39	0.64	0.96		1.72

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	213.07	843.84				187.24
Tp (hr)	2.38	9.42				2.09

Project Name:
Project No:
Location:
Designer:
Date:
Date Modified: 19-Dec-2024

Catchment 7E_3 SHIFT to 7E_4

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	559.21					**559.21**
h_1 (m)	403.10					
h_2 (m)	396.70					
Δh (m)	6.40					
Slope (%)	1.14					
x	4.6					**N/A**
V (m/s)	0.49					**N/A**
Tc (min)	18.94					**18.94**

x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.7
Location:
Created By: J.Koen
Checked By:
Date Created: 24-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 7E-4

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A	9.4	37.88	33.68		1.32	
AB						
B	5.6	3	17.32		1.32	
BC						
C	26.68		2.4		1.32	
CD						
D	1.48	3.56				

Total area (ha):	145.0	Composite CN(I):	39	Ia (mm) NVCA	8.1
Pervious area (ha):	141.0	Composite CN(II):	60	Ia (mm) NRSCS	35.3
Impervious area (ha):	4.0	Composite CN(III):	77		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	33.68		17.32		2.40		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	37.88		3.00				3.56
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope	9.4		5.60		26.68		1.48
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family	1.32		1.32		1.32		
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	144.96
Runoff Coefficient	0.21
Length (m)	2370
h_1 (m)	420.7
h_2 (m)	396.7
Dh (m)	24
Slope (%)	1.01

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		140.09	47.45	70.82		83.02
Tp (hr)		1.56	0.53	0.79		0.93

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	139.86	471.93				85.33
Tp (hr)	1.56	5.27				0.95

Project Name:
Project No:
Location:
Designer:
Date:
Date Modified: 19-Dec-2024

Catchment 7E_4 SHIFT to 7E_5

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	1297.93					**1297.93**
h_1 (m)	396.70					
h_2 (m)	391.40					
Δh (m)	5.30					
Slope (%)	0.41					
x	4.6					**N/A**
V (m/s)	0.29					**N/A**
Tc (min)	73.59					**73.59**

x = Land Cover Coefficient **(see below)**

0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.7
Location:
Created By: J.Koen
Checked By:
Date Created: 24-Sep-2024
Date Modified: 19-Dec-2024

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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 7E-5

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A		7.08	0.2			
AB						
B	14.92	46	61		2.64	
BC						
C	1.72		3.6			
CD						
D						

Total area (ha):	137.2	Composite CN(I):	47	Ia (mm) NVCA	7.7
Pervious area (ha):	134.5	Composite CN(II):	68	Ia (mm) NRSCS	25.0
Impervious area (ha):	2.6	Composite CN(III):	83		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope	0.2		61.00		3.60		
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	7.08		46.00				
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope			14.92		1.72		
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family			2.64				
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	137.16
Runoff Coefficient	0.26
Length (m)	2385
h_1 (m)	431.9
h_2 (m)	391.4
Dh (m)	40.5
Slope (%)	1.70

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		112.33	41.85	62.47		68.03
Tp (hr)		1.25	0.47	0.70		0.76

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	112.34	300.30				66.31
Tp (hr)	1.25	3.35				0.74

Project Name:
Project No:
Location:
Designer:
Date:
Date Modified: 19-Dec-2024

Catchment 7E_5 SHIFT to 7E_7

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	758.76					**758.76**
h_1 (m)	391.40					
h_2 (m)	387.50					
Δh (m)	3.90					
Slope (%)	0.51					
x	4.6					**N/A**
V (m/s)	0.33					**N/A**
Tc (min)	38.35					**38.35**

x = Land Cover Coefficient **(see below)**

x = 0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.7
Location:
Created By: J.Koen
Checked By:
Date Created: 24-Sep-2024
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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 7E-6

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A		8.8				
AB						
B	20.16	14.48	12.48			
BC						
C						
CD						
D	30.96					

Total area (ha):	86.9	Composite CN(I):	45	Ia (mm) NVCA	9.0
Pervious area (ha):	86.9	Composite CN(II):	66	Ia (mm) NRSCS	27.4
Impervious area (ha):	0.0	Composite CN(III):	82		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope			12.48				
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope	8.8		14.48				
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope			20.16				30.96
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family							
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	86.88
Runoff Coefficient	0.26
Length (m)	2126
h_1 (m)	418.5
h_2 (m)	387.9
Dh (m)	30.6
Slope (%)	1.44

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		111.77	36.04	53.79		66.31
Tp (hr)		1.25	0.40	0.60		0.74

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	111.72	310.89				64.21
Tp (hr)	1.25	3.47				0.72

Project Name:
Project No:
Location:
Designer:
Date:
Date Modified: 19-Dec-2024

Catchment 7E_6 SHIFT to 7E_7

SWMHYMO Shifthyd Modelling Parameters

Table 1

Parameters	x_1	x_2	x_3	x_4	x_5	*Total*
Length (m)	246.32					**246.32**
h_1 (m)	387.90					
h_2 (m)	387.50					
Δh (m)	0.40					
Slope (%)	0.16					
x	4.6					**N/A**
V (m/s)	0.19					**N/A**
Tc (min)	22.15					**22.15**

x = Land Cover Coefficient **(see below)**

x = 0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
2.3	Short grass pasture (overland flow)
2.7	Cultivated Straight row (overland flow)
3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
4.6	Grassed Waterway
6.1	Paved Areas (sheet flow); small upland gullies

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.7
Location:
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SWMHYMO NASHYD Hydrologic Modeling Parameters - Rural Land Use

CATCHMENT: 7E-7

Composite Curve Number and Initial Abstraction

Hydrologic Soil Group	Total Area per Various Land Use (ha)					
	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
A						
AB						
B	10.64	3.76	13.36		0.6	
BC						
C						
CD						
D	2.6					

Total area (ha):	31.0	Composite CN(I):	48	Ia (mm) NVCA	8.3
Pervious area (ha):	30.4	Composite CN(II):	69	Ia (mm) NRSCS	23.9
Impervious area (ha):	0.6	Composite CN(III):	83		

Composite Runoff Coefficient

Land Type	Hydrologic Soil Groups						
	A	AB	B	BC	C	CD	D
Cultivated, 0-5% slope			13.36				
Cultivated, 5-10% slope							
Cultivated, 10-30% slope							
Pasture, 0-5% slope			3.76				
Pasture, 5-10% slope							
Pasture, 10-30% slope							
Woodlot or Cutover, 0-5% slope			10.64				2.6
Woodlot or Cutover, 5-10% slope							
Woodlot or Cutover, 10-30% slope							
Lakes and Wetlands							
Impervious Area							
Gravel							
Residential- Single Family			0.60				
Residential - Multiple							
Industrial-Light							
Industrial-Heavy							
Commercial							
Unimproved Areas							
Lawn, <2% slope							
Lawn, 2-7% slope							
Lawn, >7% slope							

Time of Concentration Input Parameters	
Total Area (ha)	30.96
Runoff Coefficient	0.26
Length (m)	1147
h_1 (m)	410.6
h_2 (m)	387.5
Dh (m)	23.1
Slope (%)	2.01

Uplands Method	
Flow Path Cover	Short Grass Pasture
x	4.6

Kinematic Wave/Izzard Method	
cr =	0.05
n =	0.05
i (mm/hr) =	210

Kerby Method	
Rk =	0.4

Tc Method	Bransby Williams	Airport (NVCA)	MTC	Williams	Kirpich	Watt & Chow
Tc (min)		73.27	22.30	33.29		35.67
Tp (hr)		0.82	0.25	0.37		0.40

Tc Method	FAA	SCS	Kinematic Wave	Izzard	Kerby	Uplands
Tc (min)	73.31	149.91				29.28
Tp (hr)	0.82	1.67				0.33

Ontario IDF CURVE LOOKUP

Active coordinate

43° 41' 15" N, 80° 17' 14" W (43.687500,-80.287500)

Retrieved: Fri, 27 Sep 2024 18:51:24 GMT



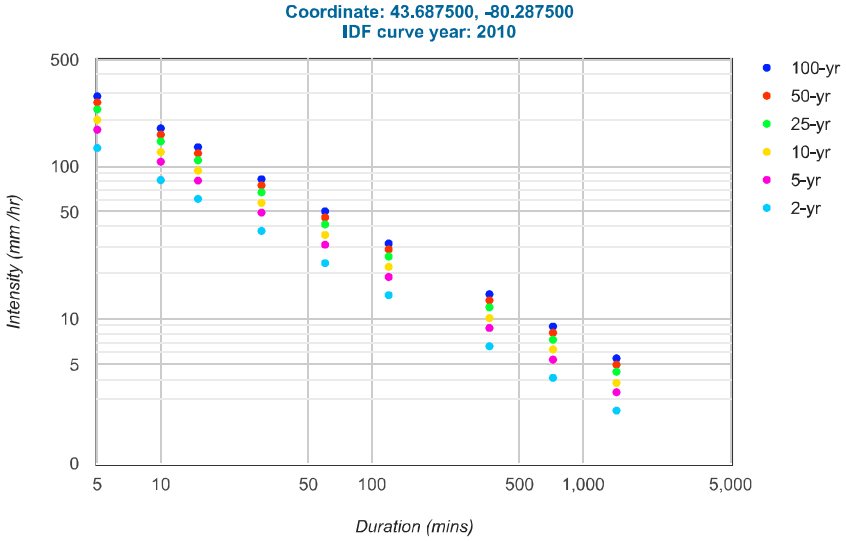
Location summary

These are the locations in the selection.

IDF Curve: 43° 41' 15" N, 80° 17' 14" W (43.687500,-80.287500)

Results

An IDF curve was found.



Coefficient summary

IDF Curve: 43° 41' 15" N, 80° 17' 14" W (43.687500,-80.287500)

Retrieved: Fri, 27 Sep 2024 18:51:24 GMT

Data year: 2010
IDF curve year: 2010

Return period	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
A	23.2	30.6	35.5	41.6	46.2	50.7
B	-0.699	-0.699	-0.699	-0.699	-0.699	-0.699

Statistics

Rainfall intensity (mm hr^{-1})

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	131.8	81.2	61.1	37.7	23.2	14.3	6.6	4.1	2.5
5-yr	173.8	107.1	80.6	49.7	30.6	18.8	8.7	5.4	3.3
10-yr	201.6	124.2	93.6	57.6	35.5	21.9	10.1	6.3	3.8
25-yr	236.3	145.6	109.6	67.5	41.6	25.6	11.9	7.3	4.5
50-yr	262.4	161.6	121.8	75.0	46.2	28.5	13.2	8.1	5.0
100-yr	288.0	177.4	133.6	82.3	50.7	31.2	14.5	8.9	5.5

Rainfall depth (mm)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	11.0	13.5	15.3	18.8	23.2	28.6	39.8	49.0	60.4
5-yr	14.5	17.8	20.2	24.8	30.6	37.7	52.5	64.6	79.6
10-yr	16.8	20.7	23.4	28.8	35.5	43.7	60.9	75.0	92.4
25-yr	19.7	24.3	27.4	33.8	41.6	51.3	71.3	87.9	108.3
50-yr	21.9	26.9	30.4	37.5	46.2	56.9	79.2	97.6	120.3
100-yr	24.0	29.6	33.4	41.2	50.7	62.5	86.9	107.1	132.0

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BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

Appendix C

VO & The Unified Ontario Flood Method

Project Name: Centre Wellington 4 Bridges EA
Project No: 300058117.2
Location: Township of Centre Wellington
Designer: J.Koen
Date: 25-Sep-2024

R. J. Burnside & Associates Limited
3 Ronell Crescent, Collingwood, Ontario
telephone (705) 446-0515 fax (705) 446-2399
web www.rjburnside.com

2-WG

Storm Event	VO	UOFM
	Q-Peak (cms)	Q-Peak (cms)
2-year	7.64	8.36
5-Year	13.16	-
10-Year	17.09	15.12
25-Year	23.09	18.74
50-Year	27.67	21.51
100-Year	32.47	24.56
Regional	84.63	-
Drainage Area (ha)	2148.96	2098.1

UNIFIED ONTARIO FLOOD METHOD

Bridge 2-WG

$Q_{uofm} = Kr * A^a * LI^b * P^c$

Inputs

Parameter	Symbol	Units	Input*
Drainage Area	A	km^2	20.981
Ecozone		Input 1 = Boreal Sheild or 2 = Mixed Wood Plains	2
Lake/Wetland Areas	WA	km^2	3.437
Lake Attenuation Index	LI (LI = 1+(WA/A))	dimensionless	1.16381488
Mean Annual Precipitaiton	P	mm	940

*Input from OFAT



Figure 1: Ecozones of Ontario (EcoZone, 2012)

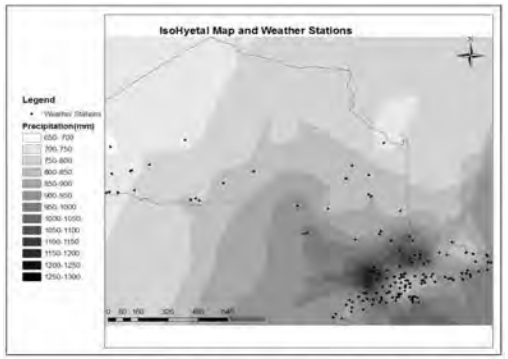

Figure 2: Isohyetal Map with Location of Environment Canada Weather Stations

Regression Parameters

x	a	b	c	
-5.483	0.756	-3.061	1.837	
-4.139	0.734	-3.78	1.491	
-3.68	0.728	-4.017	1.372	
-3.397	0.724	-4.162	1.299	
-3.151	0.721	-4.287	1.236	

T	Standard Error	Lower Limit (%)	Upper Limit (%)
2	0.159	-29	40
10	0.174	-32	46
25	0.183	-33	50
50	0.189	-35	53
100	0.195	-36	57

Results

T	Flow (Q_{uofm}) m^3/s	Lower Limit m^3/s	Upper Limit m^3/s
2	5.9740	4.24155	8.36361
10	10.354	7.04080	15.11700
25	12.496	8.37221	18.74375
50	14.057	9.13692	21.50690
100	15.645	10.01287	24.56281

```
================================================================================================================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
         V V    I       SS  U   U  A   A  L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M M M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\fe3508b8-0387
  Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\fe3508b8-0387


DATE: 09/27/2024                          TIME: 03:20:03

USER:


COMMENTS: _____________________________________________________


----------------------------------------------------------------------------------------------------------------
  ***********************************************
  ** SIMULATION : 100yr 24hr 15min SCS Type II  **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jkoen\AppD
|                  |              ata\Local\Temp\
|                  |              4f83d52c-0546-47a4-832d-251c982c03be\a6db1b5b
| Ptotal=132.00 mm |    Comments: 100yr 24hr 15min SCS Type II
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	2.41	12.50	15.40	18.75	2.17
0.25	1.34	6.50	2.47	12.75	10.59	19.00	2.09
0.50	1.37	6.75	2.54	13.00	8.94	19.25	2.00
0.75	1.40	7.00	2.61	13.25	7.57	19.50	1.92
1.00	1.43	7.25	2.67	13.50	6.68	19.75	1.84
1.25	1.47	7.50	2.74	13.75	5.86	20.00	1.76
1.50	1.50	7.75	2.81	14.00	5.23	20.25	1.71
1.75	1.53	8.00	2.87	14.25	4.77	20.50	1.69
2.00	1.57	8.25	3.08	14.50	4.54	20.75	1.67
2.25	1.60	8.50	3.39	14.75	4.30	21.00	1.66
2.50	1.63	8.75	3.74	15.00	4.08	21.25	1.64
2.75	1.67	9.00	4.05	15.25	3.84	21.50	1.63
3.00	1.70	9.25	4.22	15.50	3.62	21.75	1.61
3.25	1.73	9.50	4.22	15.75	3.38	22.00	1.59
3.50	1.77	9.75	4.50	16.00	3.15	22.25	1.58
3.75	1.80	10.00	5.01	16.25	2.99	22.50	1.56
4.00	1.83	10.25	5.69	16.50	2.91	22.75	1.54
4.25	1.88	10.50	6.45	16.75	2.83	23.00	1.53
4.50	1.95	10.75	7.55	17.00	2.75	23.25	1.51
4.75	2.01	11.00	8.82	17.25	2.66	23.50	1.49
5.00	2.08	11.25	11.15	17.50	2.58	23.75	1.48
5.25	2.15	11.50	14.19	17.75	2.50	24.00	1.46
5.50	2.21	11.75	57.86	18.00	2.42		
5.75	2.28	12.00	142.78	18.25	2.33		
6.00	2.34	12.25	22.62	18.50	2.25		

```
--------------------------------------------------------------------------------

--------------------
| CALIB            |
| NASHYD   (  0001)|   Area    (ha)= 153.20   Curve Number   (CN)= 56.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.80   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.86

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

```
Unit Hyd Qpeak  (cms)=   3.146

PEAK FLOW       (cms)=   3.577 (i)
TIME TO PEAK    (hrs)=  14.250
RUNOFF VOLUME    (mm)=  47.644
TOTAL RAINFALL   (mm)= 132.000
```

RUNOFF COEFFICIENT = 0.361

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
SHIFT HYD(0015) IN= 2---> OUT= 1 SHIFT=114.8 min				
ID= 2 (0001):	153.20	3.58	14.25	47.64
SHIFT ID= 1 (0015):	153.20	3.58	16.08	47.64

CALIB NASHYD (0002) ID= 1 DT= 5.0 min | Area (ha)= 230.56 Curve Number (CN)= 51.0 | Ia (mm)= 7.90 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.79

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 4.920

PEAK FLOW (cms)= 4.825 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 41.834
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.317

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
SHIFT HYD(0016) IN= 2---> OUT= 1 SHIFT= 92.3 min				
ID= 2 (0002):	230.56	4.82	14.17	41.83
SHIFT ID= 1 (0016):	230.56	4.82	15.67	41.83

CALIB NASHYD (0005) ID= 1 DT= 5.0 min | Area (ha)= 199.08 Curve Number (CN)= 57.0 | Ia (mm)= 8.20 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.99

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66

3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 3.821

PEAK FLOW (cms)= 4.508 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 48.592
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.368

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0018) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0016):	230.56	4.825	15.67	41.83
+ ID2= 2 (0005):	199.08	4.508	14.42	48.59
ID = 3 (0018):	429.64	8.747	15.33	44.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0022) IN= 2---> OUT= 1 SHIFT=132.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0018):	429.64	8.75	15.33	44.97
SHIFT ID= 1 (0022):	429.64	8.75	17.50	44.97

CALIB NASHYD (0003) ID= 1 DT= 5.0 min				
	Area	(ha)= 51.28	Curve Number	(CN)= 66.0
	Ia	(mm)= 7.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.19		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 1.646

PEAK FLOW (cms)= 2.205 (i)
TIME TO PEAK (hrs)= 13.417
RUNOFF VOLUME (mm)= 61.071
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.463

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| SHIFT HYD(0017)|
| IN= 2---> OUT= 1 |
| SHIFT= 38.7 min |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0003):	51.28	2.20	13.42	61.07
SHIFT ID= 1 (0017):	51.28	2.20	14.00	61.07

CALIB
NASHYD (0004)
ID= 1 DT= 5.0 min

Area (ha)= 271.60 Curve Number (CN)= 64.0
Ia (mm)= 7.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.55

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 6.693

PEAK FLOW (cms)= 9.029 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 58.043
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.440

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0019)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0017):	51.28	2.205	14.00	61.07
	+ ID2= 2 (0004):	271.60	9.029	13.83	58.04
	ID = 3 (0019):	322.88	11.214	13.92	58.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| SHIFT HYD(0021)|
| IN= 2---> OUT= 1 |
| SHIFT= 58.8 min |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0019):	322.88	11.21	13.92	58.52
SHIFT ID= 1 (0021):	322.88	11.21	14.83	58.52

CALIB
NASHYD (0006)
ID= 1 DT= 5.0 min

Area (ha)= 300.52 Curve Number (CN)= 67.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.97

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69

2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 5.827

PEAK FLOW (cms)= 8.897 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 61.800
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.468

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0020)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0015):	153.20	3.577	16.08	47.64
+ ID2= 2 (0021):	322.88	11.214	14.83	58.52
ID = 3 (0020):	476.08	13.734	15.08	55.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0020):	476.08	13.734	15.08	55.02
+ ID2= 2 (0022):	429.64	8.747	17.50	44.97
ID = 1 (0020):	905.72	17.409	16.50	50.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0020):	905.72	17.409	16.50	50.25
+ ID2= 2 (0006):	300.52	8.897	14.33	61.80
ID = 3 (0020):	1206.24	24.788	15.33	53.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0023)
IN= 2---> OUT= 1
SHIFT=128.8 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0020):	1206.24	24.79	15.33	53.13
SHIFT ID= 1 (0023):	1206.24	24.79	17.42	53.13

CALIB
NASHYD (0007)
ID= 1 DT= 5.0 min

Area (ha)= 128.72 Curve Number (CN)= 62.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.98

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54

4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 2.483

PEAK FLOW (cms)= 3.347 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 55.047
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.417

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0024) | 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0023):	1206.24	24.788	17.42	53.13
+ ID2= 2 (0007):	128.72	3.347	14.33	55.05
ID = 3 (0024):	1334.96	26.452	17.33	53.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0025) | IN= 2---> OUT= 1 | SHIFT=155.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0024):	1334.96	26.45	17.33	53.31
SHIFT ID= 1 (0025):	1334.96	26.45	19.92	53.31

CALIB NASHYD (0008) | ID= 1 DT= 5.0 min				
	Area	(ha)= 109.00	Curve Number	(CN)= 55.0
	Ia	(mm)= 7.80	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)=	1.78		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 2.339

PEAK FLOW (cms)= 2.562 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 46.460
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.352

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026) | IN= 2---> OUT= 1 | SHIFT= 95.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0008):	109.00	2.56	14.17	46.46
SHIFT ID= 1 (0026):	109.00	2.56	15.75	46.46

CALIB NASHYD (0009) | ID= 1 DT= 5.0 min				
	Area	(ha)= 110.92	Curve Number	(CN)= 55.0
	Ia	(mm)= 7.90	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)=	1.89		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr

0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 2.242

PEAK FLOW (cms)= 2.487 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 46.399
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.352

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT=116.6 min				
ID= 2 (0009):	110.92	2.49	14.25	46.40
SHIFT ID= 1 (0029):	110.92	2.49	16.17	46.40

CALIB			
NASHYD (0010)	Area (ha)= 86.84	Curve Number (CN)= 55.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.84		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51

5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 1.803

PEAK FLOW (cms)= 1.979 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 46.217
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.350

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0028)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0010):	86.84	1.98	14.25	46.22
SHIFT= 98.7 min	SHIFT ID= 1 (0028):	86.84	1.98	15.83	46.22

CALIB					
NASHYD (0011)	Area (ha)= 25.76	Curve Number (CN)= 67.0			
ID= 1 DT= 5.0 min	Ia (mm)= 7.10	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 1.07				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 0.920

PEAK FLOW (cms)= 1.230 (i)
TIME TO PEAK (hrs)= 13.250
RUNOFF VOLUME (mm)= 62.399
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.473

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0011):	25.76	1.23	13.25	62.40
SHIFT= 76.1 min	SHIFT ID= 1 (0027):	25.76	1.23	14.50	62.40

CALIB					
NASHYD (0012)	Area (ha)= 229.28	Curve Number (CN)= 60.0			
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 2.19				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92

1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 3.999

PEAK FLOW (cms)= 5.237 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 52.485
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.398

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0013) | ID= 1 DT= 5.0 min	Area (ha)= 118.16 Curve Number (CN)= 69.0 Ia (mm)= 7.80 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 2.14

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 2.109

PEAK FLOW (cms)= 3.449 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 64.728
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.490

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0031) | IN= 2---> OUT= 1 | SHIFT= 56.8 min	AREA	QPEAK	TPEAK	R.V.

	(ha)	(cms)	(hrs)	(mm)
ID= 2 (0013):	118.16	3.45	14.50	64.73
SHIFT ID= 1 (0031):	118.16	3.45	15.42	64.73

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	229.28	5.237	14.58	52.48
+ ID2= 2 (0025):	1334.96	26.452	19.92	53.31
ID = 3 (0030):	1564.24	28.018	19.83	53.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1564.24	28.018	19.83	53.19
+ ID2= 2 (0026):	109.00	2.562	15.75	46.46
ID = 1 (0030):	1673.24	28.824	19.83	52.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1673.24	28.824	19.83	52.75
+ ID2= 2 (0027):	25.76	1.230	14.50	62.40
ID = 3 (0030):	1699.00	28.973	19.83	52.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1699.00	28.973	19.83	52.90
+ ID2= 2 (0028):	86.84	1.979	15.83	46.22
ID = 1 (0030):	1785.84	29.642	19.75	52.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1785.84	29.642	19.75	52.58
+ ID2= 2 (0029):	110.92	2.487	16.17	46.40
ID = 3 (0030):	1896.76	30.637	19.75	52.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1896.76	30.637	19.75	52.21
+ ID2= 2 (0031):	118.16	3.449	15.42	64.73
ID = 1 (0030):	2014.92	31.867	19.67	52.95

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0032)				
IN= 2---> OUT= 1				
SHIFT=124.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0030):	2014.92	31.87	19.67	52.95
SHIFT ID= 1 (0032):	2014.92	31.87	21.67	52.95

CALIB
NASHYD (0014) | ID= 1 DT= 5.0 min

Area (ha)= 134.04 Curve Number (CN)= 60.0
Ia (mm)= 7.60 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.09

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46

5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 2.450

PEAK FLOW (cms)= 3.187 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 52.685
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.399

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0033)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0014):	134.04	3.187	14.50	52.69
+ ID2= 2 (0032):	2014.92	31.867	21.67	52.95
ID = 3 (0033):	2148.96	32.469	21.67	52.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH

V V I SSSSS U U A L (v 6.2.2017)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL

OOO TTTTT TTTTT H H Y Y M M OOO TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
OOO T T H H Y M M OOO

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
Output filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\25a76a9b-dec4
Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\25a76a9b-dec4

DATE: 09/27/2024 TIME: 03:20:01

USER:

COMMENTS: _____

** SIMULATION : 10yr 24hr 15min SCS Type II **

READ STORM | Filename: C:\Users\jkoen\AppData\Local\Temp\4f83d52c-0546-47a4-832d-251c982c03be\7fbe1110
Ptotal= 91.20 mm | Comments: 10yr 24hr 15min SCS Type II

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	1.67	12.50	10.64	18.75	1.50
0.25	0.92	6.50	1.71	12.75	7.32	19.00	1.44
0.50	0.95	6.75	1.76	13.00	6.18	19.25	1.38
0.75	0.97	7.00	1.80	13.25	5.23	19.50	1.33
1.00	0.99	7.25	1.85	13.50	4.62	19.75	1.27
1.25	1.02	7.50	1.89	13.75	4.05	20.00	1.21
1.50	1.04	7.75	1.94	14.00	3.61	20.25	1.18
1.75	1.06	8.00	1.98	14.25	3.29	20.50	1.17
2.00	1.08	8.25	2.12	14.50	3.14	20.75	1.16
2.25	1.11	8.50	2.34	14.75	2.97	21.00	1.15
2.50	1.13	8.75	2.58	15.00	2.82	21.25	1.13
2.75	1.15	9.00	2.80	15.25	2.65	21.50	1.12
3.00	1.17	9.25	2.92	15.50	2.50	21.75	1.11
3.25	1.20	9.50	2.92	15.75	2.33	22.00	1.10
3.50	1.22	9.75	3.11	16.00	2.18	22.25	1.09
3.75	1.24	10.00	3.46	16.25	2.07	22.50	1.08
4.00	1.26	10.25	3.93	16.50	2.01	22.75	1.07
4.25	1.30	10.50	4.46	16.75	1.95	23.00	1.05
4.50	1.34	10.75	5.22	17.00	1.90	23.25	1.04
4.75	1.39	11.00	6.09	17.25	1.84	23.50	1.03
5.00	1.44	11.25	7.70	17.50	1.79	23.75	1.02
5.25	1.48	11.50	9.81	17.75	1.73	24.00	1.01
5.50	1.53	11.75	39.97	18.00	1.67		
5.75	1.57	12.00	98.65	18.25	1.61		
6.00	1.62	12.25	15.63	18.50	1.56		

CALIB
NASHYD (0001)|ID= 1 DT= 5.0 min |

Area (ha)= 153.20 Curve Number (CN)= 56.0
Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.86

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09

4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 3.146

PEAK FLOW (cms)= 1.810 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 24.580
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.270

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0015)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0001):	153.20	1.81	14.25	24.58
SHIFT=114.8 min	SHIFT ID= 1 (0015):	153.20	1.81	16.08	24.58

CALIB		
NASHYD (0002)	Area (ha)= 230.56	Curve Number (CN)= 51.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.79	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 4.920

PEAK FLOW (cms)= 2.398 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 21.198
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.232

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0016)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0002):	230.56	2.40	14.25	21.20
SHIFT= 92.3 min	SHIFT ID= 1 (0016):	230.56	2.40	15.75	21.20

CALIB		
NASHYD (0005)	Area (ha)= 199.08	Curve Number (CN)= 57.0
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.99	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56

0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 3.821

PEAK FLOW (cms)= 2.282 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 25.086
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.275

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0018)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	ID1= 1 (0016):	230.56	2.398	15.75	21.20
	+ ID2= 2 (0005):	199.08	2.282	14.42	25.09
	ID = 3 (0018):	429.64	4.398	15.33	23.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0022)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=132.2 min	ID= 2 (0018):	429.64	4.40	15.33	23.00
	SHIFT ID= 1 (0022):	429.64	4.40	17.50	23.00

CALIB					
NASHYD (0003)	Area (ha)=	51.28	Curve Number (CN)=	66.0	
ID= 1 DT= 5.0 min	Ia (mm)=	7.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.19			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07

4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 1.646

PEAK FLOW (cms)= 1.168 (i)
TIME TO PEAK (hrs)= 13.417
RUNOFF VOLUME (mm)= 32.968
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.361

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0017)
IN= 2---> OUT= 1
SHIFT= 38.7 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0003):	51.28	1.17	13.42	32.97
SHIFT ID= 1 (0017):	51.28	1.17	14.00	32.97

CALIB
NASHYD (0004)
ID= 1 DT= 5.0 min

Area (ha)= 271.60 Curve Number (CN)= 64.0
Ia (mm)= 7.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.55

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 6.693

PEAK FLOW (cms)= 4.726 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 30.980
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.340

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0019)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0017):	51.28	1.168	14.00	32.97
+ ID2= 2 (0004):	271.60	4.726	13.92	30.98
ID = 3 (0019):	322.88	5.887	13.92	31.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0021)
IN= 2---> OUT= 1
SHIFT= 58.8 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0019):	322.88	5.89	13.92	31.30
SHIFT ID= 1 (0021):	322.88	5.89	14.83	31.30

CALIB
NASHYD (0006)
ID= 1 DT= 5.0 min

Area (ha)= 300.52 Curve Number (CN)= 67.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.97

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN

hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 5.827

PEAK FLOW (cms)= 4.702 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 33.295
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.365

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0020)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0015):	153.20	1.810	16.08	24.58
+ ID2= 2 (0021):	322.88	5.887	14.83	31.30
ID = 3 (0020):	476.08	7.161	15.17	29.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0020):	476.08	7.161	15.17	29.13
+ ID2= 2 (0022):	429.64	4.398	17.50	23.00
ID = 1 (0020):	905.72	8.985	16.50	26.22

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0020):	905.72	8.985	16.50	26.22
+ ID2= 2 (0006):	300.52	4.702	14.42	33.30
ID = 3 (0020):	1206.24	12.927	15.33	27.99

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0023)				
IN= 2---> OUT= 1				
SHIFT=128.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0020):	1206.24	12.93	15.33	27.99
SHIFT ID= 1 (0023):	1206.24	12.93	17.42	27.99

CALIB			
NASHYD (0007)	Area (ha)= 128.72	Curve Number (CN)= 62.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.98		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18

2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.483

PEAK FLOW (cms)= 1.732 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 29.036
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.318

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0024)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0023):	1206.24	12.927	17.42	27.99
+ ID2= 2 (0007):	128.72	1.732	14.42	29.04
ID = 3 (0024):	1334.96	13.817	17.33	28.09

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0025)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT=155.6 min				
ID= 2 (0024):	1334.96	13.82	17.33	28.09
SHIFT ID= 1 (0025):	1334.96	13.82	19.92	28.09

CALIB	
NASHYD (0008)	Area (ha)= 109.00 Curve Number (CN)= 55.0

ID= 1 DT= 5.0 min	Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.78

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.339

PEAK FLOW (cms)= 1.292 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 23.884
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.262

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026)
IN= 2---> OUT= 1
SHIFT= 95.6 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0008):	109.00	1.29	14.17	23.88
SHIFT ID= 1 (0026):	109.00	1.29	15.75	23.88

CALIB			
NASHYD (0009)	Area (ha)= 110.92	Curve Number (CN)= 55.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.89		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.242

PEAK FLOW (cms)= 1.253 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 23.835
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.261

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029)
IN= 2---> OUT= 1
SHIFT=116.6 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0009):	110.92	1.25	14.33	23.84
SHIFT ID= 1 (0029):	110.92	1.25	16.25	23.84

CALIB			
NASHYD (0010)	Area (ha)= 86.84	Curve Number (CN)= 55.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.84		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16

2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 1.803

PEAK FLOW (cms)= 0.995 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 23.688
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.260

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0028)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT= 98.7 min				
ID= 2 (0010):	86.84	0.99	14.25	23.69
SHIFT ID= 1 (0028):	86.84	0.99	15.83	23.69

CALIB NASHYD (0011) ID= 1 DT= 5.0 min				
	Area (ha)=	25.76	Curve Number (CN)=	67.0
	Ia (mm)=	7.10	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.07		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 0.920

PEAK FLOW (cms)= 0.653 (i)
TIME TO PEAK (hrs)= 13.333
RUNOFF VOLUME (mm)= 33.808
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.371

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT= 76.1 min				
ID= 2 (0011):	25.76	0.65	13.33	33.81
SHIFT ID= 1 (0027):	25.76	0.65	14.58	33.81

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| CALIB            |
| NASHYD   (  0012)|   Area    (ha)= 229.28   Curve Number   (CN)= 60.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.19

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
  TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
   hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
 0.083     0.00 | 6.167     1.62 |12.250    98.65 | 18.33     1.61
 0.167     0.00 | 6.250     1.62 |12.333    15.64 | 18.42     1.61
 0.250     0.00 | 6.333     1.67 |12.417    15.63 | 18.50     1.61
 0.333     0.92 | 6.417     1.67 |12.500    15.63 | 18.58     1.56
 0.417     0.92 | 6.500     1.67 |12.583    10.64 | 18.67     1.56
 0.500     0.92 | 6.583     1.71 |12.667    10.64 | 18.75     1.56
 0.583     0.95 | 6.667     1.71 |12.750    10.64 | 18.83     1.50
 0.667     0.95 | 6.750     1.71 |12.833     7.32 | 18.92     1.50
 0.750     0.95 | 6.833     1.76 |12.917     7.32 | 19.00     1.50
 0.833     0.97 | 6.917     1.76 |13.000     7.32 | 19.08     1.44
 0.917     0.97 | 7.000     1.76 |13.083     6.18 | 19.17     1.44
 1.000     0.97 | 7.083     1.80 |13.167     6.18 | 19.25     1.44
 1.083     0.99 | 7.167     1.80 |13.250     6.18 | 19.33     1.38
 1.167     0.99 | 7.250     1.80 |13.333     5.23 | 19.42     1.38
 1.250     0.99 | 7.333     1.85 |13.417     5.23 | 19.50     1.38
 1.333     1.02 | 7.417     1.85 |13.500     5.23 | 19.58     1.33
 1.417     1.02 | 7.500     1.85 |13.583     4.62 | 19.67     1.33
 1.500     1.02 | 7.583     1.89 |13.667     4.62 | 19.75     1.33
 1.583     1.04 | 7.667     1.89 |13.750     4.62 | 19.83     1.27
 1.667     1.04 | 7.750     1.89 |13.833     4.05 | 19.92     1.27
 1.750     1.04 | 7.833     1.94 |13.917     4.05 | 20.00     1.27
 1.833     1.06 | 7.917     1.94 |14.000     4.05 | 20.08     1.21
 1.917     1.06 | 8.000     1.94 |14.083     3.61 | 20.17     1.21
 2.000     1.06 | 8.083     1.98 |14.167     3.61 | 20.25     1.21
 2.083     1.08 | 8.167     1.98 |14.250     3.61 | 20.33     1.18
 2.167     1.08 | 8.250     1.98 |14.333     3.29 | 20.42     1.18
 2.250     1.08 | 8.333     2.12 |14.417     3.29 | 20.50     1.18
 2.333     1.11 | 8.417     2.12 |14.500     3.29 | 20.58     1.17
 2.417     1.11 | 8.500     2.12 |14.583     3.14 | 20.67     1.17
 2.500     1.11 | 8.583     2.34 |14.667     3.14 | 20.75     1.17
 2.583     1.13 | 8.667     2.34 |14.750     3.14 | 20.83     1.16
 2.667     1.13 | 8.750     2.34 |14.833     2.97 | 20.92     1.16
 2.750     1.13 | 8.833     2.58 |14.917     2.97 | 21.00     1.16
 2.833     1.15 | 8.917     2.58 |15.000     2.97 | 21.08     1.15
 2.917     1.15 | 9.000     2.58 |15.083     2.82 | 21.17     1.15
 3.000     1.15 | 9.083     2.80 |15.167     2.82 | 21.25     1.15
 3.083     1.17 | 9.167     2.80 |15.250     2.82 | 21.33     1.13
 3.167     1.17 | 9.250     2.80 |15.333     2.65 | 21.42     1.13
 3.250     1.17 | 9.333     2.92 |15.417     2.65 | 21.50     1.13
 3.333     1.20 | 9.417     2.92 |15.500     2.65 | 21.58     1.12
 3.417     1.20 | 9.500     2.92 |15.583     2.50 | 21.67     1.12
 3.500     1.20 | 9.583     2.92 |15.667     2.50 | 21.75     1.12
 3.583     1.22 | 9.667     2.92 |15.750     2.50 | 21.83     1.11
 3.667     1.22 | 9.750     2.92 |15.833     2.33 | 21.92     1.11
 3.750     1.22 | 9.833     3.11 |15.917     2.33 | 22.00     1.11
 3.833     1.24 | 9.917     3.11 |16.000     2.33 | 22.08     1.10
 3.917     1.24 |10.000     3.11 |16.083     2.18 | 22.17     1.10
 4.000     1.24 |10.083     3.46 |16.167     2.18 | 22.25     1.10
 4.083     1.26 |10.167     3.46 |16.250     2.18 | 22.33     1.09
 4.167     1.26 |10.250     3.46 |16.333     2.07 | 22.42     1.09
 4.250     1.26 |10.333     3.93 |16.417     2.07 | 22.50     1.09
 4.333     1.30 |10.417     3.93 |16.500     2.07 | 22.58     1.08
 4.417     1.30 |10.500     3.93 |16.583     2.01 | 22.67     1.08
 4.500     1.30 |10.583     4.46 |16.667     2.01 | 22.75     1.08
 4.583     1.34 |10.667     4.46 |16.750     2.01 | 22.83     1.07
 4.667     1.34 |10.750     4.46 |16.833     1.95 | 22.92     1.07
 4.750     1.34 |10.833     5.22 |16.917     1.95 | 23.00     1.07
 4.833     1.39 |10.917     5.22 |17.000     1.95 | 23.08     1.05
 4.917     1.39 |11.000     5.22 |17.083     1.90 | 23.17     1.05
 5.000     1.39 |11.083     6.09 |17.167     1.90 | 23.25     1.05
 5.083     1.44 |11.167     6.09 |17.250     1.90 | 23.33     1.04
 5.167     1.44 |11.250     6.09 |17.333     1.84 | 23.42     1.04
 5.250     1.44 |11.333     7.70 |17.417     1.84 | 23.50     1.04
 5.333     1.48 |11.417     7.70 |17.500     1.84 | 23.58     1.03
 5.417     1.48 |11.500     7.70 |17.583     1.79 | 23.67     1.03
 5.500     1.48 |11.583     9.81 |17.667     1.79 | 23.75     1.03
 5.583     1.53 |11.667     9.81 |17.750     1.79 | 23.83     1.02
 5.667     1.53 |11.750     9.81 |17.833     1.73 | 23.92     1.02
 5.750     1.53 |11.833    39.97 |17.917     1.73 | 24.00     1.02
 5.833     1.57 |11.917    39.97 |18.000     1.73 | 24.08     1.01
 5.917     1.57 |12.000    39.97 |18.083     1.67 | 24.17     1.01
 6.000     1.57 |12.083    98.64 |18.167     1.67 | 24.25     1.01
 6.083     1.62 |12.167    98.65 |18.250     1.67 |

      Unit Hyd Qpeak  (cms)=   3.999

      PEAK FLOW       (cms)=   2.689 (i)
      TIME TO PEAK    (hrs)=  14.667
      RUNOFF VOLUME    (mm)=  27.466
      TOTAL RAINFALL   (mm)=  91.200
      RUNOFF COEFFICIENT   =   0.301

      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| NASHYD   (  0013)|   Area    (ha)= 118.16   Curve Number   (CN)= 69.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.80   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.14

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
  TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
   hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
 0.083     0.00 | 6.167     1.62 |12.250    98.65 | 18.33     1.61
 0.167     0.00 | 6.250     1.62 |12.333    15.64 | 18.42     1.61
 0.250     0.00 | 6.333     1.67 |12.417    15.63 | 18.50     1.61
 0.333     0.92 | 6.417     1.67 |12.500    15.63 | 18.58     1.56
 0.417     0.92 | 6.500     1.67 |12.583    10.64 | 18.67     1.56
 0.500     0.92 | 6.583     1.71 |12.667    10.64 | 18.75     1.56
 0.583     0.95 | 6.667     1.71 |12.750    10.64 | 18.83     1.50
 0.667     0.95 | 6.750     1.71 |12.833     7.32 | 18.92     1.50
 0.750     0.95 | 6.833     1.76 |12.917     7.32 | 19.00     1.50
 0.833     0.97 | 6.917     1.76 |13.000     7.32 | 19.08     1.44
 0.917     0.97 | 7.000     1.76 |13.083     6.18 | 19.17     1.44
 1.000     0.97 | 7.083     1.80 |13.167     6.18 | 19.25     1.44
 1.083     0.99 | 7.167     1.80 |13.250     6.18 | 19.33     1.38
 1.167     0.99 | 7.250     1.80 |13.333     5.23 | 19.42     1.38
 1.250     0.99 | 7.333     1.85 |13.417     5.23 | 19.50     1.38
 1.333     1.02 | 7.417     1.85 |13.500     5.23 | 19.58     1.33
 1.417     1.02 | 7.500     1.85 |13.583     4.62 | 19.67     1.33
 1.500     1.02 | 7.583     1.89 |13.667     4.62 | 19.75     1.33
 1.583     1.04 | 7.667     1.89 |13.750     4.62 | 19.83     1.27
 1.667     1.04 | 7.750     1.89 |13.833     4.05 | 19.92     1.27
 1.750     1.04 | 7.833     1.94 |13.917     4.05 | 20.00     1.27
 1.833     1.06 | 7.917     1.94 |14.000     4.05 | 20.08     1.21
 1.917     1.06 | 8.000     1.94 |14.083     3.61 | 20.17     1.21
 2.000     1.06 | 8.083     1.98 |14.167     3.61 | 20.25     1.21
 2.083     1.08 | 8.167     1.98 |14.250     3.61 | 20.33     1.18
 2.167     1.08 | 8.250     1.98 |14.333     3.29 | 20.42     1.18
 2.250     1.08 | 8.333     2.12 |14.417     3.29 | 20.50     1.18
 2.333     1.11 | 8.417     2.12 |14.500     3.29 | 20.58     1.17
 2.417     1.11 | 8.500     2.12 |14.583     3.14 | 20.67     1.17
 2.500     1.11 | 8.583     2.34 |14.667     3.14 | 20.75     1.17
 2.583     1.13 | 8.667     2.34 |14.750     3.14 | 20.83     1.16
 2.667     1.13 | 8.750     2.34 |14.833     2.97 | 20.92     1.16
 2.750     1.13 | 8.833     2.58 |14.917     2.97 | 21.00     1.16
 2.833     1.15 | 8.917     2.58 |15.000     2.97 | 21.08     1.15
 2.917     1.15 | 9.000     2.58 |15.083     2.82 | 21.17     1.15
 3.000     1.15 | 9.083     2.80 |15.167     2.82 | 21.25     1.15
 3.083     1.17 | 9.167     2.80 |15.250     2.82 | 21.33     1.13
 3.167     1.17 | 9.250     2.80 |15.333     2.65 | 21.42     1.13
 3.250     1.17 | 9.333     2.92 |15.417     2.65 | 21.50     1.13
 3.333     1.20 | 9.417     2.92 |15.500     2.65 | 21.58     1.12
 3.417     1.20 | 9.500     2.92 |15.583     2.50 | 21.67     1.12
 3.500     1.20 | 9.583     2.92 |15.667     2.50 | 21.75     1.12
 3.583     1.22 | 9.667     2.92 |15.750     2.50 | 21.83     1.11
 3.667     1.22 | 9.750     2.92 |15.833     2.33 | 21.92     1.11
 3.750     1.22 | 9.833     3.11 |15.917     2.33 | 22.00     1.11
 3.833     1.24 | 9.917     3.11 |16.000     2.33 | 22.08     1.10
 3.917     1.24 |10.000     3.11 |16.083     2.18 | 22.17     1.10
 4.000     1.24 |10.083     3.46 |16.167     2.18 | 22.25     1.10
 4.083     1.26 |10.167     3.46 |16.250     2.18 | 22.33     1.09
 4.167     1.26 |10.250     3.46 |16.333     2.07 | 22.42     1.09
 4.250     1.26 |10.333     3.93 |16.417     2.07 | 22.50     1.09
 4.333     1.30 |10.417     3.93 |16.500     2.07 | 22.58     1.08
 4.417     1.30 |10.500     3.93 |16.583     2.01 | 22.67     1.08
 4.500     1.30 |10.583     4.46 |16.667     2.01 | 22.75     1.08
 4.583     1.34 |10.667     4.46 |16.750     2.01 | 22.83     1.07
 4.667     1.34 |10.750     4.46 |16.833     1.95 | 22.92     1.07
 4.750     1.34 |10.833     5.22 |16.917     1.95 | 23.00     1.07
 4.833     1.39 |10.917     5.22 |17.000     1.95 | 23.08     1.05
```

4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.109

PEAK FLOW (cms)= 1.843 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 35.215
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.386

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0031) / IN= 2---> OUT= 1 / SHIFT= 56.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0013):	118.16	1.84	14.58	35.22
SHIFT ID= 1 (0031):	118.16	1.84	15.50	35.22

ADD HYD (0030) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	229.28	2.689	14.67	27.47
+ ID2= 2 (0025):	1334.96	13.817	19.92	28.09
ID = 3 (0030):	1564.24	14.668	19.83	28.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030) / 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1564.24	14.668	19.83	28.00
+ ID2= 2 (0026):	109.00	1.292	15.75	23.88
ID = 1 (0030):	1673.24	15.099	19.83	27.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1673.24	15.099	19.83	27.73
+ ID2= 2 (0027):	25.76	0.653	14.58	33.81
ID = 3 (0030):	1699.00	15.186	19.83	27.82

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030) / 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1699.00	15.186	19.83	27.82
+ ID2= 2 (0028):	86.84	0.995	15.83	23.69
ID = 1 (0030):	1785.84	15.540	19.83	27.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1785.84	15.540	19.83	27.62
+ ID2= 2 (0029):	110.92	1.253	16.25	23.84
ID = 3 (0030):	1896.76	16.060	19.75	27.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030) / 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1896.76	16.060	19.75	27.40
+ ID2= 2 (0031):	118.16	1.843	15.50	35.22
ID = 1 (0030):	2014.92	16.756	19.75	27.86

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0032) / IN= 2---> OUT= 1 / SHIFT=124.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0030):	2014.92	16.76	19.75	27.86
SHIFT ID= 1 (0032):	2014.92	16.76	21.75	27.86

CALIB / NASHYD (0014) / ID= 1 DT= 5.0 min | Area (ha)= 134.04 | Curve Number (CN)= 60.0 | Ia (mm)= 7.60 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 2.09

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13

3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.450

PEAK FLOW (cms)= 1.640 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 27.632
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.303

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0033)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0014):		134.04	1.640	14.58	27.63
+ ID2= 2 (0032):		2014.92	16.756	21.75	27.86
ID = 3 (0033):		2148.96	17.089	21.75	27.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
        V  V    I       SS  U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
Output filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\e2b49cc7-56b9
Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\e2b49cc7-56b9

DATE: 09/27/2024 TIME: 03:20:02

USER:

COMMENTS: _____

** SIMULATION : 25yr 24hr 15min SCS Type II **

READ STORM | Ptotal=108.00 mm

Filename: C:\Users\jkoen\AppData\Local\Temp\4f83d52c-0546-47a4-832d-251c982c03be\eba2f83b
Comments: 25yr 24hr 15min SCS Type II

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	1.97	12.50	12.60	18.75	1.77
0.25	1.10	6.50	2.02	12.75	8.67	19.00	1.71
0.50	1.12	6.75	2.08	13.00	7.32	19.25	1.64
0.75	1.15	7.00	2.13	13.25	6.19	19.50	1.57
1.00	1.17	7.25	2.19	13.50	5.47	19.75	1.50
1.25	1.20	7.50	2.24	13.75	4.80	20.00	1.44
1.50	1.23	7.75	2.30	14.00	4.28	20.25	1.40
1.75	1.25	8.00	2.35	14.25	3.90	20.50	1.38
2.00	1.28	8.25	2.52	14.50	3.72	20.75	1.37
2.25	1.31	8.50	2.78	14.75	3.52	21.00	1.36
2.50	1.34	8.75	3.06	15.00	3.34	21.25	1.34
2.75	1.36	9.00	3.32	15.25	3.14	21.50	1.33
3.00	1.39	9.25	3.46	15.50	2.96	21.75	1.32
3.25	1.42	9.50	3.46	15.75	2.76	22.00	1.30
3.50	1.45	9.75	3.68	16.00	2.58	22.25	1.29
3.75	1.47	10.00	4.10	16.25	2.45	22.50	1.28
4.00	1.50	10.25	4.66	16.50	2.38	22.75	1.26
4.25	1.54	10.50	5.28	16.75	2.31	23.00	1.25
4.50	1.59	10.75	6.18	17.00	2.25	23.25	1.24
4.75	1.65	11.00	7.21	17.25	2.18	23.50	1.22
5.00	1.70	11.25	9.12	17.50	2.11	23.75	1.21
5.25	1.76	11.50	11.61	17.75	2.04	24.00	1.19
5.50	1.81	11.75	47.34	18.00	1.98		
5.75	1.86	12.00	116.82	18.25	1.91		
6.00	1.92	12.25	18.51	18.50	1.84		

CALIB | NASHYD (0001) | ID= 1 DT= 5.0 min

Area (ha)= 153.20 Curve Number (CN)= 56.0
Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.86

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44

1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 3.146

PEAK FLOW (cms)= 2.490 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 33.492
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.310

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0015)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT=114.8 min				
ID= 2 (0001):	153.20	2.49	14.25	33.49
SHIFT ID= 1 (0015):	153.20	2.49	16.08	33.49

CALIB
NASHYD (0002) | ID= 1 DT= 5.0 min
Area (ha)= 230.56 Curve Number (CN)= 51.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.79

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 4.920

PEAK FLOW (cms)= 3.324 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 29.116
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.270

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
--------------------
| SHIFT HYD(  0016)|
| IN= 2---> OUT= 1 |
| SHIFT= 92.3 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)      (cms)     (hrs)      (mm)
          ID= 2 (  0002):  230.56     3.32     14.17     29.12
    SHIFT ID= 1 (  0016):  230.56     3.32     15.67     29.12
```

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--------------------
| CALIB            |
| NASHYD   (  0005)|   Area    (ha)= 199.08   Curve Number   (CN)= 57.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.20   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.99
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 3.821

PEAK FLOW (cms)= 3.139 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 34.178
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.316

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0018)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0016):   230.56   3.324    15.67    29.12
     + ID2= 2 (  0005):   199.08   3.139    14.42    34.18
       ================================================
       ID = 3 (  0018):   429.64   6.067    15.33    31.46
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
--------------------
| SHIFT HYD(  0022)|
| IN= 2---> OUT= 1 |
| SHIFT=132.2 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)      (cms)     (hrs)      (mm)
          ID= 2 (  0018):  429.64     6.07     15.33     31.46
    SHIFT ID= 1 (  0022):  429.64     6.07     17.50     31.46
```

```
--------------------
| CALIB            |
| NASHYD   (  0003)|   Area    (ha)=  51.28   Curve Number   (CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.19
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38

2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 1.646

PEAK FLOW (cms)= 1.573 (i)
TIME TO PEAK (hrs)= 13.417
RUNOFF VOLUME (mm)= 43.999
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.407

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0017) / IN= 2---> OUT= 1 / SHIFT= 38.7 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0003):	51.28	1.57	13.42	44.00
SHIFT ID= 1 (0017):	51.28	1.57	14.00	44.00

CALIB / NASHYD (0004) / ID= 1 DT= 5.0 min | Area (ha)= 271.60 | Curve Number (CN)= 64.0 | Ia (mm)= 7.40 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.55

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 6.693

PEAK FLOW (cms)= 6.402 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 41.566
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.385

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0019) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

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       ID1= 1 (  0017):    51.28   1.573    14.00    44.00
     + ID2= 2 (  0004):   271.60   6.402    13.83    41.57
       ========================================================
       ID = 3 (  0019):   322.88   7.965    13.92    41.95

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| SHIFT HYD(  0021)|
| IN= 2---> OUT= 1 |
| SHIFT= 58.8 min  |      AREA     QPEAK     TPEAK      R.V.
-------------------      (ha)      (cms)     (hrs)      (mm)
        ID= 2 (  0019):  322.88     7.96     13.92     41.95
    SHIFT ID= 1 (  0021):  322.88     7.96     14.83     41.95

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| CALIB              |
| NASHYD   (  0006)|   Area    (ha)= 300.52   Curve Number   (CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.97

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.92 |12.250  116.82 | 18.33    1.91
 0.167    0.00 | 6.250    1.92 |12.333   18.52 | 18.42    1.91
 0.250    0.00 | 6.333    1.97 |12.417   18.51 | 18.50    1.91
 0.333    1.10 | 6.417    1.97 |12.500   18.51 | 18.58    1.84
 0.417    1.10 | 6.500    1.97 |12.583   12.60 | 18.67    1.84
 0.500    1.10 | 6.583    2.02 |12.667   12.60 | 18.75    1.84
 0.583    1.12 | 6.667    2.02 |12.750   12.60 | 18.83    1.77
 0.667    1.12 | 6.750    2.02 |12.833    8.67 | 18.92    1.77
 0.750    1.12 | 6.833    2.08 |12.917    8.67 | 19.00    1.77
 0.833    1.15 | 6.917    2.08 |13.000    8.67 | 19.08    1.71
 0.917    1.15 | 7.000    2.08 |13.083    7.32 | 19.17    1.71
 1.000    1.15 | 7.083    2.13 |13.167    7.32 | 19.25    1.71
 1.083    1.17 | 7.167    2.13 |13.250    7.32 | 19.33    1.64
 1.167    1.17 | 7.250    2.13 |13.333    6.20 | 19.42    1.64
 1.250    1.17 | 7.333    2.19 |13.417    6.19 | 19.50    1.64
 1.333    1.20 | 7.417    2.19 |13.500    6.19 | 19.58    1.57
 1.417    1.20 | 7.500    2.19 |13.583    5.47 | 19.67    1.57
 1.500    1.20 | 7.583    2.24 |13.667    5.47 | 19.75    1.57
 1.583    1.23 | 7.667    2.24 |13.750    5.47 | 19.83    1.50
 1.667    1.23 | 7.750    2.24 |13.833    4.80 | 19.92    1.50
 1.750    1.23 | 7.833    2.30 |13.917    4.80 | 20.00    1.50
 1.833    1.25 | 7.917    2.30 |14.000    4.80 | 20.08    1.44
 1.917    1.25 | 8.000    2.30 |14.083    4.28 | 20.17    1.44
 2.000    1.25 | 8.083    2.35 |14.167    4.28 | 20.25    1.44
 2.083    1.28 | 8.167    2.35 |14.250    4.28 | 20.33    1.40
 2.167    1.28 | 8.250    2.35 |14.333    3.90 | 20.42    1.40
 2.250    1.28 | 8.333    2.52 |14.417    3.90 | 20.50    1.40
 2.333    1.31 | 8.417    2.52 |14.500    3.90 | 20.58    1.38
 2.417    1.31 | 8.500    2.52 |14.583    3.72 | 20.67    1.38
 2.500    1.31 | 8.583    2.78 |14.667    3.72 | 20.75    1.38
 2.583    1.34 | 8.667    2.78 |14.750    3.72 | 20.83    1.37
 2.667    1.34 | 8.750    2.78 |14.833    3.52 | 20.92    1.37
 2.750    1.34 | 8.833    3.06 |14.917    3.52 | 21.00    1.37
 2.833    1.36 | 8.917    3.06 |15.000    3.52 | 21.08    1.36
 2.917    1.36 | 9.000    3.06 |15.083    3.34 | 21.17    1.36
 3.000    1.36 | 9.083    3.32 |15.167    3.34 | 21.25    1.36
 3.083    1.39 | 9.167    3.32 |15.250    3.34 | 21.33    1.34
 3.167    1.39 | 9.250    3.32 |15.333    3.14 | 21.42    1.34
 3.250    1.39 | 9.333    3.46 |15.417    3.14 | 21.50    1.34
 3.333    1.42 | 9.417    3.46 |15.500    3.14 | 21.58    1.33
 3.417    1.42 | 9.500    3.46 |15.583    2.96 | 21.67    1.33
 3.500    1.42 | 9.583    3.46 |15.667    2.96 | 21.75    1.33
 3.583    1.45 | 9.667    3.46 |15.750    2.96 | 21.83    1.32
 3.667    1.45 | 9.750    3.46 |15.833    2.76 | 21.92    1.32
 3.750    1.45 | 9.833    3.68 |15.917    2.76 | 22.00    1.32
 3.833    1.47 | 9.917    3.68 |16.000    2.76 | 22.08    1.30
 3.917    1.47 |10.000    3.68 |16.083    2.58 | 22.17    1.30
 4.000    1.47 |10.083    4.10 |16.167    2.58 | 22.25    1.30
 4.083    1.50 |10.167    4.10 |16.250    2.58 | 22.33    1.29
 4.167    1.50 |10.250    4.10 |16.333    2.45 | 22.42    1.29
 4.250    1.50 |10.333    4.66 |16.417    2.45 | 22.50    1.29
 4.333    1.54 |10.417    4.66 |16.500    2.45 | 22.58    1.28
 4.417    1.54 |10.500    4.66 |16.583    2.38 | 22.67    1.28
 4.500    1.54 |10.583    5.28 |16.667    2.38 | 22.75    1.28
 4.583    1.59 |10.667    5.28 |16.750    2.38 | 22.83    1.26
 4.667    1.59 |10.750    5.28 |16.833    2.31 | 22.92    1.26
 4.750    1.59 |10.833    6.18 |16.917    2.31 | 23.00    1.26
 4.833    1.65 |10.917    6.18 |17.000    2.31 | 23.08    1.25
 4.917    1.65 |11.000    6.18 |17.083    2.25 | 23.17    1.25
 5.000    1.65 |11.083    7.21 |17.167    2.25 | 23.25    1.25
 5.083    1.70 |11.167    7.21 |17.250    2.25 | 23.33    1.24
 5.167    1.70 |11.250    7.21 |17.333    2.18 | 23.42    1.24
 5.250    1.70 |11.333    9.12 |17.417    2.18 | 23.50    1.24
 5.333    1.76 |11.417    9.12 |17.500    2.18 | 23.58    1.22
 5.417    1.76 |11.500    9.12 |17.583    2.11 | 23.67    1.22
 5.500    1.76 |11.583   11.61 |17.667    2.11 | 23.75    1.22
 5.583    1.81 |11.667   11.61 |17.750    2.11 | 23.83    1.21
 5.667    1.81 |11.750   11.61 |17.833    2.04 | 23.92    1.21
 5.750    1.81 |11.833   47.33 |17.917    2.04 | 24.00    1.21
 5.833    1.86 |11.917   47.34 |18.000    2.04 | 24.08    1.19
 5.917    1.86 |12.000   47.34 |18.083    1.98 | 24.17    1.19
 6.000    1.86 |12.083  116.82 |18.167    1.98 | 24.25    1.19
 6.083    1.92 |12.167  116.82 |18.250    1.98 |

     Unit Hyd Qpeak  (cms)=   5.827

     PEAK FLOW       (cms)=   6.344 (i)
     TIME TO PEAK    (hrs)=  14.333
     RUNOFF VOLUME    (mm)=  44.493
     TOTAL RAINFALL   (mm)= 108.000
     RUNOFF COEFFICIENT   =   0.412

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD  (  0020)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0015):   153.20   2.490    16.08    33.49
     + ID2= 2 (  0021):   322.88   7.965    14.83    41.95
       ================================================
       ID = 3 (  0020):   476.08   9.716    15.17    39.23

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0020)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0020):   476.08   9.716    15.17    39.23
     + ID2= 2 (  0022):   429.64   6.067    17.50    31.46
       ================================================
       ID = 1 (  0020):   905.72  12.245    16.50    35.55

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0020):   905.72  12.245    16.50    35.55
     + ID2= 2 (  0006):   300.52   6.344    14.33    44.49
       ================================================
       ID = 3 (  0020):  1206.24  17.542    15.33    37.77

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0023)|
| IN= 2---> OUT= 1 |
| SHIFT=128.8 min  |      AREA     QPEAK     TPEAK      R.V.
-------------------      (ha)      (cms)     (hrs)      (mm)
        ID= 2 (  0020): 1206.24    17.54     15.33     37.77
    SHIFT ID= 1 (  0023): 1206.24    17.54     17.42     37.77

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| CALIB              |
| NASHYD   (  0007)|   Area    (ha)= 128.72   Curve Number   (CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.98

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
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TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 2.483

PEAK FLOW (cms)= 2.358 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 39.175
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.363

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0024)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0023):	1206.24	17.542	17.42	37.77
	+ ID2= 2 (0007):	128.72	2.358	14.42	39.17
	ID = 3 (0024):	1334.96	18.735	17.33	37.91

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0025)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT=155.6 min	ID= 2 (0024):	1334.96	18.74	17.33	37.91
	SHIFT ID= 1 (0025):	1334.96	18.74	19.92	37.91

CALIB NASHYD (0008)	ID= 1 DT= 5.0 min	Area (ha)= 109.00	Curve Number (CN)= 55.0	# of Linear Res.(N)= 3.00
		Ia (mm)= 7.80		
		U.H. Tp(hrs)= 1.78		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30

4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 2.339

PEAK FLOW (cms)= 1.780 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 32.596
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.302

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0008):	109.00	1.78	14.17	32.60
SHIFT ID= 1 (0026):	109.00	1.78	15.75	32.60

CALIB
NASHYD (0009) | ID= 1 DT= 5.0 min

Area (ha)= 110.92 Curve Number (CN)= 55.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.89

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 2.242

PEAK FLOW (cms)= 1.727 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 32.541
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.301

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0009):	110.92	1.73	14.33	32.54
SHIFT ID= 1 (0029):	110.92	1.73	16.25	32.54

CALIB
NASHYD (0010) | ID= 1 DT= 5.0 min

Area (ha)= 86.84 Curve Number (CN)= 55.0
Ia (mm)= 8.20 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.84

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84

0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 1.803

PEAK FLOW (cms)= 1.373 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 32.378
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.300

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0028)
IN= 2---> OUT= 1

SHIFT= 98.7 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0010):	86.84	1.37	14.25	32.38
SHIFT ID= 1 (0028):	86.84	1.37	15.83	32.38

CALIB			
NASHYD (0011)	Area (ha)= 25.76	Curve Number (CN)= 67.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.07		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22

5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 0.920

PEAK FLOW (cms)= 0.879 (i)
TIME TO PEAK (hrs)= 13.250
RUNOFF VOLUME (mm)= 45.047
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.417

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027)
IN= 2---> OUT= 1
SHIFT= 76.1 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0011):	25.76	0.88	13.25	45.05
SHIFT ID= 1 (0027):	25.76	0.88	14.50	45.05

CALIB
NASHYD (0012)
ID= 1 DT= 5.0 min

Area (ha)= 229.28 Curve Number (CN)= 60.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.19

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 3.999

PEAK FLOW (cms)= 3.675 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 37.189
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.344

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0013)
ID= 1 DT= 5.0 min

Area (ha)= 118.16 Curve Number (CN)= 69.0
Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.14

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37

2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 2.109

PEAK FLOW (cms)= 2.474 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 46.847
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.434

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0031)			
IN= 2---> OUT= 1			
SHIFT= 56.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0013):	118.16	2.47	14.58	46.85
SHIFT ID= 1 (0031):	118.16	2.47	15.50	46.85

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	229.28	3.675	14.67	37.19
+ ID2= 2 (0025):	1334.96	18.735	19.92	37.91
ID = 3 (0030):	1564.24	19.867	19.83	37.80

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1564.24	19.867	19.83	37.80
+ ID2= 2 (0026):	109.00	1.780	15.75	32.60
ID = 1 (0030):	1673.24	20.445	19.83	37.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1673.24	20.445	19.83	37.46
+ ID2= 2 (0027):	25.76	0.879	14.50	45.05
ID = 3 (0030):	1699.00	20.557	19.83	37.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1699.00	20.557	19.83	37.58
+ ID2= 2 (0028):	86.84	1.373	15.83	32.38
ID = 1 (0030):	1785.84	21.033	19.83	37.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1785.84	21.033	19.83	37.33
+ ID2= 2 (0029):	110.92	1.727	16.25	32.54
ID = 3 (0030):	1896.76	21.738	19.75	37.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1896.76	21.738	19.75	37.05
+ ID2= 2 (0031):	118.16	2.474	15.50	46.85
ID = 1 (0030):	2014.92	22.647	19.75	37.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0032)				
IN= 2---> OUT= 1				
SHIFT=124.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0030):	2014.92	22.65	19.75	37.62
SHIFT ID= 1 (0032):	2014.92	22.65	21.75	37.62

CALIB			
NASHYD (0014)	Area (ha)= 134.04	Curve Number (CN)= 60.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.60	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.09		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71

1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 2.450

PEAK FLOW (cms)= 2.239 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 37.371
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.346

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0033)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0014):	134.04	2.239	14.50	37.37
	+ ID2= 2 (0032):	2014.92	22.647	21.75	37.62
	ID = 3 (0033):	2148.96	23.085	21.67	37.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
         V V    I      SS   U   U  A   A  L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M M M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
Output filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\23e1fb36-98db
Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\23e1fb36-98db

DATE: 09/27/2024 TIME: 03:20:01

USER:

COMMENTS: _____

****
** SIMULATION : 2yr 24hr 15min SCS Type II **
****

READ STORM	Filename: C:\Users\jkoen\AppData\Local\Temp\4f83d52c-0546-47a4-832d-251c982c03be\2c04e773
Ptotal= 60.00 mm	Comments: 2yr 24hr 15min SCS Type II

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	1.10	12.50	7.00	18.75	0.99
0.25	0.61	6.50	1.12	12.75	4.81	19.00	0.95
0.50	0.62	6.75	1.16	13.00	4.07	19.25	0.91
0.75	0.64	7.00	1.18	13.25	3.44	19.50	0.87
1.00	0.65	7.25	1.22	13.50	3.04	19.75	0.84
1.25	0.67	7.50	1.24	13.75	2.66	20.00	0.80
1.50	0.68	7.75	1.28	14.00	2.38	20.25	0.78
1.75	0.70	8.00	1.30	14.25	2.17	20.50	0.77
2.00	0.71	8.25	1.40	14.50	2.07	20.75	0.76
2.25	0.73	8.50	1.54	14.75	1.95	21.00	0.75
2.50	0.74	8.75	1.70	15.00	1.85	21.25	0.75
2.75	0.76	9.00	1.84	15.25	1.75	21.50	0.74
3.00	0.77	9.25	1.92	15.50	1.65	21.75	0.73
3.25	0.79	9.50	1.92	15.75	1.53	22.00	0.72
3.50	0.80	9.75	2.04	16.00	1.43	22.25	0.72
3.75	0.82	10.00	2.28	16.25	1.36	22.50	0.71
4.00	0.83	10.25	2.59	16.50	1.32	22.75	0.70
4.25	0.86	10.50	2.93	16.75	1.29	23.00	0.69
4.50	0.88	10.75	3.43	17.00	1.25	23.25	0.69
4.75	0.92	11.00	4.01	17.25	1.21	23.50	0.68
5.00	0.94	11.25	5.07	17.50	1.17	23.75	0.67
5.25	0.98	11.50	6.45	17.75	1.14	24.00	0.66
5.50	1.00	11.75	26.30	18.00	1.10		
5.75	1.04	12.00	64.90	18.25	1.06		
6.00	1.06	12.25	10.28	18.50	1.02		

CALIB NASHYD (0001)	Area (ha)= 153.20	Curve Number (CN)= 56.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.86	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 3.146

PEAK FLOW (cms)= 0.774 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 10.823

TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.180

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0015)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT=114.8 min				
ID= 2 (0001):	153.20	0.77	14.33	10.82
SHIFT ID= 1 (0015):	153.20	0.77	16.17	10.82

CALIB			
NASHYD (0002)	Area (ha)= 230.56	Curve Number (CN)= 51.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.79		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70

4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 4.920

PEAK FLOW (cms)= 1.008 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 9.166
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.153

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0016)
IN= 2---> OUT= 1
SHIFT= 92.3 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0002):	230.56	1.01	14.25	9.17
SHIFT ID= 1 (0016):	230.56	1.01	15.75	9.17

CALIB
NASHYD (0005)
ID= 1 DT= 5.0 min

Area (ha)= 199.08 Curve Number (CN)= 57.0
Ia (mm)= 8.20 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.99

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 3.821

PEAK FLOW (cms)= 0.972 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 11.023
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.184

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0018)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0016):	230.56	1.008	15.75	9.17
+ ID2= 2 (0005):	199.08	0.972	14.50	11.02
ID = 3 (0018):	429.64	1.868	15.42	10.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0022)
IN= 2---> OUT= 1
SHIFT=132.2 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0018):	429.64	1.87	15.42	10.03
SHIFT ID= 1 (0022):	429.64	1.87	17.58	10.03

CALIB
NASHYD (0003)
ID= 1 DT= 5.0 min

Area (ha)= 51.28 Curve Number (CN)= 66.0
Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.19

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06

0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 1.646

PEAK FLOW (cms)= 0.525 (i)
TIME TO PEAK (hrs)= 13.500
RUNOFF VOLUME (mm)= 15.279
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.255

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0017)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0003):	51.28	0.53	13.50	15.28
SHIFT= 38.7 min	SHIFT ID= 1 (0017):	51.28	0.53	14.08	15.28

CALIB
NASHYD (0004)
ID= 1 DT= 5.0 min

Area (ha)= 271.60 Curve Number (CN)= 64.0
Ia (mm)= 7.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.55

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69

5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 6.693

PEAK FLOW (cms)= 2.095 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 14.154
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.236

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0019)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0017):	51.28	0.525	14.08	15.28
+ ID2= 2 (0004):	271.60	2.095	13.92	14.15
ID = 3 (0019):	322.88	2.618	14.00	14.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0021)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT= 58.8 min				
ID= 2 (0019):	322.88	2.62	14.00	14.33
SHIFT ID= 1 (0021):	322.88	2.62	14.92	14.33

CALIB NASHYD (0006) | ID= 1 DT= 5.0 min			
	Area	(ha)= 300.52	Curve Number (CN)= 67.0
	Ia	(mm)= 7.90	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	1.97	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 5.827

PEAK FLOW (cms)= 2.096 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 15.318
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.255

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0020)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0015):	153.20	0.774	16.17	10.82
+ ID2= 2 (0021):	322.88	2.618	14.92	14.33
ID = 3 (0020):	476.08	3.162	15.17	13.20

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0020):	476.08	3.162	15.17	13.20
+ ID2= 2 (0022):	429.64	1.868	17.58	10.03
ID = 1 (0020):	905.72	3.933	16.58	11.70

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3				

	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0020):	905.72	3.933	16.58	11.70
+ ID2= 2 (0006):	300.52	2.096	14.50	15.32
ID = 3 (0020):	1206.24	5.698	15.33	12.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0023)
IN= 2---> OUT= 1
SHIFT=128.8 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0020):	1206.24	5.70	15.33	12.60
SHIFT ID= 1 (0023):	1206.24	5.70	17.42	12.60

CALIB
NASHYD (0007)
ID= 1 DT= 5.0 min

Area (ha)= 128.72 Curve Number (CN)= 62.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.98

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.483

PEAK FLOW (cms)= 0.755 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 13.064
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.218

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0024)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0023):	1206.24	5.698	17.42	12.60
+ ID2= 2 (0007):	128.72	0.755	14.50	13.06
ID = 3 (0024):	1334.96	6.104	17.42	12.64

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0025)
IN= 2---> OUT= 1
SHIFT=155.6 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0024):	1334.96	6.10	17.42	12.64
SHIFT ID= 1 (0025):	1334.96	6.10	20.00	12.64

CALIB
NASHYD (0008)
ID= 1 DT= 5.0 min

Area (ha)= 109.00 Curve Number (CN)= 55.0
Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.78

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84

1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.339

PEAK FLOW (cms)= 0.550 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 10.479
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.175

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0008):	109.00	0.55	14.25	10.48
SHIFT ID= 1 (0026):	109.00	0.55	15.83	10.48

SHIFT HYD(0026): IN= 2---> OUT= 1 | SHIFT= 95.6 min

CALIB NASHYD (0009) | ID= 1 DT= 5.0 min

Area (ha)= 110.92 Curve Number (CN)= 55.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.89

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.242

PEAK FLOW (cms)= 0.533 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 10.443
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.174

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029) IN= 2---> OUT= 1 SHIFT=116.6 min		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID= 2 (0009):	110.92	0.53	14.42	10.44
	SHIFT ID= 1 (0029):	110.92	0.53	16.33	10.44

CALIB NASHYD (0010) ID= 1 DT= 5.0 min	Area (ha)= 86.84	Curve Number (CN)= 55.0
	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.84	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 1.803

PEAK FLOW (cms)= 0.421 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 10.335
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.172

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0028) IN= 2---> OUT= 1 SHIFT= 98.7 min		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID= 2 (0010):	86.84	0.42	14.33	10.34
	SHIFT ID= 1 (0028):	86.84	0.42	15.92	10.34

CALIB NASHYD (0011) ID= 1 DT= 5.0 min	Area (ha)= 25.76	Curve Number (CN)= 67.0
	Ia (mm)= 7.10	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.07	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75

3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 0.920

PEAK FLOW (cms)= 0.295 (i)
TIME TO PEAK (hrs)= 13.333
RUNOFF VOLUME (mm)= 15.721
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.262

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0011):	25.76	0.29	13.33	15.72
SHIFT= 76.1 min	SHIFT ID= 1 (0027):	25.76	0.29	14.58	15.72

CALIB NASHYD (0012)				
ID= 1 DT= 5.0 min	Area (ha)= 229.28	Curve Number (CN)= 60.0		
	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.19			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 3.999

PEAK FLOW (cms)= 1.165 (i)
TIME TO PEAK (hrs)= 14.750
RUNOFF VOLUME (mm)= 12.258
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.204

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0013)				
ID= 1 DT= 5.0 min	Area (ha)= 118.16	Curve Number (CN)= 69.0		
	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.14			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02

0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.109

PEAK FLOW (cms)= 0.831 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 16.383
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.273

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0031)
IN= 2---> OUT= 1

SHIFT= 56.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0013):	118.16	0.83	14.67	16.38
SHIFT ID= 1 (0031):	118.16	0.83	15.58	16.38

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	229.28	1.165	14.75	12.26
+ ID2= 2 (0025):	1334.96	6.104	20.00	12.64
ID = 3 (0030):	1564.24	6.505	19.92	12.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1564.24	6.505	19.92	12.59
+ ID2= 2 (0026):	109.00	0.550	15.83	10.48
ID = 1 (0030):	1673.24	6.700	19.92	12.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1673.24	6.700	19.92	12.45
+ ID2= 2 (0027):	25.76	0.295	14.58	15.72
ID = 3 (0030):	1699.00	6.743	19.92	12.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1699.00	6.743	19.92	12.50
+ ID2= 2 (0028):	86.84	0.421	15.92	10.34
ID = 1 (0030):	1785.84	6.904	19.83	12.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1785.84	6.904	19.83	12.39
+ ID2= 2 (0029):	110.92	0.533	16.33	10.44
ID = 3 (0030):	1896.76	7.138	19.83	12.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1896.76	7.138	19.83	12.28
+ ID2= 2 (0031):	118.16	0.831	15.58	16.38
ID = 1 (0030):	2014.92	7.474	19.75	12.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0032)				
IN= 2---> OUT= 1				
SHIFT=124.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0030):	2014.92	7.47	19.75	12.52

SHIFT ID= 1 (0032): 2014.92   7.47   21.75   12.52

CALIB			
NASHYD (0014)	Area (ha)= 134.04	Curve Number (CN)= 60.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.60	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.09		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.450

PEAK FLOW (cms)= 0.714 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 12.383
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.206

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0033)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0014):	134.04	0.714	14.67	12.38
	+ ID2= 2 (0032):	2014.92	7.474	21.75	12.52
	ID = 3 (0033):	2148.96	7.635	21.75	12.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
Output filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\fc1b5f7a-6ffa
Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\fc1b5f7a-6ffa

DATE: 09/27/2024 TIME: 03:20:02

USER:

COMMENTS: _____

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  ************************************************
  ** SIMULATION : 50yr 24hr 15min SCS Type II   **
  ************************************************
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READ STORM	Filename: C:\Users\jkoen\AppData\Local\Temp\4f83d52c-0546-47a4-832d-251c982c03be\83cccf63
Ptotal=120.00 mm	Comments: 50yr 24hr 15min SCS Type II

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	2.19	12.50	14.00	18.75	1.97
0.25	1.22	6.50	2.25	12.75	9.63	19.00	1.90
0.50	1.25	6.75	2.31	13.00	8.13	19.25	1.82
0.75	1.27	7.00	2.37	13.25	6.88	19.50	1.75
1.00	1.30	7.25	2.43	13.50	6.08	19.75	1.67
1.25	1.34	7.50	2.49	13.75	5.33	20.00	1.60
1.50	1.37	7.75	2.55	14.00	4.75	20.25	1.55
1.75	1.39	8.00	2.61	14.25	4.33	20.50	1.54

2.00	1.42	8.25	2.80	14.50	4.13	20.75	1.52
2.25	1.46	8.50	3.08	14.75	3.91	21.00	1.51
2.50	1.49	8.75	3.40	15.00	3.71	21.25	1.49
2.75	1.51	9.00	3.68	15.25	3.49	21.50	1.48
3.00	1.54	9.25	3.84	15.50	3.29	21.75	1.46
3.25	1.58	9.50	3.84	15.75	3.07	22.00	1.45
3.50	1.61	9.75	4.09	16.00	2.87	22.25	1.43
3.75	1.63	10.00	4.55	16.25	2.72	22.50	1.42
4.00	1.66	10.25	5.17	16.50	2.65	22.75	1.40
4.25	1.71	10.50	5.87	16.75	2.57	23.00	1.39
4.50	1.77	10.75	6.86	17.00	2.50	23.25	1.37
4.75	1.83	11.00	8.02	17.25	2.42	23.50	1.36
5.00	1.89	11.25	10.14	17.50	2.35	23.75	1.34
5.25	1.95	11.50	12.90	17.75	2.27	24.00	1.33
5.50	2.01	11.75	52.60	18.00	2.20		
5.75	2.07	12.00	129.80	18.25	2.12		
6.00	2.13	12.25	20.56	18.50	2.05		

CALIB			
NASHYD (0001)	Area	(ha)= 153.20	Curve Number (CN)= 56.0
ID= 1 DT= 5.0 min	Ia	(mm)= 7.80	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	1.86	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 3.146

PEAK FLOW (cms)= 3.018 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 40.378
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.336

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0015)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT=114.8 min	ID= 2 (0001):	153.20	3.02	14.25	40.38
	SHIFT ID= 1 (0015):	153.20	3.02	16.08	40.38

CALIB			
NASHYD (0002)	Area	(ha)= 230.56	Curve Number (CN)= 51.0
ID= 1 DT= 5.0 min	Ia	(mm)= 7.90	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	1.79	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54

2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 4.920

PEAK FLOW (cms)= 4.051 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 35.285
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.294

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0016)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT= 92.3 min				
ID= 2 (0002):	230.56	4.05	14.17	35.29
SHIFT ID= 1 (0016):	230.56	4.05	15.67	35.29

CALIB					
NASHYD (0005)	Area (ha)= 199.08	Curve Number (CN)= 57.0			
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 1.99				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 3.821

PEAK FLOW (cms)= 3.804 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 41.195
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.343

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0018)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0016):	230.56	4.051	15.67	35.29
+ ID2= 2 (0005):	199.08	3.804	14.42	41.20

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      ================================================
      ID = 3 (  0018):   429.64   7.367    15.33    38.02

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| SHIFT HYD(  0022)|
| IN= 2---> OUT= 1 |
| SHIFT=132.2 min  |      AREA     QPEAK     TPEAK      R.V.
-------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0018):  429.64     7.37     15.33     38.02
    SHIFT ID= 1 (  0022):  429.64     7.37     17.50     38.02

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| CALIB              |
| NASHYD   (  0003)|   Area    (ha)=  51.28   Curve Number   (CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.19

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
  TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
   hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
 0.083     0.00 | 6.167     2.13 |12.250   129.80 | 18.33     2.12
 0.167     0.00 | 6.250     2.13 |12.333    20.58 | 18.42     2.12
 0.250     0.00 | 6.333     2.19 |12.417    20.56 | 18.50     2.12
 0.333     1.22 | 6.417     2.19 |12.500    20.56 | 18.58     2.05
 0.417     1.22 | 6.500     2.19 |12.583    14.00 | 18.67     2.05
 0.500     1.22 | 6.583     2.25 |12.667    14.00 | 18.75     2.05
 0.583     1.25 | 6.667     2.25 |12.750    14.00 | 18.83     1.97
 0.667     1.25 | 6.750     2.25 |12.833     9.63 | 18.92     1.97
 0.750     1.25 | 6.833     2.31 |12.917     9.63 | 19.00     1.97
 0.833     1.27 | 6.917     2.31 |13.000     9.63 | 19.08     1.90
 0.917     1.27 | 7.000     2.31 |13.083     8.13 | 19.17     1.90
 1.000     1.27 | 7.083     2.37 |13.167     8.13 | 19.25     1.90
 1.083     1.30 | 7.167     2.37 |13.250     8.13 | 19.33     1.82
 1.167     1.30 | 7.250     2.37 |13.333     6.88 | 19.42     1.82
 1.250     1.30 | 7.333     2.43 |13.417     6.88 | 19.50     1.82
 1.333     1.34 | 7.417     2.43 |13.500     6.88 | 19.58     1.75
 1.417     1.34 | 7.500     2.43 |13.583     6.08 | 19.67     1.75
 1.500     1.34 | 7.583     2.49 |13.667     6.08 | 19.75     1.75
 1.583     1.37 | 7.667     2.49 |13.750     6.08 | 19.83     1.67
 1.667     1.37 | 7.750     2.49 |13.833     5.33 | 19.92     1.67
 1.750     1.37 | 7.833     2.55 |13.917     5.33 | 20.00     1.67
 1.833     1.39 | 7.917     2.55 |14.000     5.33 | 20.08     1.60
 1.917     1.39 | 8.000     2.55 |14.083     4.75 | 20.17     1.60
 2.000     1.39 | 8.083     2.61 |14.167     4.75 | 20.25     1.60
 2.083     1.42 | 8.167     2.61 |14.250     4.75 | 20.33     1.55
 2.167     1.42 | 8.250     2.61 |14.333     4.33 | 20.42     1.55
 2.250     1.42 | 8.333     2.80 |14.417     4.33 | 20.50     1.55
 2.333     1.46 | 8.417     2.80 |14.500     4.33 | 20.58     1.54
 2.417     1.46 | 8.500     2.80 |14.583     4.13 | 20.67     1.54
 2.500     1.46 | 8.583     3.08 |14.667     4.13 | 20.75     1.54
 2.583     1.49 | 8.667     3.08 |14.750     4.13 | 20.83     1.52
 2.667     1.49 | 8.750     3.08 |14.833     3.91 | 20.92     1.52
 2.750     1.49 | 8.833     3.40 |14.917     3.91 | 21.00     1.52
 2.833     1.51 | 8.917     3.40 |15.000     3.91 | 21.08     1.51
 2.917     1.51 | 9.000     3.40 |15.083     3.71 | 21.17     1.51
 3.000     1.51 | 9.083     3.68 |15.167     3.71 | 21.25     1.51
 3.083     1.54 | 9.167     3.68 |15.250     3.71 | 21.33     1.49
 3.167     1.54 | 9.250     3.68 |15.333     3.49 | 21.42     1.49
 3.250     1.54 | 9.333     3.84 |15.417     3.49 | 21.50     1.49
 3.333     1.58 | 9.417     3.84 |15.500     3.49 | 21.58     1.48
 3.417     1.58 | 9.500     3.84 |15.583     3.29 | 21.67     1.48
 3.500     1.58 | 9.583     3.84 |15.667     3.29 | 21.75     1.48
 3.583     1.61 | 9.667     3.84 |15.750     3.29 | 21.83     1.46
 3.667     1.61 | 9.750     3.84 |15.833     3.07 | 21.92     1.46
 3.750     1.61 | 9.833     4.09 |15.917     3.07 | 22.00     1.46
 3.833     1.63 | 9.917     4.09 |16.000     3.07 | 22.08     1.45
 3.917     1.63 |10.000     4.09 |16.083     2.87 | 22.17     1.45
 4.000     1.63 |10.083     4.55 |16.167     2.87 | 22.25     1.45
 4.083     1.66 |10.167     4.55 |16.250     2.87 | 22.33     1.43
 4.167     1.66 |10.250     4.55 |16.333     2.72 | 22.42     1.43
 4.250     1.66 |10.333     5.17 |16.417     2.72 | 22.50     1.43
 4.333     1.71 |10.417     5.17 |16.500     2.72 | 22.58     1.42
 4.417     1.71 |10.500     5.17 |16.583     2.65 | 22.67     1.42
 4.500     1.71 |10.583     5.87 |16.667     2.65 | 22.75     1.42
 4.583     1.77 |10.667     5.87 |16.750     2.65 | 22.83     1.40
 4.667     1.77 |10.750     5.87 |16.833     2.57 | 22.92     1.40
 4.750     1.77 |10.833     6.86 |16.917     2.57 | 23.00     1.40
 4.833     1.83 |10.917     6.86 |17.000     2.57 | 23.08     1.39
 4.917     1.83 |11.000     6.86 |17.083     2.50 | 23.17     1.39
 5.000     1.83 |11.083     8.02 |17.167     2.50 | 23.25     1.39
 5.083     1.89 |11.167     8.02 |17.250     2.50 | 23.33     1.37
 5.167     1.89 |11.250     8.02 |17.333     2.42 | 23.42     1.37
 5.250     1.89 |11.333    10.14 |17.417     2.42 | 23.50     1.37
 5.333     1.95 |11.417    10.14 |17.500     2.42 | 23.58     1.36
 5.417     1.95 |11.500    10.14 |17.583     2.35 | 23.67     1.36
 5.500     1.95 |11.583    12.90 |17.667     2.35 | 23.75     1.36
 5.583     2.01 |11.667    12.90 |17.750     2.35 | 23.83     1.34
 5.667     2.01 |11.750    12.90 |17.833     2.27 | 23.92     1.34
 5.750     2.01 |11.833    52.59 |17.917     2.27 | 24.00     1.34
 5.833     2.07 |11.917    52.60 |18.000     2.27 | 24.08     1.33
 5.917     2.07 |12.000    52.60 |18.083     2.20 | 24.17     1.33
 6.000     2.07 |12.083   129.79 |18.167     2.20 | 24.25     1.33
 6.083     2.13 |12.167   129.80 |18.250     2.20 |

     Unit Hyd Qpeak  (cms)=   1.646

     PEAK FLOW       (cms)=   1.882 (i)
     TIME TO PEAK    (hrs)=  13.417
     RUNOFF VOLUME    (mm)=  52.364
     TOTAL RAINFALL   (mm)= 120.000
     RUNOFF COEFFICIENT   =   0.436

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| SHIFT HYD(  0017)|
| IN= 2---> OUT= 1 |
| SHIFT= 38.7 min  |      AREA     QPEAK     TPEAK      R.V.
-------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0003):   51.28     1.88     13.42     52.36
    SHIFT ID= 1 (  0017):   51.28     1.88     14.00     52.36

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| CALIB              |
| NASHYD   (  0004)|   Area    (ha)= 271.60   Curve Number   (CN)= 64.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.40   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.55

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
  TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
   hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
 0.083     0.00 | 6.167     2.13 |12.250   129.80 | 18.33     2.12
 0.167     0.00 | 6.250     2.13 |12.333    20.58 | 18.42     2.12
 0.250     0.00 | 6.333     2.19 |12.417    20.56 | 18.50     2.12
 0.333     1.22 | 6.417     2.19 |12.500    20.56 | 18.58     2.05
 0.417     1.22 | 6.500     2.19 |12.583    14.00 | 18.67     2.05
 0.500     1.22 | 6.583     2.25 |12.667    14.00 | 18.75     2.05
 0.583     1.25 | 6.667     2.25 |12.750    14.00 | 18.83     1.97
 0.667     1.25 | 6.750     2.25 |12.833     9.63 | 18.92     1.97
 0.750     1.25 | 6.833     2.31 |12.917     9.63 | 19.00     1.97
 0.833     1.27 | 6.917     2.31 |13.000     9.63 | 19.08     1.90
 0.917     1.27 | 7.000     2.31 |13.083     8.13 | 19.17     1.90
 1.000     1.27 | 7.083     2.37 |13.167     8.13 | 19.25     1.90
 1.083     1.30 | 7.167     2.37 |13.250     8.13 | 19.33     1.82
 1.167     1.30 | 7.250     2.37 |13.333     6.88 | 19.42     1.82
 1.250     1.30 | 7.333     2.43 |13.417     6.88 | 19.50     1.82
 1.333     1.34 | 7.417     2.43 |13.500     6.88 | 19.58     1.75
 1.417     1.34 | 7.500     2.43 |13.583     6.08 | 19.67     1.75
 1.500     1.34 | 7.583     2.49 |13.667     6.08 | 19.75     1.75
 1.583     1.37 | 7.667     2.49 |13.750     6.08 | 19.83     1.67
 1.667     1.37 | 7.750     2.49 |13.833     5.33 | 19.92     1.67
 1.750     1.37 | 7.833     2.55 |13.917     5.33 | 20.00     1.67
 1.833     1.39 | 7.917     2.55 |14.000     5.33 | 20.08     1.60
 1.917     1.39 | 8.000     2.55 |14.083     4.75 | 20.17     1.60
 2.000     1.39 | 8.083     2.61 |14.167     4.75 | 20.25     1.60
 2.083     1.42 | 8.167     2.61 |14.250     4.75 | 20.33     1.55
 2.167     1.42 | 8.250     2.61 |14.333     4.33 | 20.42     1.55
 2.250     1.42 | 8.333     2.80 |14.417     4.33 | 20.50     1.55
 2.333     1.46 | 8.417     2.80 |14.500     4.33 | 20.58     1.54
 2.417     1.46 | 8.500     2.80 |14.583     4.13 | 20.67     1.54
 2.500     1.46 | 8.583     3.08 |14.667     4.13 | 20.75     1.54
 2.583     1.49 | 8.667     3.08 |14.750     4.13 | 20.83     1.52
 2.667     1.49 | 8.750     3.08 |14.833     3.91 | 20.92     1.52
 2.750     1.49 | 8.833     3.40 |14.917     3.91 | 21.00     1.52
 2.833     1.51 | 8.917     3.40 |15.000     3.91 | 21.08     1.51
 2.917     1.51 | 9.000     3.40 |15.083     3.71 | 21.17     1.51
 3.000     1.51 | 9.083     3.68 |15.167     3.71 | 21.25     1.51
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3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 6.693

PEAK FLOW (cms)= 7.685 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 49.628
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.414

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0019)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0017):		51.28	1.882	14.00	52.36
+ ID2= 2 (0004):		271.60	7.685	13.83	49.63
ID = 3 (0019):		322.88	9.553	13.92	50.06

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0021)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT= 58.8 min		(ha)	(cms)	(hrs)	(mm)
ID= 2 (0019):		322.88	9.55	13.92	50.06
SHIFT ID= 1 (0021):		322.88	9.55	14.83	50.06

CALIB					
NASHYD (0006)	Area	(ha)= 300.52	Curve Number	(CN)= 67.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.90	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.97				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 5.827

PEAK FLOW (cms)= 7.594 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 52.977
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.441

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0015):   153.20   3.018    16.08    40.38
     + ID2= 2 (  0021):   322.88   9.553    14.83    50.06
       ================================================
       ID = 3 (  0020):   476.08  11.676    15.08    46.95

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0020)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0020):   476.08  11.676    15.08    46.95
     + ID2= 2 (  0022):   429.64   7.367    17.50    38.02
       ================================================
       ID = 1 (  0020):   905.72  14.760    16.50    42.71

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0020):   905.72  14.760    16.50    42.71
     + ID2= 2 (  0006):   300.52   7.594    14.33    52.98
       ================================================
       ID = 3 (  0020):  1206.24  21.079    15.33    45.27

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| SHIFT HYD(  0023)|
| IN= 2---> OUT= 1 |
| SHIFT=128.8 min  |       AREA     QPEAK     TPEAK      R.V.
--------------------       (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0020): 1206.24    21.08     15.33     45.27
    SHIFT ID= 1 (  0023): 1206.24    21.08     17.42     45.27

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0007)|   Area    (ha)= 128.72   Curve Number   (CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.98

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    0.00 | 6.167    2.13 |12.250  129.80 | 18.33    2.12
0.167    0.00 | 6.250    2.13 |12.333   20.58 | 18.42    2.12
0.250    0.00 | 6.333    2.19 |12.417   20.56 | 18.50    2.12
0.333    1.22 | 6.417    2.19 |12.500   20.56 | 18.58    2.05
0.417    1.22 | 6.500    2.19 |12.583   14.00 | 18.67    2.05
0.500    1.22 | 6.583    2.25 |12.667   14.00 | 18.75    2.05
0.583    1.25 | 6.667    2.25 |12.750   14.00 | 18.83    1.97
0.667    1.25 | 6.750    2.25 |12.833    9.63 | 18.92    1.97
0.750    1.25 | 6.833    2.31 |12.917    9.63 | 19.00    1.97
0.833    1.27 | 6.917    2.31 |13.000    9.63 | 19.08    1.90
0.917    1.27 | 7.000    2.31 |13.083    8.13 | 19.17    1.90
1.000    1.27 | 7.083    2.37 |13.167    8.13 | 19.25    1.90
1.083    1.30 | 7.167    2.37 |13.250    8.13 | 19.33    1.82
1.167    1.30 | 7.250    2.37 |13.333    6.88 | 19.42    1.82
1.250    1.30 | 7.333    2.43 |13.417    6.88 | 19.50    1.82
1.333    1.34 | 7.417    2.43 |13.500    6.88 | 19.58    1.75
1.417    1.34 | 7.500    2.43 |13.583    6.08 | 19.67    1.75
1.500    1.34 | 7.583    2.49 |13.667    6.08 | 19.75    1.75
1.583    1.37 | 7.667    2.49 |13.750    6.08 | 19.83    1.67
1.667    1.37 | 7.750    2.49 |13.833    5.33 | 19.92    1.67
1.750    1.37 | 7.833    2.55 |13.917    5.33 | 20.00    1.67
1.833    1.39 | 7.917    2.55 |14.000    5.33 | 20.08    1.60
1.917    1.39 | 8.000    2.55 |14.083    4.75 | 20.17    1.60
2.000    1.39 | 8.083    2.61 |14.167    4.75 | 20.25    1.60
2.083    1.42 | 8.167    2.61 |14.250    4.75 | 20.33    1.55
2.167    1.42 | 8.250    2.61 |14.333    4.33 | 20.42    1.55
2.250    1.42 | 8.333    2.80 |14.417    4.33 | 20.50    1.55
2.333    1.46 | 8.417    2.80 |14.500    4.33 | 20.58    1.54
2.417    1.46 | 8.500    2.80 |14.583    4.13 | 20.67    1.54
2.500    1.46 | 8.583    3.08 |14.667    4.13 | 20.75    1.54
2.583    1.49 | 8.667    3.08 |14.750    4.13 | 20.83    1.52
2.667    1.49 | 8.750    3.08 |14.833    3.91 | 20.92    1.52
2.750    1.49 | 8.833    3.40 |14.917    3.91 | 21.00    1.52
2.833    1.51 | 8.917    3.40 |15.000    3.91 | 21.08    1.51
2.917    1.51 | 9.000    3.40 |15.083    3.71 | 21.17    1.51
3.000    1.51 | 9.083    3.68 |15.167    3.71 | 21.25    1.51
3.083    1.54 | 9.167    3.68 |15.250    3.71 | 21.33    1.49
3.167    1.54 | 9.250    3.68 |15.333    3.49 | 21.42    1.49
3.250    1.54 | 9.333    3.84 |15.417    3.49 | 21.50    1.49
3.333    1.58 | 9.417    3.84 |15.500    3.49 | 21.58    1.48
3.417    1.58 | 9.500    3.84 |15.583    3.29 | 21.67    1.48
3.500    1.58 | 9.583    3.84 |15.667    3.29 | 21.75    1.48
3.583    1.61 | 9.667    3.84 |15.750    3.29 | 21.83    1.46
3.667    1.61 | 9.750    3.84 |15.833    3.07 | 21.92    1.46
3.750    1.61 | 9.833    4.09 |15.917    3.07 | 22.00    1.46
3.833    1.63 | 9.917    4.09 |16.000    3.07 | 22.08    1.45
3.917    1.63 |10.000    4.09 |16.083    2.87 | 22.17    1.45
4.000    1.63 |10.083    4.55 |16.167    2.87 | 22.25    1.45
4.083    1.66 |10.167    4.55 |16.250    2.87 | 22.33    1.43
4.167    1.66 |10.250    4.55 |16.333    2.72 | 22.42    1.43
4.250    1.66 |10.333    5.17 |16.417    2.72 | 22.50    1.43
4.333    1.71 |10.417    5.17 |16.500    2.72 | 22.58    1.42
4.417    1.71 |10.500    5.17 |16.583    2.65 | 22.67    1.42
4.500    1.71 |10.583    5.87 |16.667    2.65 | 22.75    1.42
4.583    1.77 |10.667    5.87 |16.750    2.65 | 22.83    1.40
4.667    1.77 |10.750    5.87 |16.833    2.57 | 22.92    1.40
4.750    1.77 |10.833    6.86 |16.917    2.57 | 23.00    1.40
4.833    1.83 |10.917    6.86 |17.000    2.57 | 23.08    1.39
4.917    1.83 |11.000    6.86 |17.083    2.50 | 23.17    1.39
5.000    1.83 |11.083    8.02 |17.167    2.50 | 23.25    1.39
5.083    1.89 |11.167    8.02 |17.250    2.50 | 23.33    1.37
5.167    1.89 |11.250    8.02 |17.333    2.42 | 23.42    1.37
5.250    1.89 |11.333   10.14 |17.417    2.42 | 23.50    1.37
5.333    1.95 |11.417   10.14 |17.500    2.42 | 23.58    1.36
5.417    1.95 |11.500   10.14 |17.583    2.35 | 23.67    1.36
5.500    1.95 |11.583   12.90 |17.667    2.35 | 23.75    1.36
5.583    2.01 |11.667   12.90 |17.750    2.35 | 23.83    1.34
5.667    2.01 |11.750   12.90 |17.833    2.27 | 23.92    1.34
5.750    2.01 |11.833   52.59 |17.917    2.27 | 24.00    1.34
5.833    2.07 |11.917   52.60 |18.000    2.27 | 24.08    1.33
5.917    2.07 |12.000   52.60 |18.083    2.20 | 24.17    1.33
6.000    2.07 |12.083  129.79 |18.167    2.20 | 24.25    1.33
6.083    2.13 |12.167  129.80 |18.250    2.20 |

    Unit Hyd Qpeak  (cms)=   2.483

    PEAK FLOW       (cms)=   2.840 (i)
    TIME TO PEAK    (hrs)=  14.417
    RUNOFF VOLUME    (mm)=  46.929
    TOTAL RAINFALL   (mm)= 120.000
    RUNOFF COEFFICIENT   =   0.391

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0024)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0023):  1206.24  21.079    17.42    45.27
     + ID2= 2 (  0007):   128.72   2.840    14.42    46.93
       ================================================
       ID = 3 (  0024):  1334.96  22.503    17.33    45.43

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| SHIFT HYD(  0025)|
| IN= 2---> OUT= 1 |
| SHIFT=155.6 min  |       AREA     QPEAK     TPEAK      R.V.
--------------------       (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0024): 1334.96    22.50     17.33     45.43
    SHIFT ID= 1 (  0025): 1334.96    22.50     19.92     45.43

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0008)|   Area    (ha)= 109.00   Curve Number   (CN)= 55.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.80   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.78
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 2.339

PEAK FLOW (cms)= 2.160 (i)
TIME TO PEAK (hrs)= 14.167

RUNOFF VOLUME (mm)= 39.338
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.328

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0008):	109.00	2.16	14.17	39.34
SHIFT= 95.6 min	SHIFT ID= 1 (0026):	109.00	2.16	15.75	39.34

CALIB NASHYD (0009)	Area (ha)= 110.92	Curve Number (CN)= 55.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.89	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40

4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 2.242

PEAK FLOW (cms)= 2.095 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 39.280
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.327

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029) / IN= 2---> OUT= 1 / SHIFT=116.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0009):	110.92	2.10	14.25	39.28
SHIFT ID= 1 (0029):	110.92	2.10	16.17	39.28

CALIB / NASHYD (0010) / ID= 1 DT= 5.0 min | Area (ha)= 86.84 | Curve Number (CN)= 55.0 | Ia (mm)= 8.20 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.84

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 1.803

PEAK FLOW (cms)= 1.667 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 39.107
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.326

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0028) / IN= 2---> OUT= 1 / SHIFT= 98.7 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0010):	86.84	1.67	14.25	39.11
SHIFT ID= 1 (0028):	86.84	1.67	15.83	39.11

CALIB / NASHYD (0011) / ID= 1 DT= 5.0 min | Area (ha)= 25.76 | Curve Number (CN)= 67.0 | Ia (mm)= 7.10 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.07

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90

1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 0.920

PEAK FLOW (cms)= 1.051 (i)
TIME TO PEAK (hrs)= 13.250
RUNOFF VOLUME (mm)= 53.555
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.446

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027)
IN= 2---> OUT= 1
SHIFT= 76.1 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0011):	25.76	1.05	13.25	53.56
SHIFT ID= 1 (0027):	25.76	1.05	14.50	53.56

CALIB

NASHYD (0012)	Area (ha)= 229.28	Curve Number (CN)= 60.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 2.19	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 3.999

PEAK FLOW (cms)= 4.436 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 44.651
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.372

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0013) ID= 1 DT= 5.0 min	Area (ha)= 118.16 Curve Number (CN)= 69.0 Ia (mm)= 7.80 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 2.14

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 2.109

PEAK FLOW (cms)= 2.952 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 55.625
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.464

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0031) IN= 2---> OUT= 1 SHIFT= 56.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0013):	118.16	2.95	14.50	55.63
SHIFT ID= 1 (0031):	118.16	2.95	15.42	55.63

ADD HYD (0030) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	229.28	4.436	14.67	44.65
+ ID2= 2 (0025):	1334.96	22.503	19.92	45.43
ID = 3 (0030):	1564.24	23.848	19.83	45.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1564.24	23.848	19.83	45.32
+ ID2= 2 (0026):	109.00	2.160	15.75	39.34
ID = 1 (0030):	1673.24	24.538	19.83	44.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1673.24	24.538	19.83	44.93
+ ID2= 2 (0027):	25.76	1.051	14.50	53.56
ID = 3 (0030):	1699.00	24.668	19.83	45.06

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1699.00	24.668	19.83	45.06
+ ID2= 2 (0028):	86.84	1.667	15.83	39.11
ID = 1 (0030):	1785.84	25.236	19.83	44.77

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)

```
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0030):  1785.84  25.236    19.83    44.77
     + ID2= 2 (  0029):   110.92   2.095    16.17    39.28
       ================================================
       ID = 3 (  0030):  1896.76  26.084    19.75    44.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):  1896.76  26.084    19.75    44.45
     + ID2= 2 (  0031):   118.16   2.952    15.42    55.63
       ================================================
       ID = 1 (  0030):  2014.92  27.150    19.75    45.10

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| SHIFT HYD(  0032)|
| IN= 2---> OUT= 1 |
| SHIFT=124.2 min  |       AREA     QPEAK     TPEAK      R.V.
-------------------        (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0030): 2014.92    27.15     19.75     45.10
    SHIFT ID= 1 (  0032): 2014.92    27.15     21.75     45.10

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0014)|   Area    (ha)= 134.04   Curve Number   (CN)= 60.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.60   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   2.09

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    0.00 | 6.167    2.13 |12.250  129.80 | 18.33    2.12
0.167    0.00 | 6.250    2.13 |12.333   20.58 | 18.42    2.12
0.250    0.00 | 6.333    2.19 |12.417   20.56 | 18.50    2.12
0.333    1.22 | 6.417    2.19 |12.500   20.56 | 18.58    2.05
0.417    1.22 | 6.500    2.19 |12.583   14.00 | 18.67    2.05
0.500    1.22 | 6.583    2.25 |12.667   14.00 | 18.75    2.05
0.583    1.25 | 6.667    2.25 |12.750   14.00 | 18.83    1.97
0.667    1.25 | 6.750    2.25 |12.833    9.63 | 18.92    1.97
0.750    1.25 | 6.833    2.31 |12.917    9.63 | 19.00    1.97
0.833    1.27 | 6.917    2.31 |13.000    9.63 | 19.08    1.90
0.917    1.27 | 7.000    2.31 |13.083    8.13 | 19.17    1.90
1.000    1.27 | 7.083    2.37 |13.167    8.13 | 19.25    1.90
1.083    1.30 | 7.167    2.37 |13.250    8.13 | 19.33    1.82
1.167    1.30 | 7.250    2.37 |13.333    6.88 | 19.42    1.82
1.250    1.30 | 7.333    2.43 |13.417    6.88 | 19.50    1.82
1.333    1.34 | 7.417    2.43 |13.500    6.88 | 19.58    1.75
1.417    1.34 | 7.500    2.43 |13.583    6.08 | 19.67    1.75
1.500    1.34 | 7.583    2.49 |13.667    6.08 | 19.75    1.75
1.583    1.37 | 7.667    2.49 |13.750    6.08 | 19.83    1.67
1.667    1.37 | 7.750    2.49 |13.833    5.33 | 19.92    1.67
1.750    1.37 | 7.833    2.55 |13.917    5.33 | 20.00    1.67
1.833    1.39 | 7.917    2.55 |14.000    5.33 | 20.08    1.60
1.917    1.39 | 8.000    2.55 |14.083    4.75 | 20.17    1.60
2.000    1.39 | 8.083    2.61 |14.167    4.75 | 20.25    1.60
2.083    1.42 | 8.167    2.61 |14.250    4.75 | 20.33    1.55
2.167    1.42 | 8.250    2.61 |14.333    4.33 | 20.42    1.55
2.250    1.42 | 8.333    2.80 |14.417    4.33 | 20.50    1.55
2.333    1.46 | 8.417    2.80 |14.500    4.33 | 20.58    1.54
2.417    1.46 | 8.500    2.80 |14.583    4.13 | 20.67    1.54
2.500    1.46 | 8.583    3.08 |14.667    4.13 | 20.75    1.54
2.583    1.49 | 8.667    3.08 |14.750    4.13 | 20.83    1.52
2.667    1.49 | 8.750    3.08 |14.833    3.91 | 20.92    1.52
2.750    1.49 | 8.833    3.40 |14.917    3.91 | 21.00    1.52
2.833    1.51 | 8.917    3.40 |15.000    3.91 | 21.08    1.51
2.917    1.51 | 9.000    3.40 |15.083    3.71 | 21.17    1.51
3.000    1.51 | 9.083    3.68 |15.167    3.71 | 21.25    1.51
3.083    1.54 | 9.167    3.68 |15.250    3.71 | 21.33    1.49
3.167    1.54 | 9.250    3.68 |15.333    3.49 | 21.42    1.49
3.250    1.54 | 9.333    3.84 |15.417    3.49 | 21.50    1.49
3.333    1.58 | 9.417    3.84 |15.500    3.49 | 21.58    1.48
3.417    1.58 | 9.500    3.84 |15.583    3.29 | 21.67    1.48
3.500    1.58 | 9.583    3.84 |15.667    3.29 | 21.75    1.48
3.583    1.61 | 9.667    3.84 |15.750    3.29 | 21.83    1.46
3.667    1.61 | 9.750    3.84 |15.833    3.07 | 21.92    1.46
3.750    1.61 | 9.833    4.09 |15.917    3.07 | 22.00    1.46
3.833    1.63 | 9.917    4.09 |16.000    3.07 | 22.08    1.45
3.917    1.63 |10.000    4.09 |16.083    2.87 | 22.17    1.45
4.000    1.63 |10.083    4.55 |16.167    2.87 | 22.25    1.45
4.083    1.66 |10.167    4.55 |16.250    2.87 | 22.33    1.43
4.167    1.66 |10.250    4.55 |16.333    2.72 | 22.42    1.43
4.250    1.66 |10.333    5.17 |16.417    2.72 | 22.50    1.43
4.333    1.71 |10.417    5.17 |16.500    2.72 | 22.58    1.42
4.417    1.71 |10.500    5.17 |16.583    2.65 | 22.67    1.42
4.500    1.71 |10.583    5.87 |16.667    2.65 | 22.75    1.42
4.583    1.77 |10.667    5.87 |16.750    2.65 | 22.83    1.40
4.667    1.77 |10.750    5.87 |16.833    2.57 | 22.92    1.40
4.750    1.77 |10.833    6.86 |16.917    2.57 | 23.00    1.40
4.833    1.83 |10.917    6.86 |17.000    2.57 | 23.08    1.39
4.917    1.83 |11.000    6.86 |17.083    2.50 | 23.17    1.39
5.000    1.83 |11.083    8.02 |17.167    2.50 | 23.25    1.39
5.083    1.89 |11.167    8.02 |17.250    2.50 | 23.33    1.37
5.167    1.89 |11.250    8.02 |17.333    2.42 | 23.42    1.37
5.250    1.89 |11.333   10.14 |17.417    2.42 | 23.50    1.37
5.333    1.95 |11.417   10.14 |17.500    2.42 | 23.58    1.36
5.417    1.95 |11.500   10.14 |17.583    2.35 | 23.67    1.36
5.500    1.95 |11.583   12.90 |17.667    2.35 | 23.75    1.36
5.583    2.01 |11.667   12.90 |17.750    2.35 | 23.83    1.34
5.667    2.01 |11.750   12.90 |17.833    2.27 | 23.92    1.34
5.750    2.01 |11.833   52.59 |17.917    2.27 | 24.00    1.34
5.833    2.07 |11.917   52.60 |18.000    2.27 | 24.08    1.33
5.917    2.07 |12.000   52.60 |18.083    2.20 | 24.17    1.33
6.000    2.07 |12.083  129.79 |18.167    2.20 | 24.25    1.33
6.083    2.13 |12.167  129.80 |18.250    2.20 |

     Unit Hyd Qpeak  (cms)=   2.450

     PEAK FLOW       (cms)=   2.701 (i)
     TIME TO PEAK    (hrs)=  14.500
     RUNOFF VOLUME    (mm)=  44.843
     TOTAL RAINFALL   (mm)= 120.000
     RUNOFF COEFFICIENT   =   0.374

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0033)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0014):   134.04   2.701    14.50    44.84
     + ID2= 2 (  0032):  2014.92  27.150    21.75    45.10
       ================================================
       ID = 3 (  0033):  2148.96  27.671    21.67    45.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
================================================================================================================

       V    V   I    SSSSS  U   U    A    L             (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\a1812e9a-c760
  Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\a1812e9a-c760


DATE: 09/27/2024                          TIME: 03:20:02

USER:
```

COMMENTS: _____

```
  ***********************************************
  ** SIMULATION : 5yr 24hr 15min SCS Type II    **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jkoen\AppD
|                  |              ata\Local\Temp\
|                  |              4f83d52c-0546-47a4-832d-251c982c03be\6d2235d3
| Ptotal= 79.20 mm |    Comments: 5yr 24hr 15min SCS Type II
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	1.45	12.50	9.24	18.75	1.30
0.25	0.80	6.50	1.48	12.75	6.36	19.00	1.25
0.50	0.82	6.75	1.53	13.00	5.37	19.25	1.20
0.75	0.84	7.00	1.56	13.25	4.54	19.50	1.15
1.00	0.86	7.25	1.60	13.50	4.01	19.75	1.10
1.25	0.88	7.50	1.64	13.75	3.52	20.00	1.05
1.50	0.90	7.75	1.68	14.00	3.14	20.25	1.02
1.75	0.92	8.00	1.72	14.25	2.86	20.50	1.02
2.00	0.94	8.25	1.85	14.50	2.73	20.75	1.00
2.25	0.96	8.50	2.04	14.75	2.58	21.00	0.99
2.50	0.98	8.75	2.24	15.00	2.45	21.25	0.99
2.75	1.00	9.00	2.43	15.25	2.30	21.50	0.98
3.00	1.02	9.25	2.53	15.50	2.17	21.75	0.96
3.25	1.04	9.50	2.53	15.75	2.03	22.00	0.96
3.50	1.06	9.75	2.70	16.00	1.89	22.25	0.95
3.75	1.08	10.00	3.00	16.25	1.80	22.50	0.94
4.00	1.10	10.25	3.42	16.50	1.75	22.75	0.93
4.25	1.13	10.50	3.87	16.75	1.70	23.00	0.92
4.50	1.17	10.75	4.53	17.00	1.65	23.25	0.91
4.75	1.21	11.00	5.29	17.25	1.60	23.50	0.90
5.00	1.25	11.25	6.69	17.50	1.55	23.75	0.89
5.25	1.29	11.50	8.52	17.75	1.50	24.00	0.88
5.50	1.33	11.75	34.71	18.00	1.45		
5.75	1.37	12.00	85.67	18.25	1.40		
6.00	1.41	12.25	13.57	18.50	1.35		

```
--------------------
| CALIB            |
| NASHYD   (  0001)|   Area    (ha)= 153.20   Curve Number   (CN)= 56.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.80   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.86

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

```
     Unit Hyd Qpeak  (cms)=   3.146

     PEAK FLOW       (cms)=   1.373 (i)
     TIME TO PEAK    (hrs)=  14.333
     RUNOFF VOLUME    (mm)=  18.814
     TOTAL RAINFALL   (mm)=  79.200
     RUNOFF COEFFICIENT   =   0.238

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

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--------------------
| SHIFT HYD(  0015)|
| IN= 2---> OUT= 1 |
| SHIFT=114.8 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0001):  153.20     1.37     14.33     18.81
    SHIFT ID= 1 (  0015):  153.20     1.37     16.17     18.81
```

```
--------------------
| CALIB            |
| NASHYD   (  0002)|   Area    (ha)= 230.56   Curve Number   (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.79

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40

0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 4.920

PEAK FLOW (cms)= 1.809 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 16.121
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.204

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| SHIFT HYD(0016)|

| IN= 2---> OUT= 1 |
| SHIFT= 92.3 min |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0002):	230.56	1.81	14.25	16.12
SHIFT ID= 1 (0016):	230.56	1.81	15.75	16.12

CALIB NASHYD (0005)	Area (ha)= 199.08	Curve Number (CN)= 57.0
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.99	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90

5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 3.821

PEAK FLOW (cms)= 1.730 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 19.196
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.242

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0018)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0016):		230.56	1.809	15.75	16.12
+ ID2= 2 (0005):		199.08	1.730	14.50	19.20
ID = 3 (0018):		429.64	3.329	15.33	17.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0022)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=132.2 min	ID= 2 (0018):	429.64	3.33	15.33	17.55
	SHIFT ID= 1 (0022):	429.64	3.33	17.50	17.55

CALIB					
NASHYD (0003)	Area	(ha)= 51.28	Curve Number	(CN)= 66.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.00	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.19				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 1.646

PEAK FLOW (cms)= 0.901 (i)
TIME TO PEAK (hrs)= 13.417
RUNOFF VOLUME (mm)= 25.673
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.324

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0017)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 38.7 min	ID= 2 (0003):	51.28	0.90	13.42	25.67
	SHIFT ID= 1 (0017):	51.28	0.90	14.00	25.67

CALIB					
NASHYD (0004)	Area	(ha)= 271.60	Curve Number	(CN)= 64.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.55				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30

0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 6.693

PEAK FLOW (cms)= 3.632 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 24.014
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.303

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0019)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0017):		51.28	0.901	14.00	25.67
+ ID2= 2 (0004):		271.60	3.632	13.92	24.01
ID = 3 (0019):		322.88	4.527	13.92	24.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0021)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 58.8 min	ID= 2 (0019):	322.88	4.53	13.92	24.28
	SHIFT ID= 1 (0021):	322.88	4.53	14.83	24.28

CALIB					
NASHYD (0006)	Area	(ha)= 300.52	Curve Number	(CN)= 67.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.90	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.97				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92

5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 5.827

PEAK FLOW (cms)= 3.623 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 25.884
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.327

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0020) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0015):	153.20	1.373	16.17	18.81
+ ID2= 2 (0021):	322.88	4.527	14.83	24.28
ID = 3 (0020):	476.08	5.495	15.17	22.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0020):	476.08	5.495	15.17	22.52
+ ID2= 2 (0022):	429.64	3.329	17.50	17.55
ID = 1 (0020):	905.72	6.870	16.58	20.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0020):	905.72	6.870	16.58	20.16
+ ID2= 2 (0006):	300.52	3.623	14.42	25.88
ID = 3 (0020):	1206.24	9.915	15.33	21.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0023) IN= 2---> OUT= 1 SHIFT=128.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0020):	1206.24	9.92	15.33	21.59
SHIFT ID= 1 (0023):	1206.24	9.92	17.42	21.59

CALIB NASHYD (0007) ID= 1 DT= 5.0 min | Area (ha)= 128.72 Curve Number (CN)= 62.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.98

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 2.483

PEAK FLOW (cms)= 1.324 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 22.397
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.283

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0024)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
        ID1= 1 (  0023):  1206.24    9.915     17.42     21.59
      + ID2= 2 (  0007):   128.72    1.324     14.42     22.40
        ================================================
        ID = 3 (  0024):  1334.96   10.605     17.33     21.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0025)|
| IN= 2---> OUT= 1 |
| SHIFT=155.6 min  |      AREA      QPEAK      TPEAK       R.V.
--------------------      (ha)      (cms)      (hrs)       (mm)
          ID= 2 (  0024): 1334.96     10.60      17.33      21.66
    SHIFT ID= 1 (  0025): 1334.96     10.60      19.92      21.66

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--------------------
| CALIB            |
| NASHYD   (  0008)|   Area    (ha)= 109.00   Curve Number   (CN)= 55.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.80   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.78

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                              ---- TRANSFORMED HYETOGRAPH ----
  TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
   hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
 0.083     0.00 | 6.167     1.41 |12.250    85.67 | 18.33     1.40
 0.167     0.00 | 6.250     1.41 |12.333    13.58 | 18.42     1.40
 0.250     0.00 | 6.333     1.45 |12.417    13.57 | 18.50     1.40
 0.333     0.80 | 6.417     1.45 |12.500    13.57 | 18.58     1.35
 0.417     0.80 | 6.500     1.45 |12.583     9.24 | 18.67     1.35
 0.500     0.80 | 6.583     1.48 |12.667     9.24 | 18.75     1.35
 0.583     0.82 | 6.667     1.48 |12.750     9.24 | 18.83     1.30
 0.667     0.82 | 6.750     1.48 |12.833     6.36 | 18.92     1.30
 0.750     0.82 | 6.833     1.53 |12.917     6.36 | 19.00     1.30
 0.833     0.84 | 6.917     1.53 |13.000     6.36 | 19.08     1.25
 0.917     0.84 | 7.000     1.53 |13.083     5.37 | 19.17     1.25
 1.000     0.84 | 7.083     1.56 |13.167     5.37 | 19.25     1.25
 1.083     0.86 | 7.167     1.56 |13.250     5.37 | 19.33     1.20
 1.167     0.86 | 7.250     1.56 |13.333     4.54 | 19.42     1.20
 1.250     0.86 | 7.333     1.60 |13.417     4.54 | 19.50     1.20
 1.333     0.88 | 7.417     1.60 |13.500     4.54 | 19.58     1.15
 1.417     0.88 | 7.500     1.60 |13.583     4.01 | 19.67     1.15
 1.500     0.88 | 7.583     1.64 |13.667     4.01 | 19.75     1.15
 1.583     0.90 | 7.667     1.64 |13.750     4.01 | 19.83     1.10
 1.667     0.90 | 7.750     1.64 |13.833     3.52 | 19.92     1.10
 1.750     0.90 | 7.833     1.68 |13.917     3.52 | 20.00     1.10
 1.833     0.92 | 7.917     1.68 |14.000     3.52 | 20.08     1.05
 1.917     0.92 | 8.000     1.68 |14.083     3.14 | 20.17     1.05
 2.000     0.92 | 8.083     1.72 |14.167     3.14 | 20.25     1.05
 2.083     0.94 | 8.167     1.72 |14.250     3.14 | 20.33     1.02
 2.167     0.94 | 8.250     1.72 |14.333     2.86 | 20.42     1.02
 2.250     0.94 | 8.333     1.85 |14.417     2.86 | 20.50     1.02
 2.333     0.96 | 8.417     1.85 |14.500     2.86 | 20.58     1.02
 2.417     0.96 | 8.500     1.85 |14.583     2.73 | 20.67     1.02
 2.500     0.96 | 8.583     2.04 |14.667     2.73 | 20.75     1.02
 2.583     0.98 | 8.667     2.04 |14.750     2.73 | 20.83     1.00
 2.667     0.98 | 8.750     2.04 |14.833     2.58 | 20.92     1.00
 2.750     0.98 | 8.833     2.24 |14.917     2.58 | 21.00     1.00
 2.833     1.00 | 8.917     2.24 |15.000     2.58 | 21.08     0.99
 2.917     1.00 | 9.000     2.24 |15.083     2.45 | 21.17     0.99
 3.000     1.00 | 9.083     2.43 |15.167     2.45 | 21.25     0.99
 3.083     1.02 | 9.167     2.43 |15.250     2.45 | 21.33     0.99
 3.167     1.02 | 9.250     2.43 |15.333     2.30 | 21.42     0.99
 3.250     1.02 | 9.333     2.53 |15.417     2.30 | 21.50     0.99
 3.333     1.04 | 9.417     2.53 |15.500     2.30 | 21.58     0.98
 3.417     1.04 | 9.500     2.53 |15.583     2.17 | 21.67     0.98
 3.500     1.04 | 9.583     2.53 |15.667     2.17 | 21.75     0.98
 3.583     1.06 | 9.667     2.53 |15.750     2.17 | 21.83     0.96
 3.667     1.06 | 9.750     2.53 |15.833     2.03 | 21.92     0.96
 3.750     1.06 | 9.833     2.70 |15.917     2.03 | 22.00     0.96
 3.833     1.08 | 9.917     2.70 |16.000     2.03 | 22.08     0.96
 3.917     1.08 |10.000     2.70 |16.083     1.89 | 22.17     0.96
 4.000     1.08 |10.083     3.00 |16.167     1.89 | 22.25     0.96
 4.083     1.10 |10.167     3.00 |16.250     1.89 | 22.33     0.95
 4.167     1.10 |10.250     3.00 |16.333     1.80 | 22.42     0.95
 4.250     1.10 |10.333     3.42 |16.417     1.80 | 22.50     0.95
 4.333     1.13 |10.417     3.42 |16.500     1.80 | 22.58     0.94
 4.417     1.13 |10.500     3.42 |16.583     1.75 | 22.67     0.94
 4.500     1.13 |10.583     3.87 |16.667     1.75 | 22.75     0.94
 4.583     1.17 |10.667     3.87 |16.750     1.75 | 22.83     0.93
 4.667     1.17 |10.750     3.87 |16.833     1.70 | 22.92     0.93
 4.750     1.17 |10.833     4.53 |16.917     1.70 | 23.00     0.93
 4.833     1.21 |10.917     4.53 |17.000     1.70 | 23.08     0.92
 4.917     1.21 |11.000     4.53 |17.083     1.65 | 23.17     0.92
 5.000     1.21 |11.083     5.29 |17.167     1.65 | 23.25     0.92
 5.083     1.25 |11.167     5.29 |17.250     1.65 | 23.33     0.91
 5.167     1.25 |11.250     5.29 |17.333     1.60 | 23.42     0.91
 5.250     1.25 |11.333     6.69 |17.417     1.60 | 23.50     0.91
 5.333     1.29 |11.417     6.69 |17.500     1.60 | 23.58     0.90
 5.417     1.29 |11.500     6.69 |17.583     1.55 | 23.67     0.90
 5.500     1.29 |11.583     8.52 |17.667     1.55 | 23.75     0.90
 5.583     1.33 |11.667     8.52 |17.750     1.55 | 23.83     0.89
 5.667     1.33 |11.750     8.52 |17.833     1.50 | 23.92     0.89
 5.750     1.33 |11.833    34.71 |17.917     1.50 | 24.00     0.89
 5.833     1.37 |11.917    34.71 |18.000     1.50 | 24.08     0.88
 5.917     1.37 |12.000    34.71 |18.083     1.45 | 24.17     0.88
 6.000     1.37 |12.083    85.66 |18.167     1.45 | 24.25     0.88
 6.083     1.41 |12.167    85.67 |18.250     1.45 |

     Unit Hyd Qpeak  (cms)=   2.339

     PEAK FLOW       (cms)=   0.979 (i)
     TIME TO PEAK    (hrs)=  14.167
     RUNOFF VOLUME    (mm)=  18.258
     TOTAL RAINFALL   (mm)=  79.200
     RUNOFF COEFFICIENT   =   0.231

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| SHIFT HYD(  0026)|
| IN= 2---> OUT= 1 |
| SHIFT= 95.6 min  |      AREA      QPEAK      TPEAK       R.V.
--------------------      (ha)      (cms)      (hrs)       (mm)
          ID= 2 (  0008):  109.00      0.98      14.17      18.26
    SHIFT ID= 1 (  0026):  109.00      0.98      15.75      18.26

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--------------------
| CALIB            |
| NASHYD   (  0009)|   Area    (ha)= 110.92   Curve Number   (CN)= 55.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.89

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                              ---- TRANSFORMED HYETOGRAPH ----
  TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
   hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
 0.083     0.00 | 6.167     1.41 |12.250    85.67 | 18.33     1.40
 0.167     0.00 | 6.250     1.41 |12.333    13.58 | 18.42     1.40
 0.250     0.00 | 6.333     1.45 |12.417    13.57 | 18.50     1.40
 0.333     0.80 | 6.417     1.45 |12.500    13.57 | 18.58     1.35
 0.417     0.80 | 6.500     1.45 |12.583     9.24 | 18.67     1.35
 0.500     0.80 | 6.583     1.48 |12.667     9.24 | 18.75     1.35
 0.583     0.82 | 6.667     1.48 |12.750     9.24 | 18.83     1.30
 0.667     0.82 | 6.750     1.48 |12.833     6.36 | 18.92     1.30
 0.750     0.82 | 6.833     1.53 |12.917     6.36 | 19.00     1.30
 0.833     0.84 | 6.917     1.53 |13.000     6.36 | 19.08     1.25
 0.917     0.84 | 7.000     1.53 |13.083     5.37 | 19.17     1.25
 1.000     0.84 | 7.083     1.56 |13.167     5.37 | 19.25     1.25
 1.083     0.86 | 7.167     1.56 |13.250     5.37 | 19.33     1.20
 1.167     0.86 | 7.250     1.56 |13.333     4.54 | 19.42     1.20
 1.250     0.86 | 7.333     1.60 |13.417     4.54 | 19.50     1.20
 1.333     0.88 | 7.417     1.60 |13.500     4.54 | 19.58     1.15
 1.417     0.88 | 7.500     1.60 |13.583     4.01 | 19.67     1.15
 1.500     0.88 | 7.583     1.64 |13.667     4.01 | 19.75     1.15
 1.583     0.90 | 7.667     1.64 |13.750     4.01 | 19.83     1.10
 1.667     0.90 | 7.750     1.64 |13.833     3.52 | 19.92     1.10
 1.750     0.90 | 7.833     1.68 |13.917     3.52 | 20.00     1.10
 1.833     0.92 | 7.917     1.68 |14.000     3.52 | 20.08     1.05
 1.917     0.92 | 8.000     1.68 |14.083     3.14 | 20.17     1.05
 2.000     0.92 | 8.083     1.72 |14.167     3.14 | 20.25     1.05
 2.083     0.94 | 8.167     1.72 |14.250     3.14 | 20.33     1.02
 2.167     0.94 | 8.250     1.72 |14.333     2.86 | 20.42     1.02
 2.250     0.94 | 8.333     1.85 |14.417     2.86 | 20.50     1.02
 2.333     0.96 | 8.417     1.85 |14.500     2.86 | 20.58     1.02
 2.417     0.96 | 8.500     1.85 |14.583     2.73 | 20.67     1.02
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2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 2.242

PEAK FLOW (cms)= 0.949 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 18.213
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.230

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT=116.6 min	ID= 2 (0009):	110.92	0.95	14.33	18.21
	SHIFT ID= 1 (0029):	110.92	0.95	16.25	18.21

CALIB					
NASHYD (0010)	Area (ha)= 86.84	Curve Number (CN)= 55.0			
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 1.84				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 1.803

PEAK FLOW (cms)= 0.752 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 18.080
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.228

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0028)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT= 98.7 min	ID= 2 (0010):	86.84	0.75	14.25	18.08

SHIFT ID= 1 (0028): 86.84 0.75 15.83 18.08

CALIB NASHYD (0011) ID= 1 DT= 5.0 min	Area (ha)= 25.76 Curve Number (CN)= 67.0 Ia (mm)= 7.10 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 1.07

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 0.920

PEAK FLOW (cms)= 0.505 (i)
TIME TO PEAK (hrs)= 13.333
RUNOFF VOLUME (mm)= 26.360
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.333

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027) IN= 2---> OUT= 1 SHIFT= 76.1 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0011):	25.76	0.51	13.33	26.36
SHIFT ID= 1 (0027):	25.76	0.51	14.58	26.36

CALIB NASHYD (0012) ID= 1 DT= 5.0 min	Area (ha)= 229.28 Curve Number (CN)= 60.0 Ia (mm)= 7.90 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 2.19

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96

4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 3.999

PEAK FLOW (cms)= 2.050 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 21.126
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.267

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0013)	Area (ha)= 118.16	Curve Number (CN)= 69.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.14		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 2.109

PEAK FLOW (cms)= 1.425 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 27.480
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.347

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0031)				
IN= 2---> OUT= 1				
SHIFT= 56.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0013):	118.16	1.43	14.58	27.48
SHIFT ID= 1 (0031):	118.16	1.43	15.50	27.48

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	229.28	2.050	14.67	21.13
+ ID2= 2 (0025):	1334.96	10.605	19.92	21.66
ID = 3 (0030):	1564.24	11.271	19.92	21.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1564.24	11.271	19.92	21.59
+ ID2= 2 (0026):	109.00	0.979	15.75	18.26
ID = 1 (0030):	1673.24	11.603	19.83	21.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0030):  1673.24  11.603    19.83    21.37
     + ID2= 2 (  0027):    25.76   0.505    14.58    26.36
       ================================================
       ID = 3 (  0030):  1699.00  11.673    19.83    21.44

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):  1699.00  11.673    19.83    21.44
     + ID2= 2 (  0028):    86.84   0.752    15.83    18.08
       ================================================
       ID = 1 (  0030):  1785.84  11.947    19.83    21.28

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0030):  1785.84  11.947    19.83    21.28
     + ID2= 2 (  0029):   110.92   0.949    16.25    18.21
       ================================================
       ID = 3 (  0030):  1896.76  12.345    19.75    21.10

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):  1896.76  12.345    19.75    21.10
     + ID2= 2 (  0031):   118.16   1.425    15.50    27.48
       ================================================
       ID = 1 (  0030):  2014.92  12.898    19.75    21.48

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| SHIFT HYD(  0032)|
| IN= 2---> OUT= 1 |
| SHIFT=124.2 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0030): 2014.92    12.90     19.75     21.48
   SHIFT ID= 1 (  0032): 2014.92    12.90     21.75     21.48

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0014)|   Area    (ha)= 134.04   Curve Number   (CN)= 60.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.60   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.09

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
 TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
  hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
0.083     0.00 | 6.167     1.41 |12.250    85.67 | 18.33     1.40
0.167     0.00 | 6.250     1.41 |12.333    13.58 | 18.42     1.40
0.250     0.00 | 6.333     1.45 |12.417    13.57 | 18.50     1.40
0.333     0.80 | 6.417     1.45 |12.500    13.57 | 18.58     1.35
0.417     0.80 | 6.500     1.45 |12.583     9.24 | 18.67     1.35
0.500     0.80 | 6.583     1.48 |12.667     9.24 | 18.75     1.35
0.583     0.82 | 6.667     1.48 |12.750     9.24 | 18.83     1.30
0.667     0.82 | 6.750     1.48 |12.833     6.36 | 18.92     1.30
0.750     0.82 | 6.833     1.53 |12.917     6.36 | 19.00     1.30
0.833     0.84 | 6.917     1.53 |13.000     6.36 | 19.08     1.25
0.917     0.84 | 7.000     1.53 |13.083     5.37 | 19.17     1.25
1.000     0.84 | 7.083     1.56 |13.167     5.37 | 19.25     1.25
1.083     0.86 | 7.167     1.56 |13.250     5.37 | 19.33     1.20
1.167     0.86 | 7.250     1.56 |13.333     4.54 | 19.42     1.20
1.250     0.86 | 7.333     1.60 |13.417     4.54 | 19.50     1.20
1.333     0.88 | 7.417     1.60 |13.500     4.54 | 19.58     1.15
1.417     0.88 | 7.500     1.60 |13.583     4.01 | 19.67     1.15
1.500     0.88 | 7.583     1.64 |13.667     4.01 | 19.75     1.15
1.583     0.90 | 7.667     1.64 |13.750     4.01 | 19.83     1.10
1.667     0.90 | 7.750     1.64 |13.833     3.52 | 19.92     1.10
1.750     0.90 | 7.833     1.68 |13.917     3.52 | 20.00     1.10
1.833     0.92 | 7.917     1.68 |14.000     3.52 | 20.08     1.05
1.917     0.92 | 8.000     1.68 |14.083     3.14 | 20.17     1.05
2.000     0.92 | 8.083     1.72 |14.167     3.14 | 20.25     1.05
2.083     0.94 | 8.167     1.72 |14.250     3.14 | 20.33     1.02
2.167     0.94 | 8.250     1.72 |14.333     2.86 | 20.42     1.02
2.250     0.94 | 8.333     1.85 |14.417     2.86 | 20.50     1.02
2.333     0.96 | 8.417     1.85 |14.500     2.86 | 20.58     1.02
2.417     0.96 | 8.500     1.85 |14.583     2.73 | 20.67     1.02
2.500     0.96 | 8.583     2.04 |14.667     2.73 | 20.75     1.02
2.583     0.98 | 8.667     2.04 |14.750     2.73 | 20.83     1.00
2.667     0.98 | 8.750     2.04 |14.833     2.58 | 20.92     1.00
2.750     0.98 | 8.833     2.24 |14.917     2.58 | 21.00     1.00
2.833     1.00 | 8.917     2.24 |15.000     2.58 | 21.08     0.99
2.917     1.00 | 9.000     2.24 |15.083     2.45 | 21.17     0.99
3.000     1.00 | 9.083     2.43 |15.167     2.45 | 21.25     0.99
3.083     1.02 | 9.167     2.43 |15.250     2.45 | 21.33     0.99
3.167     1.02 | 9.250     2.43 |15.333     2.30 | 21.42     0.99
3.250     1.02 | 9.333     2.53 |15.417     2.30 | 21.50     0.99
3.333     1.04 | 9.417     2.53 |15.500     2.30 | 21.58     0.98
3.417     1.04 | 9.500     2.53 |15.583     2.17 | 21.67     0.98
3.500     1.04 | 9.583     2.53 |15.667     2.17 | 21.75     0.98
3.583     1.06 | 9.667     2.53 |15.750     2.17 | 21.83     0.96
3.667     1.06 | 9.750     2.53 |15.833     2.03 | 21.92     0.96
3.750     1.06 | 9.833     2.70 |15.917     2.03 | 22.00     0.96
3.833     1.08 | 9.917     2.70 |16.000     2.03 | 22.08     0.96
3.917     1.08 |10.000     2.70 |16.083     1.89 | 22.17     0.96
4.000     1.08 |10.083     3.00 |16.167     1.89 | 22.25     0.96
4.083     1.10 |10.167     3.00 |16.250     1.89 | 22.33     0.95
4.167     1.10 |10.250     3.00 |16.333     1.80 | 22.42     0.95
4.250     1.10 |10.333     3.42 |16.417     1.80 | 22.50     0.95
4.333     1.13 |10.417     3.42 |16.500     1.80 | 22.58     0.94
4.417     1.13 |10.500     3.42 |16.583     1.75 | 22.67     0.94
4.500     1.13 |10.583     3.87 |16.667     1.75 | 22.75     0.94
4.583     1.17 |10.667     3.87 |16.750     1.75 | 22.83     0.93
4.667     1.17 |10.750     3.87 |16.833     1.70 | 22.92     0.93
4.750     1.17 |10.833     4.53 |16.917     1.70 | 23.00     0.93
4.833     1.21 |10.917     4.53 |17.000     1.70 | 23.08     0.92
4.917     1.21 |11.000     4.53 |17.083     1.65 | 23.17     0.92
5.000     1.21 |11.083     5.29 |17.167     1.65 | 23.25     0.92
5.083     1.25 |11.167     5.29 |17.250     1.65 | 23.33     0.91
5.167     1.25 |11.250     5.29 |17.333     1.60 | 23.42     0.91
5.250     1.25 |11.333     6.69 |17.417     1.60 | 23.50     0.91
5.333     1.29 |11.417     6.69 |17.500     1.60 | 23.58     0.90
5.417     1.29 |11.500     6.69 |17.583     1.55 | 23.67     0.90
5.500     1.29 |11.583     8.52 |17.667     1.55 | 23.75     0.90
5.583     1.33 |11.667     8.52 |17.750     1.55 | 23.83     0.89
5.667     1.33 |11.750     8.52 |17.833     1.50 | 23.92     0.89
5.750     1.33 |11.833    34.71 |17.917     1.50 | 24.00     0.89
5.833     1.37 |11.917    34.71 |18.000     1.50 | 24.08     0.88
5.917     1.37 |12.000    34.71 |18.083     1.45 | 24.17     0.88
6.000     1.37 |12.083    85.66 |18.167     1.45 | 24.25     0.88
6.083     1.41 |12.167    85.67 |18.250     1.45 |

    Unit Hyd Qpeak  (cms)=   2.450

    PEAK FLOW       (cms)=   1.253 (i)
    TIME TO PEAK    (hrs)=  14.583
    RUNOFF VOLUME    (mm)=  21.278
    TOTAL RAINFALL   (mm)=  79.200
    RUNOFF COEFFICIENT   =   0.269

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0033)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0014):   134.04   1.253    14.58    21.28
     + ID2= 2 (  0032):  2014.92  12.898    21.75    21.48
       ================================================
       ID = 3 (  0033):  2148.96  13.161    21.75    21.46

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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=============================================================================================================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
         V  V   I       SS  U   U  A   A  L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M  M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\c9f94d40-e467
  Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\c9f94d40-e467


DATE: 09/27/2024                          TIME: 03:19:06

USER:


COMMENTS: _____________________________________________________


-------------------------------------------------------------------------------------------------------------
  ***********************************************
  ** SIMULATION : Hzl12h15                     **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jkoen\AppD
|                  |              ata\Local\Temp\
|                  |              66749cc0-7db8-41fb-8535-4d4a15b3c8fc\61d4aae4
| Ptotal=212.00 mm |    Comments: Hzl12h15
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.00    6.00 |  3.00   13.00 |   6.00   23.00 |   9.00   53.00
               0.25    6.00 |  3.25   13.00 |   6.25   23.00 |   9.25   53.00
               0.50    6.00 |  3.50   13.00 |   6.50   23.00 |   9.50   53.00
               0.75    6.00 |  3.75   13.00 |   6.75   23.00 |   9.75   53.00
               1.00    4.00 |  4.00   17.00 |   7.00   13.00 |  10.00   38.00
               1.25    4.00 |  4.25   17.00 |   7.25   13.00 |  10.25   38.00
               1.50    4.00 |  4.50   17.00 |   7.50   13.00 |  10.50   38.00
               1.75    4.00 |  4.75   17.00 |   7.75   13.00 |  10.75   38.00
               2.00    6.00 |  5.00   13.00 |   8.00   13.00 |  11.00   13.00
               2.25    6.00 |  5.25   13.00 |   8.25   13.00 |  11.25   13.00
               2.50    6.00 |  5.50   13.00 |   8.50   13.00 |  11.50   13.00
               2.75    6.00 |  5.75   13.00 |   8.75   13.00 |  11.75   13.00

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| CALIB            |
| NASHYD   (  0001)|   Area    (ha)= 153.20   Curve Number   (CN)= 74.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.80   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.86

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
               0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
               0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
               0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
               0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
               0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
               0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
               0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
               0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
               0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
               0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
               1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
               1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
               1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
               1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
               1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
               1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
               1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
               1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
               1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
               1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
               1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
               1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
               2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
               2.083    6.00 | 5.083   13.00 | 8.083   13.00 | 11.08   13.00
               2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
               2.250    6.00 | 5.250   13.00 | 8.250   13.00 | 11.25   13.00
               2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
               2.417    6.00 | 5.417   13.00 | 8.417   13.00 | 11.42   13.00
               2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
               2.583    6.00 | 5.583   13.00 | 8.583   13.00 | 11.58   13.00
               2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
               2.750    6.00 | 5.750   13.00 | 8.750   13.00 | 11.75   13.00
               2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
               2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
               3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

     Unit Hyd Qpeak  (cms)=   3.146

     PEAK FLOW       (cms)=  10.808 (i)
     TIME TO PEAK    (hrs)=  11.917
     RUNOFF VOLUME    (mm)= 142.098
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.670

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
--------------------
| SHIFT HYD(  0015)|
| IN= 2---> OUT= 1 |
| SHIFT=114.8 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)      (cms)     (hrs)      (mm)
          ID= 2 (  0001):  153.20    10.81     11.92    142.10
    SHIFT ID= 1 (  0015):  153.20    10.81     13.75    142.10

-------------------------------------------------------------------------------
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| CALIB            |
| NASHYD   (  0002)|   Area    (ha)= 230.56   Curve Number   (CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.79

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
               0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
               0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
               0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
               0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
               0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
               0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
               0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
               0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
               0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
               0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
               1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
               1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
               1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
               1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
               1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
               1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
               1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
               1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
               1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
               1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
               1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
               1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
               2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
```

2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 4.920

PEAK FLOW (cms)= 15.753 (i)
TIME TO PEAK (hrs)= 11.917
RUNOFF VOLUME (mm)= 133.107
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.628

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0016)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 92.3 min	ID= 2 (0002):	230.56	15.75	11.92	133.11
	SHIFT ID= 1 (0016):	230.56	15.75	13.42	133.11

CALIB				
NASHYD (0005)	Area (ha)= 199.08	Curve Number (CN)= 76.0		
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.99			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 3.821

PEAK FLOW (cms)= 13.901 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 146.243
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.690

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0018)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0016):	230.56	15.753	13.42	133.11
	+ ID2= 2 (0005):	199.08	13.901	12.08	146.24
	ID = 3 (0018):	429.64	27.603	12.92	139.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0022)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=132.2 min	ID= 2 (0018):	429.64	27.60	12.92	139.19
	SHIFT ID= 1 (0022):	429.64	27.60	15.08	139.19

CALIB				
NASHYD (0003)	Area (ha)= 51.28	Curve Number (CN)= 82.0		
ID= 1 DT= 5.0 min	Ia (mm)= 7.00	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.19			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 1.646

PEAK FLOW (cms)= 4.802 (i)
TIME TO PEAK (hrs)= 11.333
RUNOFF VOLUME (mm)= 161.166

TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.760

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0017)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 38.7 min	ID= 2 (0003):	51.28	4.80	11.33	161.17
	SHIFT ID= 1 (0017):	51.28	4.80	11.92	161.17

CALIB			
NASHYD (0004)	Area (ha)= 271.60	Curve Number (CN)= 80.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.40	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.55		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 6.693

PEAK FLOW (cms)= 22.326 (i)
TIME TO PEAK (hrs)= 11.667
RUNOFF VOLUME (mm)= 156.140
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.737

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0019)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0017):	51.28	4.802	11.92	161.17
	+ ID2= 2 (0004):	271.60	22.326	11.67	156.14
	ID = 3 (0019):	322.88	27.051	11.67	156.94

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0021)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 58.8 min	ID= 2 (0019):	322.88	27.05	11.67	156.94
	SHIFT ID= 1 (0021):	322.88	27.05	12.58	156.94

CALIB			
NASHYD (0006)	Area (ha)= 300.52	Curve Number (CN)= 82.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.97		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 5.827

PEAK FLOW (cms)= 22.511 (i)
TIME TO PEAK (hrs)= 12.000
RUNOFF VOLUME (mm)= 160.307
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.756

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0020)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0015):	153.20	10.808	13.75	142.10
	+ ID2= 2 (0021):	322.88	27.051	12.58	156.94
	ID = 3 (0020):	476.08	36.020	12.92	152.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0020)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0020):   476.08  36.020    12.92   152.16
      + ID2= 2 (  0022):   429.64  27.603    15.08   139.19
        ================================================
        ID = 1 (  0020):   905.72  54.113    13.58   146.01

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0020):   905.72  54.113    13.58   146.01
      + ID2= 2 (  0006):   300.52  22.511    12.00   160.31
        ================================================
        ID = 3 (  0020):  1206.24  72.449    12.92   149.57

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0023)|
| IN= 2---> OUT= 1 |
| SHIFT=128.8 min  |       AREA      QPEAK      TPEAK       R.V.
-------------------          (ha)      (cms)      (hrs)       (mm)
          ID= 2 (  0020): 1206.24    72.45      12.92     149.57
     SHIFT ID= 1 (  0023): 1206.24    72.45      15.00     149.57

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0007)|   Area    (ha)= 128.72   Curve Number   (CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.98

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
   TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
    hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
  0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
  0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
  0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
  0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
  0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
  0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
  0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
  0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
  0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
  0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
  0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
  1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
  1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
  1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
  1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
  1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
  1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
  1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
  1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
  1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
  1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
  1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
  1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
  2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
  2.083    6.00 | 5.083   13.00 | 8.083   13.00 | 11.08   13.00
  2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
  2.250    6.00 | 5.250   13.00 | 8.250   13.00 | 11.25   13.00
  2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
  2.417    6.00 | 5.417   13.00 | 8.417   13.00 | 11.42   13.00
  2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
  2.583    6.00 | 5.583   13.00 | 8.583   13.00 | 11.58   13.00
  2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
  2.750    6.00 | 5.750   13.00 | 8.750   13.00 | 11.75   13.00
  2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
  2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
  3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

    Unit Hyd Qpeak  (cms)=   2.483

    PEAK FLOW       (cms)=   9.324 (i)
    TIME TO PEAK    (hrs)=  12.000
    RUNOFF VOLUME    (mm)= 153.365
    TOTAL RAINFALL   (mm)= 212.000
    RUNOFF COEFFICIENT   =   0.723

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD  (  0024)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0023):  1206.24  72.449    15.00   149.57
      + ID2= 2 (  0007):   128.72   9.324    12.00   153.36
        ================================================
        ID = 3 (  0024):  1334.96  75.951    14.83   149.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0025)|
| IN= 2---> OUT= 1 |
| SHIFT=155.6 min  |       AREA      QPEAK      TPEAK       R.V.
-------------------          (ha)      (cms)      (hrs)       (mm)
          ID= 2 (  0024): 1334.96    75.95      14.83     149.94
     SHIFT ID= 1 (  0025): 1334.96    75.95      17.42     149.94

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--------------------
| CALIB            |
| NASHYD   (  0008)|   Area    (ha)= 109.00   Curve Number   (CN)= 74.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.80   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.78

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
   TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
    hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
  0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
  0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
  0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
  0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
  0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
  0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
  0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
  0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
  0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
  0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
  0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
  1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
  1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
  1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
  1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
  1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
  1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
  1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
  1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
  1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
  1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
  1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
  1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
  2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
  2.083    6.00 | 5.083   13.00 | 8.083   13.00 | 11.08   13.00
  2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
  2.250    6.00 | 5.250   13.00 | 8.250   13.00 | 11.25   13.00
  2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
  2.417    6.00 | 5.417   13.00 | 8.417   13.00 | 11.42   13.00
  2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
  2.583    6.00 | 5.583   13.00 | 8.583   13.00 | 11.58   13.00
  2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
  2.750    6.00 | 5.750   13.00 | 8.750   13.00 | 11.75   13.00
  2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
  2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
  3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

    Unit Hyd Qpeak  (cms)=   2.339

    PEAK FLOW       (cms)=   7.855 (i)
    TIME TO PEAK    (hrs)=  11.833
    RUNOFF VOLUME    (mm)= 142.098
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TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.670

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 95.6 min	ID= 2 (0008):	109.00	7.86	11.83	142.10
	SHIFT ID= 1 (0026):	109.00	7.86	13.42	142.10

CALIB				
NASHYD (0009)	Area (ha)= 110.92	Curve Number (CN)= 74.0		
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.89			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.242

PEAK FLOW (cms)= 7.763 (i)
TIME TO PEAK (hrs)= 12.000
RUNOFF VOLUME (mm)= 142.007
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.670

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=116.6 min	ID= 2 (0009):	110.92	7.76	12.00	142.01
	SHIFT ID= 1 (0029):	110.92	7.76	13.92	142.01

CALIB				
NASHYD (0010)	Area (ha)= 86.84	Curve Number (CN)= 74.0		
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.84			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 1.803

PEAK FLOW (cms)= 6.154 (i)
TIME TO PEAK (hrs)= 11.917
RUNOFF VOLUME (mm)= 141.735
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.669

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0028)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 98.7 min	ID= 2 (0010):	86.84	6.15	11.92	141.73
	SHIFT ID= 1 (0028):	86.84	6.15	13.50	141.73

CALIB				
NASHYD (0011)	Area (ha)= 25.76	Curve Number (CN)= 82.0		
ID= 1 DT= 5.0 min	Ia (mm)= 7.10	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.07			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00

0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 0.920

PEAK FLOW (cms)= 2.506 (i)
TIME TO PEAK (hrs)= 11.250
RUNOFF VOLUME (mm)= 161.070
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.760

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027)
IN= 2---> OUT= 1
SHIFT= 76.1 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0011):	25.76	2.51	11.25	161.07
SHIFT ID= 1 (0027):	25.76	2.51	12.50	161.07

CALIB
NASHYD (0012)
ID= 1 DT= 5.0 min

Area (ha)= 229.28 Curve Number (CN)= 77.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.19

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 3.999

PEAK FLOW (cms)= 15.434 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 148.790
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.702

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0013)
ID= 1 DT= 5.0 min

Area (ha)= 118.16 Curve Number (CN)= 84.0
Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.14

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.109

PEAK FLOW (cms)= 8.666 (i)
TIME TO PEAK (hrs)= 12.167
RUNOFF VOLUME (mm)= 165.086

```
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.779

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| SHIFT HYD(  0031)|
| IN= 2---> OUT= 1 |
| SHIFT= 56.8 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0013):  118.16      8.67     12.17    165.09
    SHIFT ID= 1 (  0031):  118.16      8.67     13.08    165.09

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0012):   229.28  15.434    12.25   148.79
     + ID2= 2 (  0025):  1334.96  75.951    17.42   149.94
       ================================================
       ID = 3 (  0030):  1564.24  77.757    17.33   149.77

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):  1564.24  77.757    17.33   149.77
     + ID2= 2 (  0026):   109.00   7.855    13.42   142.10
       ================================================
       ID = 1 (  0030):  1673.24  79.061    17.25   149.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0030):  1673.24  79.061    17.25   149.27
     + ID2= 2 (  0027):    25.76   2.506    12.50   161.07
       ================================================
       ID = 3 (  0030):  1699.00  79.086    17.25   149.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):  1699.00  79.086    17.25   149.45
     + ID2= 2 (  0028):    86.84   6.154    13.50   141.73
       ================================================
       ID = 1 (  0030):  1785.84  80.295    17.25   149.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0030):  1785.84  80.295    17.25   149.07
     + ID2= 2 (  0029):   110.92   7.763    13.92   142.01
       ================================================
       ID = 3 (  0030):  1896.76  82.437    17.17   148.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):  1896.76  82.437    17.17   148.66
     + ID2= 2 (  0031):   118.16   8.666    13.08   165.09
       ================================================
       ID = 1 (  0030):  2014.92  84.354    17.08   149.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| SHIFT HYD(  0032)|
| IN= 2---> OUT= 1 |
| SHIFT=124.2 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0030): 2014.92    84.35     17.08    149.62
    SHIFT ID= 1 (  0032): 2014.92    84.35     19.08    149.62

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0014)|   Area     (ha)= 134.04   Curve Number   (CN)= 78.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   7.60   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.09

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                              ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
              0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
              0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
              0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
              0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
              0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
              0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
              0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
              0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
              0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
              0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
              1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
              1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
              1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
              1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
              1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
              1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
              1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
              1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
              1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
              1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
              1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
              1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
              2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
              2.083    6.00 | 5.083   13.00 | 8.083   13.00 | 11.08   13.00
              2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
              2.250    6.00 | 5.250   13.00 | 8.250   13.00 | 11.25   13.00
              2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
              2.417    6.00 | 5.417   13.00 | 8.417   13.00 | 11.42   13.00
              2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
              2.583    6.00 | 5.583   13.00 | 8.583   13.00 | 11.58   13.00
              2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
              2.750    6.00 | 5.750   13.00 | 8.750   13.00 | 11.75   13.00
              2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
              2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
              3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

     Unit Hyd Qpeak  (cms)=   2.450

     PEAK FLOW       (cms)=   9.353 (i)
     TIME TO PEAK    (hrs)=  12.167
     RUNOFF VOLUME    (mm)= 151.352
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.714

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0033)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0014):   134.04   9.353    12.17   151.35
     + ID2= 2 (  0032):  2014.92  84.354    19.08   149.62
       ================================================
       ID = 3 (  0033):  2148.96  84.631    19.08   149.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
```

FINISH

Project Name: Centre Wellington 4 Bridges EA
Project No: 300058117
Location: Township of Centre Wellington
Designer: J.Koen
Date: 25-Sep-2024

R. J. Burnside & Associates Limited
3 Ronell Crescent, Collingwood, Ontario
telephone (705) 446-0515 fax (705) 446-2399
web www.rjburnside.com

Bridge 3-E

Storm Event	VO	UOFM
	Q-Peak (cms)	Q-Peak (cms)
2-year	11.38	12.34
5-Year	19.84	-
10-Year	25.92	20.86
25-Year	35.31	25.32
50-Year	42.54	28.67
100-Year	50.17	32.38
Regional	139.57	-
Drainage Area (ha)	4579.49	4645.6

UNIFIED ONTARIO FLOOD METHOD

Bridge 3-E

$Q_{uofm} = Kr * A^a * Li^b * P^c$

Inputs

Parameter	Symbol	Units	Input*
Drainage Area	A	km^2	46.456
Ecozone		Input 1 = Boreal Sheild or 2 = Mixed Wood Plains	2
Lake/Wetland Areas	WA	km^2	11.484
Lake Attenuation Index	LI (LI = 1+(WA/A))	dimensionless	1.247201653
Mean Annual Precipitaiton	P	mm	940

*Input from OFAT



Figure 1: Ecozones of Ontario (EcoZone, 2012)

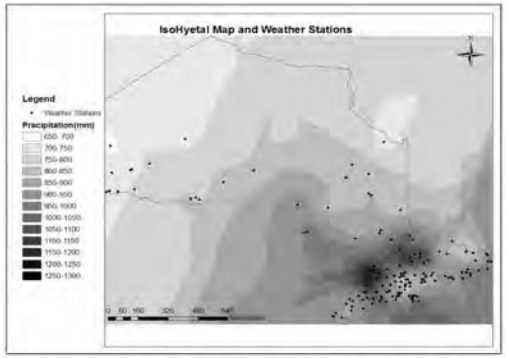

Figure 2: Isohyetal Map with Location of Environment Canada Weather Stations

Regression Parameters

x	a	b	c	
-5.483	0.756	-3.061	1.837	
-4.139	0.734	-3.78	1.491	
-3.68	0.728	-4.017	1.372	
-3.397	0.724	-4.162	1.299	
-3.151	0.721	-4.287	1.236	

T	Standard Error	Lower Limit (%)	Upper Limit (%)
2	0.159	-29	40
10	0.174	-32	46
25	0.183	-33	50
50	0.189	-35	53
100	0.195	-36	57

Results

T	Flow (Q_{uofm}) m^3/s	Lower Limit m^3/s	Upper Limit m^3/s
2	8.8157	6.25915	12.34199
10	14.286	9.71428	20.85713
25	16.880	11.30928	25.31929
50	18.739	12.18025	28.67044
100	20.627	13.20148	32.38488

```
================================================================================================================

       V    V   I    SSSSS  U   U    A    L             (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
         V V    I       SS  U   U  A   A  L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M M M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\7635951a-c791
  Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\7635951a-c791


DATE: 09/26/2024                          TIME: 11:20:10

USER:


COMMENTS: _____________________________________________________

--------------------------------------------------------------------------------------------------------------------
  ***********************************************
  ** SIMULATION : 100yr 24hr 15min SCS Type II  **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jkoen\AppD
|                  |              ata\Local\Temp\
|                  |              20e2ad8c-fe14-43c9-b359-409ce5c63256\f8f45c72
| Ptotal=132.00 mm |    Comments: 100yr 24hr 15min SCS Type II
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	2.41	12.50	15.40	18.75	2.17
0.25	1.34	6.50	2.47	12.75	10.59	19.00	2.09
0.50	1.37	6.75	2.54	13.00	8.94	19.25	2.00
0.75	1.40	7.00	2.61	13.25	7.57	19.50	1.92
1.00	1.43	7.25	2.67	13.50	6.68	19.75	1.84
1.25	1.47	7.50	2.74	13.75	5.86	20.00	1.76
1.50	1.50	7.75	2.81	14.00	5.23	20.25	1.71
1.75	1.53	8.00	2.87	14.25	4.77	20.50	1.69
2.00	1.57	8.25	3.08	14.50	4.54	20.75	1.67
2.25	1.60	8.50	3.39	14.75	4.30	21.00	1.66
2.50	1.63	8.75	3.74	15.00	4.08	21.25	1.64
2.75	1.67	9.00	4.05	15.25	3.84	21.50	1.63
3.00	1.70	9.25	4.22	15.50	3.62	21.75	1.61
3.25	1.73	9.50	4.22	15.75	3.38	22.00	1.59
3.50	1.77	9.75	4.50	16.00	3.15	22.25	1.58
3.75	1.80	10.00	5.01	16.25	2.99	22.50	1.56
4.00	1.83	10.25	5.69	16.50	2.91	22.75	1.54
4.25	1.88	10.50	6.45	16.75	2.83	23.00	1.53
4.50	1.95	10.75	7.55	17.00	2.75	23.25	1.51
4.75	2.01	11.00	8.82	17.25	2.66	23.50	1.49
5.00	2.08	11.25	11.15	17.50	2.58	23.75	1.48
5.25	2.15	11.50	14.19	17.75	2.50	24.00	1.46
5.50	2.21	11.75	57.86	18.00	2.42		
5.75	2.28	12.00	142.78	18.25	2.33		
6.00	2.34	12.25	22.62	18.50	2.25		

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| CALIB            |
| NASHYD   (  0018)|   Area    (ha)= 126.36   Curve Number   (CN)= 54.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.08

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

```
Unit Hyd Qpeak  (cms)=   2.320

PEAK FLOW       (cms)=   2.544 (i)
TIME TO PEAK    (hrs)=  14.500
RUNOFF VOLUME    (mm)=  44.936
TOTAL RAINFALL   (mm)= 132.000
```

RUNOFF COEFFICIENT = 0.340

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0046) / IN= 2---> OUT= 1 / SHIFT= 63.7 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0018):	126.36	2.54	14.50	44.94
SHIFT ID= 1 (0046):	126.36	2.54	15.50	44.94

CALIB NASHYD (0016) ID= 1 DT= 5.0 min			
	Area (ha)= 147.08	Curve Number (CN)= 63.0	
	Ia (mm)= 7.40	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.42		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 3.956

PEAK FLOW (cms)= 5.097 (i)
TIME TO PEAK (hrs)= 13.667
RUNOFF VOLUME (mm)= 56.708
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.430

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0044) / IN= 2---> OUT= 1 / SHIFT= 20.5 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0016):	147.08	5.10	13.67	56.71
SHIFT ID= 1 (0044):	147.08	5.10	14.00	56.71

CALIB NASHYD (0017) ID= 1 DT= 5.0 min			
	Area (ha)= 147.40	Curve Number (CN)= 44.0	
	Ia (mm)= 8.60	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.43		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66

3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 3.937

PEAK FLOW (cms)= 2.945 (i)
TIME TO PEAK (hrs)= 13.750
RUNOFF VOLUME (mm)= 34.091
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.258

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0001) ID= 1 DT= 5.0 min	Area (ha)= 351.84 Curve Number (CN)= 59.0 Ia (mm)= 7.60 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 2.25

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 5.973

PEAK FLOW (cms)= 7.698 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 51.429
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.390

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0024) IN= 2---> OUT= 1 SHIFT= 80.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0001):	351.84	7.70	14.67	51.43
SHIFT ID= 1 (0024):	351.84	7.70	16.00	51.43

CALIB NASHYD (0002) ID= 1 DT= 5.0 min	Area (ha)= 415.84 Curve Number (CN)= 57.0 Ia (mm)= 8.20 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 2.65

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33

0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 5.994

PEAK FLOW (cms)= 7.545 (i)
TIME TO PEAK (hrs)= 15.167
RUNOFF VOLUME (mm)= 48.592
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.368

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0025)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0002):		415.84	7.545	15.17	48.59
+ ID2= 2 (0024):		351.84	7.698	16.00	51.43
ID = 3 (0025):		767.68	14.983	15.75	49.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0031)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT=129.8 min		(ha)	(cms)	(hrs)	(mm)
ID= 2 (0025):		767.68	14.98	15.75	49.89
SHIFT ID= 1 (0031):		767.68	14.98	17.83	49.89

CALIB			
NASHYD (0011)	Area (ha)= 241.80	Curve Number (CN)= 53.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.81		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58

4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 5.103

PEAK FLOW (cms)= 5.276 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 43.851
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.332

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0032)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0011):		241.80	5.276	14.17	43.85
+ ID2= 2 (0031):		767.68	14.983	17.83	49.89
ID = 3 (0032):		1009.48	17.008	17.67	48.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0041)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=155.8 min	ID= 2 (0032):	1009.48	17.01	17.67	48.44
	SHIFT ID= 1 (0041):	1009.48	17.01	20.25	48.44

CALIB					
NASHYD (0012)	Area	(ha)= 383.04	Curve Number	(CN)= 55.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.30	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 3.18				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 4.601

PEAK FLOW (cms)= 5.715 (i)
TIME TO PEAK (hrs)= 15.833
RUNOFF VOLUME (mm)= 46.156
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.350

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0003)	Area	(ha)= 161.56	Curve Number	(CN)= 51.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.10	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.77				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25

0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 3.486

PEAK FLOW (cms)= 3.400 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 41.722
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.316

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026)
IN= 2---> OUT= 1

SHIFT=115.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0003):	161.56	3.40	14.17	41.72
SHIFT ID= 1 (0026):	161.56	3.40	16.08	41.72

CALIB			
NASHYD (0004)	Area (ha)= 84.72	Curve Number (CN)= 55.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.50		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49

5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 2.157

PEAK FLOW (cms)= 2.264 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 46.339
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.351

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0004):	84.72	2.26	13.83	46.34
SHIFT=101.8 min	SHIFT ID= 1 (0027):	84.72	2.26	15.50	46.34

CALIB					
NASHYD (0006)	Area (ha)= 391.92	Curve Number (CN)= 57.0			
ID= 1 DT= 5.0 min	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 2.20				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 6.804

PEAK FLOW (cms)= 8.192 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 48.465
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.367

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0005)	Area (ha)= 290.88	Curve Number (CN)= 51.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.09		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67

2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 5.316

PEAK FLOW (cms)= 5.374 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 41.610
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.315

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0005):	290.88	5.37	14.50	41.61
SHIFT ID= 1 (0029):	290.88	5.37	16.83	41.61

CALIB NASHYD (0007) ID= 1 DT= 5.0 min

Area (ha)= 81.24 Curve Number (CN)= 49.0
Ia (mm)= 8.70 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.53

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 2.028

PEAK FLOW (cms)= 1.789 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 39.216
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.297

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0030)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0007):	81.24	1.79	13.83	39.22
SHIFT ID= 1 (0030):	81.24	1.79	16.25	39.22

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| ADD HYD  (  0028)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0026):   161.56   3.400    16.08    41.72
     + ID2= 2 (  0027):    84.72   2.264    15.50    46.34
       ================================================
       ID = 3 (  0028):   246.28   5.556    15.83    43.31

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0028)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0028):   246.28   5.556    15.83    43.31
     + ID2= 2 (  0029):   290.88   5.374    16.83    41.61
       ================================================
       ID = 1 (  0028):   537.16  10.416    16.33    42.39

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0028)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0028):   537.16  10.416    16.33    42.39
     + ID2= 2 (  0030):    81.24   1.789    16.25    39.22
       ================================================
       ID = 3 (  0028):   618.40  12.204    16.33    41.97

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0028)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0028):   618.40  12.204    16.33    41.97
     + ID2= 2 (  0006):   391.92   8.192    14.67    48.47
       ================================================
       ID = 1 (  0028):  1010.32  18.827    16.00    44.49

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0033)|
| IN= 2---> OUT= 1 |
| SHIFT=106.7 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0028): 1010.32     18.83     16.00     44.49
    SHIFT ID= 1 (  0033): 1010.32     18.83     17.75     44.49

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| CALIB            |
| NASHYD   (  0010)|   Area    (ha)= 145.33   Curve Number   (CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.70   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.25

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    2.34 |12.250  142.78 | 18.33    2.33
 0.167    0.00 | 6.250    2.34 |12.333   22.63 | 18.42    2.33
 0.250    0.00 | 6.333    2.41 |12.417   22.62 | 18.50    2.33
 0.333    1.34 | 6.417    2.41 |12.500   22.62 | 18.58    2.25
 0.417    1.34 | 6.500    2.41 |12.583   15.40 | 18.67    2.25
 0.500    1.34 | 6.583    2.47 |12.667   15.40 | 18.75    2.25
 0.583    1.37 | 6.667    2.47 |12.750   15.40 | 18.83    2.17
 0.667    1.37 | 6.750    2.47 |12.833   10.59 | 18.92    2.17
 0.750    1.37 | 6.833    2.54 |12.917   10.59 | 19.00    2.17
 0.833    1.40 | 6.917    2.54 |13.000   10.59 | 19.08    2.09
 0.917    1.40 | 7.000    2.54 |13.083    8.94 | 19.17    2.09
 1.000    1.40 | 7.083    2.61 |13.167    8.94 | 19.25    2.09
 1.083    1.43 | 7.167    2.61 |13.250    8.94 | 19.33    2.00
 1.167    1.43 | 7.250    2.61 |13.333    7.57 | 19.42    2.00
 1.250    1.43 | 7.333    2.67 |13.417    7.57 | 19.50    2.00
 1.333    1.47 | 7.417    2.67 |13.500    7.57 | 19.58    1.92
 1.417    1.47 | 7.500    2.67 |13.583    6.68 | 19.67    1.92
 1.500    1.47 | 7.583    2.74 |13.667    6.68 | 19.75    1.92
 1.583    1.50 | 7.667    2.74 |13.750    6.68 | 19.83    1.84
 1.667    1.50 | 7.750    2.74 |13.833    5.86 | 19.92    1.84
 1.750    1.50 | 7.833    2.81 |13.917    5.86 | 20.00    1.84
 1.833    1.53 | 7.917    2.81 |14.000    5.86 | 20.08    1.76
 1.917    1.53 | 8.000    2.81 |14.083    5.23 | 20.17    1.76
 2.000    1.53 | 8.083    2.87 |14.167    5.23 | 20.25    1.76
 2.083    1.57 | 8.167    2.87 |14.250    5.23 | 20.33    1.71
 2.167    1.57 | 8.250    2.87 |14.333    4.77 | 20.42    1.71
 2.250    1.57 | 8.333    3.08 |14.417    4.77 | 20.50    1.71
 2.333    1.60 | 8.417    3.08 |14.500    4.77 | 20.58    1.69
 2.417    1.60 | 8.500    3.08 |14.583    4.54 | 20.67    1.69
 2.500    1.60 | 8.583    3.39 |14.667    4.54 | 20.75    1.69
 2.583    1.63 | 8.667    3.39 |14.750    4.54 | 20.83    1.67
 2.667    1.63 | 8.750    3.39 |14.833    4.30 | 20.92    1.67
 2.750    1.63 | 8.833    3.74 |14.917    4.30 | 21.00    1.67
 2.833    1.67 | 8.917    3.74 |15.000    4.30 | 21.08    1.66
 2.917    1.67 | 9.000    3.74 |15.083    4.08 | 21.17    1.66
 3.000    1.67 | 9.083    4.05 |15.167    4.08 | 21.25    1.66
 3.083    1.70 | 9.167    4.05 |15.250    4.08 | 21.33    1.64
 3.167    1.70 | 9.250    4.05 |15.333    3.84 | 21.42    1.64
 3.250    1.70 | 9.333    4.22 |15.417    3.84 | 21.50    1.64
 3.333    1.73 | 9.417    4.22 |15.500    3.84 | 21.58    1.63
 3.417    1.73 | 9.500    4.22 |15.583    3.62 | 21.67    1.63
 3.500    1.73 | 9.583    4.22 |15.667    3.62 | 21.75    1.63
 3.583    1.77 | 9.667    4.22 |15.750    3.62 | 21.83    1.61
 3.667    1.77 | 9.750    4.22 |15.833    3.38 | 21.92    1.61
 3.750    1.77 | 9.833    4.50 |15.917    3.38 | 22.00    1.61
 3.833    1.80 | 9.917    4.50 |16.000    3.38 | 22.08    1.59
 3.917    1.80 |10.000    4.50 |16.083    3.15 | 22.17    1.59
 4.000    1.80 |10.083    5.01 |16.167    3.15 | 22.25    1.59
 4.083    1.83 |10.167    5.01 |16.250    3.15 | 22.33    1.58
 4.167    1.83 |10.250    5.01 |16.333    2.99 | 22.42    1.58
 4.250    1.83 |10.333    5.69 |16.417    2.99 | 22.50    1.58
 4.333    1.88 |10.417    5.69 |16.500    2.99 | 22.58    1.56
 4.417    1.88 |10.500    5.69 |16.583    2.91 | 22.67    1.56
 4.500    1.88 |10.583    6.45 |16.667    2.91 | 22.75    1.56
 4.583    1.95 |10.667    6.45 |16.750    2.91 | 22.83    1.54
 4.667    1.95 |10.750    6.45 |16.833    2.83 | 22.92    1.54
 4.750    1.95 |10.833    7.55 |16.917    2.83 | 23.00    1.54
 4.833    2.01 |10.917    7.55 |17.000    2.83 | 23.08    1.53
 4.917    2.01 |11.000    7.55 |17.083    2.75 | 23.17    1.53
 5.000    2.01 |11.083    8.82 |17.167    2.75 | 23.25    1.53
 5.083    2.08 |11.167    8.82 |17.250    2.75 | 23.33    1.51
 5.167    2.08 |11.250    8.82 |17.333    2.66 | 23.42    1.51
 5.250    2.08 |11.333   11.15 |17.417    2.66 | 23.50    1.51
 5.333    2.15 |11.417   11.15 |17.500    2.66 | 23.58    1.49
 5.417    2.15 |11.500   11.15 |17.583    2.58 | 23.67    1.49
 5.500    2.15 |11.583   14.19 |17.667    2.58 | 23.75    1.49
 5.583    2.21 |11.667   14.19 |17.750    2.58 | 23.83    1.48
 5.667    2.21 |11.750   14.19 |17.833    2.50 | 23.92    1.48
 5.750    2.21 |11.833   57.85 |17.917    2.50 | 24.00    1.48
 5.833    2.28 |11.917   57.86 |18.000    2.50 | 24.08    1.46
 5.917    2.28 |12.000   57.86 |18.083    2.42 | 24.17    1.46
 6.000    2.28 |12.083  142.77 |18.167    2.42 | 24.25    1.46
 6.083    2.34 |12.167  142.78 |18.250    2.42 |

     Unit Hyd Qpeak  (cms)=   2.467

     PEAK FLOW       (cms)=   3.701 (i)
     TIME TO PEAK    (hrs)=  14.667
     RUNOFF VOLUME    (mm)=  59.182
     TOTAL RAINFALL   (mm)= 132.000
     RUNOFF COEFFICIENT   =   0.448

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0034)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0010):   145.33   3.701    14.67    59.18
     + ID2= 2 (  0033):  1010.32  18.827    17.75    44.49
       ================================================
       ID = 3 (  0034):  1155.65  20.831    17.67    46.34

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| SHIFT HYD(0040)|
| IN= 2---> OUT= 1 |
| SHIFT=232.1 min |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0034):	1155.65	20.83	17.67	46.34
SHIFT ID= 1 (0040):	1155.65	20.83	21.50	46.34

CALIB			
NASHYD (0009)	Area (ha)= 249.68	Curve Number (CN)= 58.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.41		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 3.957

PEAK FLOW (cms)= 4.994 (i)
TIME TO PEAK (hrs)= 14.917
RUNOFF VOLUME (mm)= 49.676
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.376

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| SHIFT HYD(0039)|
| IN= 2---> OUT= 1 |
| SHIFT=208.2 min |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0009):	249.68	4.99	14.92	49.68
SHIFT ID= 1 (0039):	249.68	4.99	18.33	49.68

CALIB			
NASHYD (0008)	Area (ha)= 338.84	Curve Number (CN)= 51.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.34		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63

3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 5.531

PEAK FLOW (cms)= 5.748 (i)
TIME TO PEAK (hrs)= 14.833
RUNOFF VOLUME (mm)= 41.666
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.316

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0035)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 63.2 min	ID= 2 (0008):	338.84	5.75	14.83	41.67
	SHIFT ID= 1 (0035):	338.84	5.75	15.83	41.67

CALIB					
NASHYD (0014)	Area (ha)= 99.92	Curve Number (CN)= 63.0			
ID= 1 DT= 5.0 min	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 1.66				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 2.299

PEAK FLOW (cms)= 3.035 (i)
TIME TO PEAK (hrs)= 14.000
RUNOFF VOLUME (mm)= 56.006
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.424

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0036)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0014):	99.92	3.035	14.00	56.01
	+ ID2= 2 (0035):	338.84	5.748	15.83	41.67
	ID = 3 (0036):	438.76	7.848	15.33	44.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0037)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 83.8 min	ID= 2 (0036):	438.76	7.85	15.33	44.93
	SHIFT ID= 1 (0037):	438.76	7.85	16.67	44.93

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| CALIB            |
| NASHYD   (  0013)|   Area    (ha)=  73.84   Curve Number   (CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.80   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.73

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

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     Unit Hyd Qpeak  (cms)=   1.630

     PEAK FLOW       (cms)=   2.332 (i)
     TIME TO PEAK    (hrs)=  14.083
     RUNOFF VOLUME    (mm)=  59.745
     TOTAL RAINFALL   (mm)= 132.000
     RUNOFF COEFFICIENT   =   0.453

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD  (  0038)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0013):    73.84    2.332    14.08    59.75
     + ID2= 2 (  0037):   438.76    7.848    16.67    44.93
       ==========================================================
       ID = 3 (  0038):   512.60    9.037    16.42    47.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD   (  0015)|   Area    (ha)= 159.16   Curve Number   (CN)= 63.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.10   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.50

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61

3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 4.053

PEAK FLOW (cms)= 5.307 (i)
TIME TO PEAK (hrs)= 13.750
RUNOFF VOLUME (mm)= 56.919
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.431

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0042) / IN= 2---> OUT= 1 / SHIFT= 55.3 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0015):	159.16	5.31	13.75	56.92
SHIFT ID= 1 (0042):	159.16	5.31	14.67	56.92

ADD HYD (0043) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	383.04	5.715	15.83	46.16
+ ID2= 2 (0038):	512.60	9.037	16.42	47.07
ID = 3 (0043):	895.64	14.671	16.33	46.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043) / 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	895.64	14.671	16.33	46.68
+ ID2= 2 (0039):	249.68	4.994	18.33	49.68
ID = 1 (0043):	1145.32	17.952	17.17	47.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0043):	1145.32	17.952	17.17	47.33
+ ID2= 2 (0040):	1155.65	20.831	21.50	46.34
ID = 3 (0043):	2300.97	29.617	21.25	46.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043) / 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	2300.97	29.617	21.25	46.83
+ ID2= 2 (0041):	1009.48	17.008	20.25	48.44
ID = 1 (0043):	3310.45	45.633	20.92	47.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0043):	3310.45	45.633	20.92	47.32
+ ID2= 2 (0042):	159.16	5.307	14.67	56.92
ID = 3 (0043):	3469.61	46.434	20.92	47.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0017):	147.40	2.945	13.75	34.09
+ ID2= 2 (0043):	3469.61	46.434	20.92	47.76
ID = 3 (0045):	3617.01	46.847	20.92	47.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045) / 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0045):	3617.01	46.847	20.92	47.21
+ ID2= 2 (0044):	147.08	5.097	14.00	56.71
ID = 1 (0045):	3764.09	47.499	20.92	47.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0047) / IN= 2---> OUT= 1 / SHIFT=107.5 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0045):	3764.09	47.50	20.92	47.58
SHIFT ID= 1 (0047):	3764.09	47.50	22.67	47.58

CALIB
NASHYD (0019) | ID= 1 DT= 5.0 min | Area (ha)= 198.16 | Curve Number (CN)= 54.0 | Ia (mm)= 8.60 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.67

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00

1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 4.532

PEAK FLOW (cms)= 4.708 (i)
TIME TO PEAK (hrs)= 14.000
RUNOFF VOLUME (mm)= 44.817
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.340

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0048)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0019):		198.16	4.708	14.00	44.82
+ ID2= 2 (0046):		126.36	2.544	15.50	44.94
ID = 3 (0048):		324.52	6.574	14.58	44.86

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0048)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0048):		324.52	6.574	14.58	44.86
+ ID2= 2 (0047):		3764.09	47.499	22.67	47.58
ID = 1 (0048):		4088.61	48.599	22.67	47.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0049)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 81.0 min	ID= 2 (0048):	4088.61	48.60	22.67	47.36
	SHIFT ID= 1 (0049):	4088.61	48.60	24.00	47.36

CALIB
NASHYD (0022) | ID= 1 DT= 5.0 min | Area (ha)= 119.48 Curve Number (CN)= 55.0
Ia (mm)= 8.10 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.78

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56

4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 2.564

PEAK FLOW (cms)= 2.797 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 46.278
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.351

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0022):		119.48	2.797	14.17	46.28
+ ID2= 2 (0049):		4088.61	48.599	24.00	47.36
ID = 3 (0050):		4208.09	48.939	24.00	47.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0054)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT= 52.5 min					
ID= 2 (0050):		4208.09	48.94	24.00	47.33
SHIFT ID= 1 (0054):		4208.09	48.94	24.83	47.33

CALIB			
NASHYD (0023)	Area	(ha)= 111.92	Curve Number (CN)= 64.0
ID= 1 DT= 5.0 min	Ia	(mm)= 8.70	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	1.81	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 2.362

PEAK FLOW (cms)= 3.250 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 57.116
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.433

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0020)	Area	(ha)= 126.24	Curve Number (CN)= 61.0
ID= 1 DT= 5.0 min	Ia	(mm)= 7.90	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	1.86	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25

0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 2.592

PEAK FLOW (cms)= 3.357 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 53.756
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.407

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0051)	AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1				
SHIFT= 26.3 min	(ha)	(cms)	(hrs)	(mm)
ID= 2 (0020):	126.24	3.36	14.25	53.76
SHIFT ID= 1 (0051):	126.24	3.36	14.67	53.76

CALIB NASHYD (0021)				
ID= 1 DT= 5.0 min	Area (ha)= 133.24	Curve Number (CN)= 61.0		
	Ia (mm)= 8.10	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.31			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48

5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 3.885

PEAK FLOW (cms)= 4.626 (i)
TIME TO PEAK (hrs)= 13.583
RUNOFF VOLUME (mm)= 53.621
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.406

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0052)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0021):	133.24	4.626	13.58	53.62
+ ID2= 2 (0051):	126.24	3.357	14.67	53.76
ID = 3 (0052):	259.48	7.416	14.00	53.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0053)				
IN= 2---> OUT= 1				
SHIFT=106.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0052):	259.48	7.42	14.00	53.69
SHIFT ID= 1 (0053):	259.48	7.42	15.75	53.69

ADD HYD (0055)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0023):	111.92	3.250	14.17	57.12
+ ID2= 2 (0053):	259.48	7.416	15.75	53.69
ID = 3 (0055):	371.40	9.862	15.58	54.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0055)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0055):	371.40	9.862	15.58	54.72
+ ID2= 2 (0054):	4208.09	48.939	24.83	47.33
ID = 1 (0055):	4579.49	50.172	24.75	47.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH

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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
        V  V    I       SS  U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
Output filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\75cdadfb-9e6a
Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\75cdadfb-9e6a

DATE: 09/26/2024 TIME: 11:20:08

USER:

COMMENTS: _____

** SIMULATION : 10yr 24hr 15min SCS Type II **

READ STORM	Filename: C:\Users\jkoen\AppData\Local\Temp\20e2ad8c-fe14-43c9-b359-409ce5c63256\1b0e19ac
Ptotal= 91.20 mm	Comments: 10yr 24hr 15min SCS Type II

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	1.67	12.50	10.64	18.75	1.50
0.25	0.92	6.50	1.71	12.75	7.32	19.00	1.44
0.50	0.95	6.75	1.76	13.00	6.18	19.25	1.38
0.75	0.97	7.00	1.80	13.25	5.23	19.50	1.33
1.00	0.99	7.25	1.85	13.50	4.62	19.75	1.27
1.25	1.02	7.50	1.89	13.75	4.05	20.00	1.21
1.50	1.04	7.75	1.94	14.00	3.61	20.25	1.18
1.75	1.06	8.00	1.98	14.25	3.29	20.50	1.17
2.00	1.08	8.25	2.12	14.50	3.14	20.75	1.16
2.25	1.11	8.50	2.34	14.75	2.97	21.00	1.15
2.50	1.13	8.75	2.58	15.00	2.82	21.25	1.13
2.75	1.15	9.00	2.80	15.25	2.65	21.50	1.12
3.00	1.17	9.25	2.92	15.50	2.50	21.75	1.11
3.25	1.20	9.50	2.92	15.75	2.33	22.00	1.10
3.50	1.22	9.75	3.11	16.00	2.18	22.25	1.09
3.75	1.24	10.00	3.46	16.25	2.07	22.50	1.08
4.00	1.26	10.25	3.93	16.50	2.01	22.75	1.07
4.25	1.30	10.50	4.46	16.75	1.95	23.00	1.05
4.50	1.34	10.75	5.22	17.00	1.90	23.25	1.04
4.75	1.39	11.00	6.09	17.25	1.84	23.50	1.03
5.00	1.44	11.25	7.70	17.50	1.79	23.75	1.02
5.25	1.48	11.50	9.81	17.75	1.73	24.00	1.01
5.50	1.53	11.75	39.97	18.00	1.67		
5.75	1.57	12.00	98.65	18.25	1.61		
6.00	1.62	12.25	15.63	18.50	1.56		

CALIB NASHYD (0018) ID= 1 DT= 5.0 min		
	Area (ha)= 126.36	Curve Number (CN)= 54.0
	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 2.08	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38

1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.320

PEAK FLOW (cms)= 1.272 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 22.916
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.251

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0046)	IN= 2---> OUT= 1	SHIFT= 63.7 min		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
			ID= 2 (0018):	126.36	1.27	14.58	22.92
			SHIFT ID= 1 (0046):	126.36	1.27	15.58	22.92

CALIB | NASHYD (0016) | Area (ha)= 147.08 Curve Number (CN)= 63.0

|ID= 1 DT= 5.0 min | Ia (mm)= 7.40 # of Linear Res.(N)= 3.00
---------- U.H. Tp(hrs)= 1.42

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 3.956

PEAK FLOW (cms)= 2.657 (i)
TIME TO PEAK (hrs)= 13.750
RUNOFF VOLUME (mm)= 30.143
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.331

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0044)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0016):	147.08	2.66	13.75	30.14
SHIFT= 20.5 min	SHIFT ID= 1 (0044):	147.08	2.66	14.08	30.14

CALIB			
NASHYD (0017)	Area (ha)= 147.40	Curve Number (CN)= 44.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.60	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.43		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 3.937

PEAK FLOW (cms)= 1.423 (i)
TIME TO PEAK (hrs)= 13.750
RUNOFF VOLUME (mm)= 16.810
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.184

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0001)	Area (ha)= 351.84	Curve Number (CN)= 59.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.60	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.25		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12

3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 5.973

PEAK FLOW (cms)= 3.949 (i)
TIME TO PEAK (hrs)= 14.750
RUNOFF VOLUME (mm)= 26.869
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.295

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0024) / IN= 2---> OUT= 1 / SHIFT= 80.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0001):	351.84	3.95	14.75	26.87
SHIFT ID= 1 (0024):	351.84	3.95	16.08	26.87

CALIB / NASHYD (0002) / ID= 1 DT= 5.0 min | Area (ha)= 415.84 Curve Number (CN)= 57.0 | Ia (mm)= 8.20 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 2.65

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 5.994

PEAK FLOW (cms)= 3.825 (i)
TIME TO PEAK (hrs)= 15.250
RUNOFF VOLUME (mm)= 25.086
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.275

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0025) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	415.84	3.825	15.25	25.09
+ ID2= 2 (0024):	351.84	3.949	16.08	26.87
ID = 3 (0025):	767.68	7.650	15.83	25.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0031) / IN= 2---> OUT= 1 / SHIFT=129.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

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         ID= 2 (  0025):  767.68     7.65     15.83     25.90
    SHIFT ID= 1 (  0031):  767.68     7.65     17.92     25.90
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--------------------
| CALIB            |
| NASHYD   (  0011)|   Area    (ha)= 241.80   Curve Number   (CN)= 53.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.30   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.81
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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

```
     Unit Hyd Qpeak  (cms)=   5.103

     PEAK FLOW       (cms)=   2.630 (i)
     TIME TO PEAK    (hrs)=  14.250
     RUNOFF VOLUME    (mm)=  22.303
     TOTAL RAINFALL   (mm)=  91.200
     RUNOFF COEFFICIENT   =   0.245

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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--------------------
| ADD HYD  (  0032)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0011):   241.80   2.630    14.25    22.30
     + ID2= 2 (  0031):   767.68   7.650    17.92    25.90
       ================================================
       ID = 3 (  0032):  1009.48   8.691    17.75    25.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0041)|
| IN= 2---> OUT= 1 |
| SHIFT=155.8 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0032): 1009.48     8.69     17.75     25.04
    SHIFT ID= 1 (  0041): 1009.48     8.69     20.33     25.04
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--------------------
| CALIB            |
| NASHYD   (  0012)|   Area    (ha)= 383.04   Curve Number   (CN)= 55.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.30   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   3.18
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15

2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 4.601

PEAK FLOW (cms)= 2.878 (i)
TIME TO PEAK (hrs)= 15.917
RUNOFF VOLUME (mm)= 23.639
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.259

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0003) ID= 1 DT= 5.0 min	Area (ha)= 161.56 Curve Number (CN)= 51.0 Ia (mm)= 8.10 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 1.77

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 3.486

PEAK FLOW (cms)= 1.687 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 21.109
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.231

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026) IN= 2---> OUT= 1 SHIFT=115.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0003):	161.56	1.69	14.17	21.11
SHIFT ID= 1 (0026):	161.56	1.69	16.08	21.11

CALIB NASHYD (0004) ID= 1 DT= 5.0 min	Area (ha)= 84.72 Curve Number (CN)= 55.0 Ia (mm)= 8.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 1.50

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN

hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.157

PEAK FLOW (cms)= 1.139 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 23.786
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.261

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT=101.8 min				
ID= 2 (0004):	84.72	1.14	13.83	23.79
SHIFT ID= 1 (0027):	84.72	1.14	15.50	23.79

CALIB
NASHYD (0006) | ID= 1 DT= 5.0 min

Area (ha)= 391.92 Curve Number (CN)= 57.0
Ia (mm)= 8.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.20

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04

5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 6.804

PEAK FLOW (cms)= 4.140 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 24.984
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.274

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0005) ID= 1 DT= 5.0 min	Area (ha)= 290.88 Curve Number (CN)= 51.0 Ia (mm)= 8.30 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 2.09

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 5.316

PEAK FLOW (cms)= 2.664 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 21.020
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.230

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029) IN= 2---> OUT= 1 SHIFT=144.1 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0005):	290.88	2.66	14.58	21.02
SHIFT ID= 1 (0029):	290.88	2.66	16.92	21.02

CALIB NASHYD (0007) ID= 1 DT= 5.0 min	Area (ha)= 81.24 Curve Number (CN)= 49.0 Ia (mm)= 8.70 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 1.53

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18

2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.028

PEAK FLOW (cms)= 0.877 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 19.622
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.215

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0030)
IN= 2---> OUT= 1
SHIFT=147.5 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0007):	81.24	0.88	13.92	19.62
SHIFT ID= 1 (0030):	81.24	0.88	16.33	19.62

ADD HYD (0028)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0026):	161.56	1.687	16.08	21.11
+ ID2= 2 (0027):	84.72	1.139	15.50	23.79
ID = 3 (0028):	246.28	2.772	15.83	22.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	246.28	2.772	15.83	22.03
+ ID2= 2 (0029):	290.88	2.664	16.92	21.02
ID = 1 (0028):	537.16	5.181	16.42	21.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0028):	537.16	5.181	16.42	21.48
+ ID2= 2 (0030):	81.24	0.877	16.33	19.62
ID = 3 (0028):	618.40	6.056	16.42	21.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	618.40	6.056	16.42	21.24
+ ID2= 2 (0006):	391.92	4.140	14.67	24.98
ID = 1 (0028):	1010.32	9.445	16.08	22.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0033)
IN= 2---> OUT= 1
SHIFT=106.7 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0028):	1010.32	9.44	16.08	22.69
SHIFT ID= 1 (0033):	1010.32	9.44	17.83	22.69

CALIB NASHYD (0010)
ID= 1 DT= 5.0 min

Area (ha)= 145.33 Curve Number (CN)= 65.0
Ia (mm)= 7.70 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.25

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16

2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.467

PEAK FLOW (cms)= 1.943 (i)
TIME TO PEAK (hrs)= 14.750
RUNOFF VOLUME (mm)= 31.653
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.347

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0034)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0010):	145.33	1.943	14.75	31.65
+ ID2= 2 (0033):	1010.32	9.445	17.83	22.69
ID = 3 (0034):	1155.65	10.528	17.75	23.82

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0040)				
IN= 2---> OUT= 1				
SHIFT=232.1 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0034):	1155.65	10.53	17.75	23.82
SHIFT ID= 1 (0040):	1155.65	10.53	21.58	23.82

CALIB				
NASHYD (0009)	Area (ha)= 249.68	Curve Number (CN)= 58.0		
ID= 1 DT= 5.0 min	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.41			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 3.957

PEAK FLOW (cms)= 2.534 (i)
TIME TO PEAK (hrs)= 15.000
RUNOFF VOLUME (mm)= 25.703
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.282

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0039)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=208.2 min	ID= 2 (0009):	249.68	2.53	15.00	25.70
	SHIFT ID= 1 (0039):	249.68	2.53	18.42	25.70

CALIB NASHYD (0008) | ID= 1 DT= 5.0 min	Area (ha)= 338.84	Curve Number (CN)= 51.0
	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 2.34	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 5.531

PEAK FLOW (cms)= 2.853 (i)
TIME TO PEAK (hrs)= 14.917
RUNOFF VOLUME (mm)= 21.065
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.231

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0035)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 63.2 min	ID= 2 (0008):	338.84	2.85	14.92	21.06
	SHIFT ID= 1 (0035):	338.84	2.85	15.92	21.06

CALIB NASHYD (0014) | ID= 1 DT= 5.0 min	Area (ha)= 99.92	Curve Number (CN)= 63.0
	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.66	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13

3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.299

PEAK FLOW (cms)= 1.568 (i)
TIME TO PEAK (hrs)= 14.000
RUNOFF VOLUME (mm)= 29.554
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.324

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0036)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0014):		99.92	1.568	14.00	29.55
+ ID2= 2 (0035):		338.84	2.853	15.92	21.06
ID = 3 (0036):		438.76	3.950	15.42	23.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0037)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT= 83.8 min		(ha)	(cms)	(hrs)	(mm)
ID= 2 (0036):		438.76	3.95	15.42	23.00
SHIFT ID= 1 (0037):		438.76	3.95	16.75	23.00

CALIB					
NASHYD (0013)	Area	(ha)= 73.84	Curve Number	(CN)= 66.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.80	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.73				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 1.630

PEAK FLOW (cms)= 1.217 (i)
TIME TO PEAK (hrs)= 14.083
RUNOFF VOLUME (mm)= 31.840
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.349

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD  (  0038)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
------------------             (ha)     (cms)     (hrs)      (mm)
        ID1= 1 (  0013):     73.84    1.217    14.08     31.84
      + ID2= 2 (  0037):    438.76    3.950    16.75     23.00
        ================================================
        ID = 3 (  0038):    512.60    4.591    16.50     24.27

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| CALIB            |
| NASHYD   (  0015)|   Area    (ha)= 159.16   Curve Number   (CN)= 63.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.10   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.50

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
  TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
   hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
 0.083     0.00 | 6.167     1.62 |12.250    98.65 | 18.33     1.61
 0.167     0.00 | 6.250     1.62 |12.333    15.64 | 18.42     1.61
 0.250     0.00 | 6.333     1.67 |12.417    15.63 | 18.50     1.61
 0.333     0.92 | 6.417     1.67 |12.500    15.63 | 18.58     1.56
 0.417     0.92 | 6.500     1.67 |12.583    10.64 | 18.67     1.56
 0.500     0.92 | 6.583     1.71 |12.667    10.64 | 18.75     1.56
 0.583     0.95 | 6.667     1.71 |12.750    10.64 | 18.83     1.50
 0.667     0.95 | 6.750     1.71 |12.833     7.32 | 18.92     1.50
 0.750     0.95 | 6.833     1.76 |12.917     7.32 | 19.00     1.50
 0.833     0.97 | 6.917     1.76 |13.000     7.32 | 19.08     1.44
 0.917     0.97 | 7.000     1.76 |13.083     6.18 | 19.17     1.44
 1.000     0.97 | 7.083     1.80 |13.167     6.18 | 19.25     1.44
 1.083     0.99 | 7.167     1.80 |13.250     6.18 | 19.33     1.38
 1.167     0.99 | 7.250     1.80 |13.333     5.23 | 19.42     1.38
 1.250     0.99 | 7.333     1.85 |13.417     5.23 | 19.50     1.38
 1.333     1.02 | 7.417     1.85 |13.500     5.23 | 19.58     1.33
 1.417     1.02 | 7.500     1.85 |13.583     4.62 | 19.67     1.33
 1.500     1.02 | 7.583     1.89 |13.667     4.62 | 19.75     1.33
 1.583     1.04 | 7.667     1.89 |13.750     4.62 | 19.83     1.27
 1.667     1.04 | 7.750     1.89 |13.833     4.05 | 19.92     1.27
 1.750     1.04 | 7.833     1.94 |13.917     4.05 | 20.00     1.27
 1.833     1.06 | 7.917     1.94 |14.000     4.05 | 20.08     1.21
 1.917     1.06 | 8.000     1.94 |14.083     3.61 | 20.17     1.21
 2.000     1.06 | 8.083     1.98 |14.167     3.61 | 20.25     1.21
 2.083     1.08 | 8.167     1.98 |14.250     3.61 | 20.33     1.18
 2.167     1.08 | 8.250     1.98 |14.333     3.29 | 20.42     1.18
 2.250     1.08 | 8.333     2.12 |14.417     3.29 | 20.50     1.18
 2.333     1.11 | 8.417     2.12 |14.500     3.29 | 20.58     1.17
 2.417     1.11 | 8.500     2.12 |14.583     3.14 | 20.67     1.17
 2.500     1.11 | 8.583     2.34 |14.667     3.14 | 20.75     1.17
 2.583     1.13 | 8.667     2.34 |14.750     3.14 | 20.83     1.16
 2.667     1.13 | 8.750     2.34 |14.833     2.97 | 20.92     1.16
 2.750     1.13 | 8.833     2.58 |14.917     2.97 | 21.00     1.16
 2.833     1.15 | 8.917     2.58 |15.000     2.97 | 21.08     1.15
 2.917     1.15 | 9.000     2.58 |15.083     2.82 | 21.17     1.15
 3.000     1.15 | 9.083     2.80 |15.167     2.82 | 21.25     1.15
 3.083     1.17 | 9.167     2.80 |15.250     2.82 | 21.33     1.13
 3.167     1.17 | 9.250     2.80 |15.333     2.65 | 21.42     1.13
 3.250     1.17 | 9.333     2.92 |15.417     2.65 | 21.50     1.13
 3.333     1.20 | 9.417     2.92 |15.500     2.65 | 21.58     1.12
 3.417     1.20 | 9.500     2.92 |15.583     2.50 | 21.67     1.12
 3.500     1.20 | 9.583     2.92 |15.667     2.50 | 21.75     1.12
 3.583     1.22 | 9.667     2.92 |15.750     2.50 | 21.83     1.11
 3.667     1.22 | 9.750     2.92 |15.833     2.33 | 21.92     1.11
 3.750     1.22 | 9.833     3.11 |15.917     2.33 | 22.00     1.11
 3.833     1.24 | 9.917     3.11 |16.000     2.33 | 22.08     1.10
 3.917     1.24 |10.000     3.11 |16.083     2.18 | 22.17     1.10
 4.000     1.24 |10.083     3.46 |16.167     2.18 | 22.25     1.10
 4.083     1.26 |10.167     3.46 |16.250     2.18 | 22.33     1.09
 4.167     1.26 |10.250     3.46 |16.333     2.07 | 22.42     1.09
 4.250     1.26 |10.333     3.93 |16.417     2.07 | 22.50     1.09
 4.333     1.30 |10.417     3.93 |16.500     2.07 | 22.58     1.08
 4.417     1.30 |10.500     3.93 |16.583     2.01 | 22.67     1.08
 4.500     1.30 |10.583     4.46 |16.667     2.01 | 22.75     1.08
 4.583     1.34 |10.667     4.46 |16.750     2.01 | 22.83     1.07
 4.667     1.34 |10.750     4.46 |16.833     1.95 | 22.92     1.07
 4.750     1.34 |10.833     5.22 |16.917     1.95 | 23.00     1.07
 4.833     1.39 |10.917     5.22 |17.000     1.95 | 23.08     1.05
 4.917     1.39 |11.000     5.22 |17.083     1.90 | 23.17     1.05
 5.000     1.39 |11.083     6.09 |17.167     1.90 | 23.25     1.05
 5.083     1.44 |11.167     6.09 |17.250     1.90 | 23.33     1.04
 5.167     1.44 |11.250     6.09 |17.333     1.84 | 23.42     1.04
 5.250     1.44 |11.333     7.70 |17.417     1.84 | 23.50     1.04
 5.333     1.48 |11.417     7.70 |17.500     1.84 | 23.58     1.03
 5.417     1.48 |11.500     7.70 |17.583     1.79 | 23.67     1.03
 5.500     1.48 |11.583     9.81 |17.667     1.79 | 23.75     1.03
 5.583     1.53 |11.667     9.81 |17.750     1.79 | 23.83     1.02
 5.667     1.53 |11.750     9.81 |17.833     1.73 | 23.92     1.02
 5.750     1.53 |11.833    39.97 |17.917     1.73 | 24.00     1.02
 5.833     1.57 |11.917    39.97 |18.000     1.73 | 24.08     1.01
 5.917     1.57 |12.000    39.97 |18.083     1.67 | 24.17     1.01
 6.000     1.57 |12.083    98.64 |18.167     1.67 | 24.25     1.01
 6.083     1.62 |12.167    98.65 |18.250     1.67 |

     Unit Hyd Qpeak  (cms)=   4.053

     PEAK FLOW       (cms)=   2.775 (i)
     TIME TO PEAK    (hrs)=  13.833
     RUNOFF VOLUME    (mm)=  30.320
     TOTAL RAINFALL   (mm)=  91.200
     RUNOFF COEFFICIENT   =   0.332

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| SHIFT HYD(  0042)|
| IN= 2---> OUT= 1 |
| SHIFT= 55.3 min  |      AREA     QPEAK     TPEAK      R.V.
------------------      (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0015):  159.16     2.77     13.83     30.32
    SHIFT ID= 1 (  0042):  159.16     2.77     14.75     30.32

-------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0043)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
------------------             (ha)     (cms)     (hrs)      (mm)
        ID1= 1 (  0012):    383.04    2.878    15.92     23.64
      + ID2= 2 (  0038):    512.60    4.591    16.50     24.27
        ================================================
        ID = 3 (  0043):    895.64    7.437    16.33     24.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0043)|
|   3 +  2 =  1    |          AREA     QPEAK     TPEAK      R.V.
------------------             (ha)     (cms)     (hrs)      (mm)
        ID1= 3 (  0043):    895.64    7.437    16.33     24.00
      + ID2= 2 (  0039):    249.68    2.534    18.42     25.70
        ================================================
        ID = 1 (  0043):   1145.32    9.110    17.25     24.37

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0043)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
------------------             (ha)     (cms)     (hrs)      (mm)
        ID1= 1 (  0043):   1145.32    9.110    17.25     24.37
      + ID2= 2 (  0040):   1155.65   10.528    21.58     23.82
        ================================================
        ID = 3 (  0043):   2300.97   15.158    21.25     24.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0043)|
|   3 +  2 =  1    |          AREA     QPEAK     TPEAK      R.V.
------------------             (ha)     (cms)     (hrs)      (mm)
        ID1= 3 (  0043):   2300.97   15.158    21.25     24.09
      + ID2= 2 (  0041):   1009.48    8.691    20.33     25.04
        ================================================
        ID = 1 (  0043):   3310.45   23.394    21.00     24.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0043)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
```

```
                        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0043):  3310.45  23.394    21.00    24.38
     + ID2= 2 (  0042):   159.16   2.775    14.75    30.32
       ================================================
       ID = 3 (  0043):  3469.61  23.845    21.00    24.66

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
| ADD HYD  (  0045)|
|   1 +  2 =  3    |
```

```
                        AREA    QPEAK    TPEAK     R.V.
                        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0017):   147.40   1.423    13.75    16.81
     + ID2= 2 (  0043):  3469.61  23.845    21.00    24.66
       ================================================
       ID = 3 (  0045):  3617.01  24.061    20.92    24.34

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
| ADD HYD  (  0045)|
|   3 +  2 =  1    |
```

```
                        AREA    QPEAK    TPEAK     R.V.
                        (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0045):  3617.01  24.061    20.92    24.34
     + ID2= 2 (  0044):   147.08   2.657    14.08    30.14
       ================================================
       ID = 1 (  0045):  3764.09  24.434    20.92    24.56

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
| SHIFT HYD(  0047)|
| IN= 2---> OUT= 1 |
| SHIFT=107.5 min  |
```

```
                        AREA     QPEAK     TPEAK      R.V.
                        (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0045): 3764.09    24.43     20.92     24.56
    SHIFT ID= 1 (  0047): 3764.09    24.43     22.67     24.56
```

```
| CALIB            |
| NASHYD   (  0019)|   Area    (ha)= 198.16   Curve Number   (CN)= 54.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.60   # of Linear Res.(N)= 3.00
                     U.H. Tp(hrs)=   1.67
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

```
    Unit Hyd Qpeak  (cms)=   4.532

    PEAK FLOW       (cms)=   2.348 (i)
    TIME TO PEAK    (hrs)=  14.083
    RUNOFF VOLUME    (mm)=  22.821
    TOTAL RAINFALL   (mm)=  91.200
    RUNOFF COEFFICIENT   =   0.250

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
| ADD HYD  (  0048)|
|   1 +  2 =  3    |
```

```
                        AREA    QPEAK    TPEAK     R.V.
                        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0019):   198.16   2.348    14.08    22.82
     + ID2= 2 (  0046):   126.36   1.272    15.58    22.92
       ================================================
       ID = 3 (  0048):   324.52   3.286    14.67    22.86

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
| ADD HYD  (  0048)|
|   3 +  2 =  1    |
```

```
                        AREA    QPEAK    TPEAK     R.V.
                        (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0048):   324.52   3.286    14.67    22.86
     + ID2= 2 (  0047):  3764.09  24.434    22.67    24.56
       ================================================
       ID = 1 (  0048):  4088.61  25.035    22.67    24.43

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
| SHIFT HYD(  0049)|
| IN= 2---> OUT= 1 |
| SHIFT= 81.0 min  |
```

```
                        AREA     QPEAK     TPEAK      R.V.
                        (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0048): 4088.61    25.03     22.67     24.43
```

SHIFT ID= 1 (0049): 4088.61   25.03   24.00   24.43

CALIB NASHYD (0022) ID= 1 DT= 5.0 min	Area (ha)= 119.48 Curve Number (CN)= 55.0 Ia (mm)= 8.10 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 1.78

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.564

PEAK FLOW (cms)= 1.407 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 23.737
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.260

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0022):	119.48	1.407	14.17	23.74
+ ID2= 2 (0049):	4088.61	25.035	24.00	24.43
ID = 3 (0050):	4208.09	25.223	24.00	24.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0054) IN= 2---> OUT= 1 SHIFT= 52.5 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0050):	4208.09	25.22	24.00	24.41
SHIFT ID= 1 (0054):	4208.09	25.22	24.83	24.41

CALIB NASHYD (0023) ID= 1 DT= 5.0 min	Area (ha)= 111.92 Curve Number (CN)= 64.0 Ia (mm)= 8.70 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 1.81

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15

3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.362

PEAK FLOW (cms)= 1.682 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 30.200
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.331

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0020)	Area (ha)= 126.24	Curve Number (CN)= 61.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.86		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.592

PEAK FLOW (cms)= 1.730 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 28.242
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.310

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0051)				
IN= 2---> OUT= 1				
SHIFT= 26.3 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0020):	126.24	1.73	14.25	28.24
SHIFT ID= 1 (0051):	126.24	1.73	14.67	28.24

CALIB			
NASHYD (0021)	Area (ha)= 133.24	Curve Number (CN)= 61.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.31		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr

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            0.083    0.00 |  6.167    1.62 |12.250   98.65 |  18.33    1.61
            0.167    0.00 |  6.250    1.62 |12.333   15.64 |  18.42    1.61
            0.250    0.00 |  6.333    1.67 |12.417   15.63 |  18.50    1.61
            0.333    0.92 |  6.417    1.67 |12.500   15.63 |  18.58    1.56
            0.417    0.92 |  6.500    1.67 |12.583   10.64 |  18.67    1.56
            0.500    0.92 |  6.583    1.71 |12.667   10.64 |  18.75    1.56
            0.583    0.95 |  6.667    1.71 |12.750   10.64 |  18.83    1.50
            0.667    0.95 |  6.750    1.71 |12.833    7.32 |  18.92    1.50
            0.750    0.95 |  6.833    1.76 |12.917    7.32 |  19.00    1.50
            0.833    0.97 |  6.917    1.76 |13.000    7.32 |  19.08    1.44
            0.917    0.97 |  7.000    1.76 |13.083    6.18 |  19.17    1.44
            1.000    0.97 |  7.083    1.80 |13.167    6.18 |  19.25    1.44
            1.083    0.99 |  7.167    1.80 |13.250    6.18 |  19.33    1.38
            1.167    0.99 |  7.250    1.80 |13.333    5.23 |  19.42    1.38
            1.250    0.99 |  7.333    1.85 |13.417    5.23 |  19.50    1.38
            1.333    1.02 |  7.417    1.85 |13.500    5.23 |  19.58    1.33
            1.417    1.02 |  7.500    1.85 |13.583    4.62 |  19.67    1.33
            1.500    1.02 |  7.583    1.89 |13.667    4.62 |  19.75    1.33
            1.583    1.04 |  7.667    1.89 |13.750    4.62 |  19.83    1.27
            1.667    1.04 |  7.750    1.89 |13.833    4.05 |  19.92    1.27
            1.750    1.04 |  7.833    1.94 |13.917    4.05 |  20.00    1.27
            1.833    1.06 |  7.917    1.94 |14.000    4.05 |  20.08    1.21
            1.917    1.06 |  8.000    1.94 |14.083    3.61 |  20.17    1.21
            2.000    1.06 |  8.083    1.98 |14.167    3.61 |  20.25    1.21
            2.083    1.08 |  8.167    1.98 |14.250    3.61 |  20.33    1.18
            2.167    1.08 |  8.250    1.98 |14.333    3.29 |  20.42    1.18
            2.250    1.08 |  8.333    2.12 |14.417    3.29 |  20.50    1.18
            2.333    1.11 |  8.417    2.12 |14.500    3.29 |  20.58    1.17
            2.417    1.11 |  8.500    2.12 |14.583    3.14 |  20.67    1.17
            2.500    1.11 |  8.583    2.34 |14.667    3.14 |  20.75    1.17
            2.583    1.13 |  8.667    2.34 |14.750    3.14 |  20.83    1.16
            2.667    1.13 |  8.750    2.34 |14.833    2.97 |  20.92    1.16
            2.750    1.13 |  8.833    2.58 |14.917    2.97 |  21.00    1.16
            2.833    1.15 |  8.917    2.58 |15.000    2.97 |  21.08    1.15
            2.917    1.15 |  9.000    2.58 |15.083    2.82 |  21.17    1.15
            3.000    1.15 |  9.083    2.80 |15.167    2.82 |  21.25    1.15
            3.083    1.17 |  9.167    2.80 |15.250    2.82 |  21.33    1.13
            3.167    1.17 |  9.250    2.80 |15.333    2.65 |  21.42    1.13
            3.250    1.17 |  9.333    2.92 |15.417    2.65 |  21.50    1.13
            3.333    1.20 |  9.417    2.92 |15.500    2.65 |  21.58    1.12
            3.417    1.20 |  9.500    2.92 |15.583    2.50 |  21.67    1.12
            3.500    1.20 |  9.583    2.92 |15.667    2.50 |  21.75    1.12
            3.583    1.22 |  9.667    2.92 |15.750    2.50 |  21.83    1.11
            3.667    1.22 |  9.750    2.92 |15.833    2.33 |  21.92    1.11
            3.750    1.22 |  9.833    3.11 |15.917    2.33 |  22.00    1.11
            3.833    1.24 |  9.917    3.11 |16.000    2.33 |  22.08    1.10
            3.917    1.24 | 10.000    3.11 |16.083    2.18 |  22.17    1.10
            4.000    1.24 | 10.083    3.46 |16.167    2.18 |  22.25    1.10
            4.083    1.26 | 10.167    3.46 |16.250    2.18 |  22.33    1.09
            4.167    1.26 | 10.250    3.46 |16.333    2.07 |  22.42    1.09
            4.250    1.26 | 10.333    3.93 |16.417    2.07 |  22.50    1.09
            4.333    1.30 | 10.417    3.93 |16.500    2.07 |  22.58    1.08
            4.417    1.30 | 10.500    3.93 |16.583    2.01 |  22.67    1.08
            4.500    1.30 | 10.583    4.46 |16.667    2.01 |  22.75    1.08
            4.583    1.34 | 10.667    4.46 |16.750    2.01 |  22.83    1.07
            4.667    1.34 | 10.750    4.46 |16.833    1.95 |  22.92    1.07
            4.750    1.34 | 10.833    5.22 |16.917    1.95 |  23.00    1.07
            4.833    1.39 | 10.917    5.22 |17.000    1.95 |  23.08    1.05
            4.917    1.39 | 11.000    5.22 |17.083    1.90 |  23.17    1.05
            5.000    1.39 | 11.083    6.09 |17.167    1.90 |  23.25    1.05
            5.083    1.44 | 11.167    6.09 |17.250    1.90 |  23.33    1.04
            5.167    1.44 | 11.250    6.09 |17.333    1.84 |  23.42    1.04
            5.250    1.44 | 11.333    7.70 |17.417    1.84 |  23.50    1.04
            5.333    1.48 | 11.417    7.70 |17.500    1.84 |  23.58    1.03
            5.417    1.48 | 11.500    7.70 |17.583    1.79 |  23.67    1.03
            5.500    1.48 | 11.583    9.81 |17.667    1.79 |  23.75    1.03
            5.583    1.53 | 11.667    9.81 |17.750    1.79 |  23.83    1.02
            5.667    1.53 | 11.750    9.81 |17.833    1.73 |  23.92    1.02
            5.750    1.53 | 11.833   39.97 |17.917    1.73 |  24.00    1.02
            5.833    1.57 | 11.917   39.97 |18.000    1.73 |  24.08    1.01
            5.917    1.57 | 12.000   39.97 |18.083    1.67 |  24.17    1.01
            6.000    1.57 | 12.083   98.64 |18.167    1.67 |  24.25    1.01
            6.083    1.62 |12.167    98.65 |18.250    1.67 |

  Unit Hyd Qpeak  (cms)=   3.885

  PEAK FLOW       (cms)=   2.376 (i)
  TIME TO PEAK    (hrs)=  13.583
  RUNOFF VOLUME    (mm)=  28.130
  TOTAL RAINFALL   (mm)=  91.200
  RUNOFF COEFFICIENT   =   0.308

  (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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| ADD HYD  (  0052)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0021):   133.24   2.376    13.58    28.13
     + ID2= 2 (  0051):   126.24   1.730    14.67    28.24
       ==========================================
       ID = 3 (  0052):   259.48   3.813    14.00    28.18

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| SHIFT HYD(  0053)|
| IN= 2---> OUT= 1 |
| SHIFT=106.6 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0052):  259.48      3.81     14.00     28.18
   SHIFT ID= 1 (  0053):  259.48      3.81     15.75     28.18

--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0055)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0023):   111.92   1.682    14.25    30.20
     + ID2= 2 (  0053):   259.48   3.813    15.75    28.18
       ==========================================
       ID = 3 (  0055):   371.40   5.098    15.58    28.79

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0055)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0055):   371.40   5.098    15.58    28.79
     + ID2= 2 (  0054):  4208.09  25.223    24.83    24.41
       ==========================================
       ID = 1 (  0055):  4579.49  25.924    24.83    24.76

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
================================================================================================================================

      V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
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                 *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\f32404ae-9947
  Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\f32404ae-9947


DATE: 09/26/2024                          TIME: 11:20:09

USER:


COMMENTS: _____________________________________________________


--------------------------------------------------------------------------------------------------------------------------------
  ************************************************
  ** SIMULATION : 25yr 24hr 15min SCS Type II   **
  ************************************************
```

```
--------------------
|    READ STORM    |    Filename: C:\Users\jkoen\AppD
|                  |              ata\Local\Temp\
|                  |              20e2ad8c-fe14-43c9-b359-409ce5c63256\de274996
| Ptotal=108.00 mm |    Comments: 25yr 24hr 15min SCS Type II
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	1.97	12.50	12.60	18.75	1.77
0.25	1.10	6.50	2.02	12.75	8.67	19.00	1.71
0.50	1.12	6.75	2.08	13.00	7.32	19.25	1.64
0.75	1.15	7.00	2.13	13.25	6.19	19.50	1.57
1.00	1.17	7.25	2.19	13.50	5.47	19.75	1.50
1.25	1.20	7.50	2.24	13.75	4.80	20.00	1.44
1.50	1.23	7.75	2.30	14.00	4.28	20.25	1.40
1.75	1.25	8.00	2.35	14.25	3.90	20.50	1.38
2.00	1.28	8.25	2.52	14.50	3.72	20.75	1.37
2.25	1.31	8.50	2.78	14.75	3.52	21.00	1.36
2.50	1.34	8.75	3.06	15.00	3.34	21.25	1.34
2.75	1.36	9.00	3.32	15.25	3.14	21.50	1.33
3.00	1.39	9.25	3.46	15.50	2.96	21.75	1.32
3.25	1.42	9.50	3.46	15.75	2.76	22.00	1.30
3.50	1.45	9.75	3.68	16.00	2.58	22.25	1.29
3.75	1.47	10.00	4.10	16.25	2.45	22.50	1.28
4.00	1.50	10.25	4.66	16.50	2.38	22.75	1.26
4.25	1.54	10.50	5.28	16.75	2.31	23.00	1.25
4.50	1.59	10.75	6.18	17.00	2.25	23.25	1.24
4.75	1.65	11.00	7.21	17.25	2.18	23.50	1.22
5.00	1.70	11.25	9.12	17.50	2.11	23.75	1.21
5.25	1.76	11.50	11.61	17.75	2.04	24.00	1.19
5.50	1.81	11.75	47.34	18.00	1.98		
5.75	1.86	12.00	116.82	18.25	1.91		
6.00	1.92	12.25	18.51	18.50	1.84		

```
--------------------
| CALIB            |
| NASHYD  (  0018) |   Area    (ha)= 126.36   Curve Number   (CN)= 54.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.08

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

```
     Unit Hyd Qpeak  (cms)=   2.320

     PEAK FLOW       (cms)=   1.759 (i)
     TIME TO PEAK    (hrs)=  14.500
     RUNOFF VOLUME    (mm)=  31.396
     TOTAL RAINFALL   (mm)= 108.000
     RUNOFF COEFFICIENT   =   0.291

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
--------------------
| SHIFT HYD(  0046)|
| IN= 2---> OUT= 1 |
| SHIFT= 63.7 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0018):  126.36     1.76     14.50     31.40
    SHIFT ID= 1 (  0046):  126.36     1.76     15.50     31.40
```

```
--------------------
| CALIB            |
| NASHYD  (  0016) |   Area    (ha)= 147.08   Curve Number   (CN)= 63.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.42

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71

1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 3.956

PEAK FLOW (cms)= 3.605 (i)
TIME TO PEAK (hrs)= 13.750
RUNOFF VOLUME (mm)= 40.518
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.375

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0044)
IN= 2---> OUT= 1
SHIFT= 20.5 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0016):	147.08	3.60	13.75	40.52
SHIFT ID= 1 (0044):	147.08	3.60	14.08	40.52

CALIB

NASHYD (0017)	Area (ha)= 147.40	Curve Number (CN)= 44.0
ID= 1 DT= 5.0 min	Ia (mm)= 8.60	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.43	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 3.937

PEAK FLOW (cms)= 1.998 (i)
TIME TO PEAK (hrs)= 13.750
RUNOFF VOLUME (mm)= 23.376
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.216

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB NASHYD (0001) | ID= 1 DT= 5.0 min |

Area (ha)= 351.84 Curve Number (CN)= 59.0
Ia (mm)= 7.60 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.25

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 5.973

PEAK FLOW (cms)= 5.398 (i)
TIME TO PEAK (hrs)= 14.750
RUNOFF VOLUME (mm)= 36.403
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.337

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| SHIFT HYD(0024) | IN= 2---> OUT= 1 | SHIFT= 80.8 min |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0001):	351.84	5.40	14.75	36.40
SHIFT ID= 1 (0024):	351.84	5.40	16.08	36.40

| CALIB NASHYD (0002) | ID= 1 DT= 5.0 min |

Area (ha)= 415.84 Curve Number (CN)= 57.0
Ia (mm)= 8.20 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.65

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34

3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 5.994

PEAK FLOW (cms)= 5.258 (i)
TIME TO PEAK (hrs)= 15.250
RUNOFF VOLUME (mm)= 34.178
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.316

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0025)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):		415.84	5.258	15.25	34.18
+ ID2= 2 (0024):		351.84	5.398	16.08	36.40
ID = 3 (0025):		767.68	10.479	15.75	35.20

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0031)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT=129.8 min					
ID= 2 (0025):		767.68	10.48	15.75	35.20
SHIFT ID= 1 (0031):		767.68	10.48	17.83	35.20

CALIB				
NASHYD (0011)	Area	(ha)= 241.80	Curve Number	(CN)= 53.0
ID= 1 DT= 5.0 min	Ia	(mm)= 8.30	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)=	1.81		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 5.103

PEAK FLOW (cms)= 3.642 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 30.590
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.283

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0032)		AREA	QPEAK	TPEAK	R.V.

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--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0011):   241.80   3.642    14.25    30.59
     + ID2= 2 (  0031):   767.68  10.479    17.83    35.20
       ================================================
       ID = 3 (  0032):  1009.48  11.902    17.67    34.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0041)|
| IN= 2---> OUT= 1 |
| SHIFT=155.8 min  |       AREA     QPEAK     TPEAK      R.V.
--------------------       (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0032): 1009.48    11.90     17.67     34.09
    SHIFT ID= 1 (  0041): 1009.48    11.90     20.25     34.09

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| CALIB            |
| NASHYD   (  0012)|   Area    (ha)= 383.04   Curve Number   (CN)= 55.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.30   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   3.18

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.92 |12.250  116.82 | 18.33    1.91
 0.167    0.00 | 6.250    1.92 |12.333   18.52 | 18.42    1.91
 0.250    0.00 | 6.333    1.97 |12.417   18.51 | 18.50    1.91
 0.333    1.10 | 6.417    1.97 |12.500   18.51 | 18.58    1.84
 0.417    1.10 | 6.500    1.97 |12.583   12.60 | 18.67    1.84
 0.500    1.10 | 6.583    2.02 |12.667   12.60 | 18.75    1.84
 0.583    1.12 | 6.667    2.02 |12.750   12.60 | 18.83    1.77
 0.667    1.12 | 6.750    2.02 |12.833    8.67 | 18.92    1.77
 0.750    1.12 | 6.833    2.08 |12.917    8.67 | 19.00    1.77
 0.833    1.15 | 6.917    2.08 |13.000    8.67 | 19.08    1.71
 0.917    1.15 | 7.000    2.08 |13.083    7.32 | 19.17    1.71
 1.000    1.15 | 7.083    2.13 |13.167    7.32 | 19.25    1.71
 1.083    1.17 | 7.167    2.13 |13.250    7.32 | 19.33    1.64
 1.167    1.17 | 7.250    2.13 |13.333    6.20 | 19.42    1.64
 1.250    1.17 | 7.333    2.19 |13.417    6.19 | 19.50    1.64
 1.333    1.20 | 7.417    2.19 |13.500    6.19 | 19.58    1.57
 1.417    1.20 | 7.500    2.19 |13.583    5.47 | 19.67    1.57
 1.500    1.20 | 7.583    2.24 |13.667    5.47 | 19.75    1.57
 1.583    1.23 | 7.667    2.24 |13.750    5.47 | 19.83    1.50
 1.667    1.23 | 7.750    2.24 |13.833    4.80 | 19.92    1.50
 1.750    1.23 | 7.833    2.30 |13.917    4.80 | 20.00    1.50
 1.833    1.25 | 7.917    2.30 |14.000    4.80 | 20.08    1.44
 1.917    1.25 | 8.000    2.30 |14.083    4.28 | 20.17    1.44
 2.000    1.25 | 8.083    2.35 |14.167    4.28 | 20.25    1.44
 2.083    1.28 | 8.167    2.35 |14.250    4.28 | 20.33    1.40
 2.167    1.28 | 8.250    2.35 |14.333    3.90 | 20.42    1.40
 2.250    1.28 | 8.333    2.52 |14.417    3.90 | 20.50    1.40
 2.333    1.31 | 8.417    2.52 |14.500    3.90 | 20.58    1.38
 2.417    1.31 | 8.500    2.52 |14.583    3.72 | 20.67    1.38
 2.500    1.31 | 8.583    2.78 |14.667    3.72 | 20.75    1.38
 2.583    1.34 | 8.667    2.78 |14.750    3.72 | 20.83    1.37
 2.667    1.34 | 8.750    2.78 |14.833    3.52 | 20.92    1.37
 2.750    1.34 | 8.833    3.06 |14.917    3.52 | 21.00    1.37
 2.833    1.36 | 8.917    3.06 |15.000    3.52 | 21.08    1.36
 2.917    1.36 | 9.000    3.06 |15.083    3.34 | 21.17    1.36
 3.000    1.36 | 9.083    3.32 |15.167    3.34 | 21.25    1.36
 3.083    1.39 | 9.167    3.32 |15.250    3.34 | 21.33    1.34
 3.167    1.39 | 9.250    3.32 |15.333    3.14 | 21.42    1.34
 3.250    1.39 | 9.333    3.46 |15.417    3.14 | 21.50    1.34
 3.333    1.42 | 9.417    3.46 |15.500    3.14 | 21.58    1.33
 3.417    1.42 | 9.500    3.46 |15.583    2.96 | 21.67    1.33
 3.500    1.42 | 9.583    3.46 |15.667    2.96 | 21.75    1.33
 3.583    1.45 | 9.667    3.46 |15.750    2.96 | 21.83    1.32
 3.667    1.45 | 9.750    3.46 |15.833    2.76 | 21.92    1.32
 3.750    1.45 | 9.833    3.68 |15.917    2.76 | 22.00    1.32
 3.833    1.47 | 9.917    3.68 |16.000    2.76 | 22.08    1.30
 3.917    1.47 |10.000    3.68 |16.083    2.58 | 22.17    1.30
 4.000    1.47 |10.083    4.10 |16.167    2.58 | 22.25    1.30
 4.083    1.50 |10.167    4.10 |16.250    2.58 | 22.33    1.29
 4.167    1.50 |10.250    4.10 |16.333    2.45 | 22.42    1.29
 4.250    1.50 |10.333    4.66 |16.417    2.45 | 22.50    1.29
 4.333    1.54 |10.417    4.66 |16.500    2.45 | 22.58    1.28
 4.417    1.54 |10.500    4.66 |16.583    2.38 | 22.67    1.28
 4.500    1.54 |10.583    5.28 |16.667    2.38 | 22.75    1.28
 4.583    1.59 |10.667    5.28 |16.750    2.38 | 22.83    1.26
 4.667    1.59 |10.750    5.28 |16.833    2.31 | 22.92    1.26
 4.750    1.59 |10.833    6.18 |16.917    2.31 | 23.00    1.26
 4.833    1.65 |10.917    6.18 |17.000    2.31 | 23.08    1.25
 4.917    1.65 |11.000    6.18 |17.083    2.25 | 23.17    1.25
 5.000    1.65 |11.083    7.21 |17.167    2.25 | 23.25    1.25
 5.083    1.70 |11.167    7.21 |17.250    2.25 | 23.33    1.24
 5.167    1.70 |11.250    7.21 |17.333    2.18 | 23.42    1.24
 5.250    1.70 |11.333    9.12 |17.417    2.18 | 23.50    1.24
 5.333    1.76 |11.417    9.12 |17.500    2.18 | 23.58    1.22
 5.417    1.76 |11.500    9.12 |17.583    2.11 | 23.67    1.22
 5.500    1.76 |11.583   11.61 |17.667    2.11 | 23.75    1.22
 5.583    1.81 |11.667   11.61 |17.750    2.11 | 23.83    1.21
 5.667    1.81 |11.750   11.61 |17.833    2.04 | 23.92    1.21
 5.750    1.81 |11.833   47.33 |17.917    2.04 | 24.00    1.21
 5.833    1.86 |11.917   47.34 |18.000    2.04 | 24.08    1.19
 5.917    1.86 |12.000   47.34 |18.083    1.98 | 24.17    1.19
 6.000    1.86 |12.083  116.82 |18.167    1.98 | 24.25    1.19
 6.083    1.92 |12.167  116.82 |18.250    1.98 |

     Unit Hyd Qpeak  (cms)=   4.601

     PEAK FLOW       (cms)=   3.968 (i)
     TIME TO PEAK    (hrs)=  15.917
     RUNOFF VOLUME    (mm)=  32.324
     TOTAL RAINFALL   (mm)= 108.000
     RUNOFF COEFFICIENT   =   0.299

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| NASHYD   (  0003)|   Area    (ha)= 161.56   Curve Number   (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.10   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.77

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.92 |12.250  116.82 | 18.33    1.91
 0.167    0.00 | 6.250    1.92 |12.333   18.52 | 18.42    1.91
 0.250    0.00 | 6.333    1.97 |12.417   18.51 | 18.50    1.91
 0.333    1.10 | 6.417    1.97 |12.500   18.51 | 18.58    1.84
 0.417    1.10 | 6.500    1.97 |12.583   12.60 | 18.67    1.84
 0.500    1.10 | 6.583    2.02 |12.667   12.60 | 18.75    1.84
 0.583    1.12 | 6.667    2.02 |12.750   12.60 | 18.83    1.77
 0.667    1.12 | 6.750    2.02 |12.833    8.67 | 18.92    1.77
 0.750    1.12 | 6.833    2.08 |12.917    8.67 | 19.00    1.77
 0.833    1.15 | 6.917    2.08 |13.000    8.67 | 19.08    1.71
 0.917    1.15 | 7.000    2.08 |13.083    7.32 | 19.17    1.71
 1.000    1.15 | 7.083    2.13 |13.167    7.32 | 19.25    1.71
 1.083    1.17 | 7.167    2.13 |13.250    7.32 | 19.33    1.64
 1.167    1.17 | 7.250    2.13 |13.333    6.20 | 19.42    1.64
 1.250    1.17 | 7.333    2.19 |13.417    6.19 | 19.50    1.64
 1.333    1.20 | 7.417    2.19 |13.500    6.19 | 19.58    1.57
 1.417    1.20 | 7.500    2.19 |13.583    5.47 | 19.67    1.57
 1.500    1.20 | 7.583    2.24 |13.667    5.47 | 19.75    1.57
 1.583    1.23 | 7.667    2.24 |13.750    5.47 | 19.83    1.50
 1.667    1.23 | 7.750    2.24 |13.833    4.80 | 19.92    1.50
 1.750    1.23 | 7.833    2.30 |13.917    4.80 | 20.00    1.50
 1.833    1.25 | 7.917    2.30 |14.000    4.80 | 20.08    1.44
 1.917    1.25 | 8.000    2.30 |14.083    4.28 | 20.17    1.44
 2.000    1.25 | 8.083    2.35 |14.167    4.28 | 20.25    1.44
 2.083    1.28 | 8.167    2.35 |14.250    4.28 | 20.33    1.40
 2.167    1.28 | 8.250    2.35 |14.333    3.90 | 20.42    1.40
 2.250    1.28 | 8.333    2.52 |14.417    3.90 | 20.50    1.40
 2.333    1.31 | 8.417    2.52 |14.500    3.90 | 20.58    1.38
 2.417    1.31 | 8.500    2.52 |14.583    3.72 | 20.67    1.38
 2.500    1.31 | 8.583    2.78 |14.667    3.72 | 20.75    1.38
 2.583    1.34 | 8.667    2.78 |14.750    3.72 | 20.83    1.37
 2.667    1.34 | 8.750    2.78 |14.833    3.52 | 20.92    1.37
 2.750    1.34 | 8.833    3.06 |14.917    3.52 | 21.00    1.37
 2.833    1.36 | 8.917    3.06 |15.000    3.52 | 21.08    1.36
 2.917    1.36 | 9.000    3.06 |15.083    3.34 | 21.17    1.36
 3.000    1.36 | 9.083    3.32 |15.167    3.34 | 21.25    1.36
 3.083    1.39 | 9.167    3.32 |15.250    3.34 | 21.33    1.34
 3.167    1.39 | 9.250    3.32 |15.333    3.14 | 21.42    1.34
 3.250    1.39 | 9.333    3.46 |15.417    3.14 | 21.50    1.34
 3.333    1.42 | 9.417    3.46 |15.500    3.14 | 21.58    1.33
 3.417    1.42 | 9.500    3.46 |15.583    2.96 | 21.67    1.33
 3.500    1.42 | 9.583    3.46 |15.667    2.96 | 21.75    1.33
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3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 3.486

PEAK FLOW (cms)= 2.341 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 29.017
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.269

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=115.6 min	ID= 2 (0003):	161.56	2.34	14.17	29.02
	SHIFT ID= 1 (0026):	161.56	2.34	16.08	29.02

CALIB					
NASHYD (0004)	Area	(ha)= 84.72	Curve Number	(CN)= 55.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.00	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.50				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 2.157

PEAK FLOW (cms)= 1.571 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 32.487
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.301

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=101.8 min	ID= 2 (0004):	84.72	1.57	13.83	32.49
	SHIFT ID= 1 (0027):	84.72	1.57	15.50	32.49

CALIB					
NASHYD (0006)	Area	(ha)= 391.92	Curve Number	(CN)= 57.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.20				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 6.804

PEAK FLOW (cms)= 5.700 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 34.065
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.315

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0005)	Area (ha)= 290.88	Curve Number (CN)= 51.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.09		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21

5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 5.316

PEAK FLOW (cms)= 3.698 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 28.918
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.268

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029)
IN= 2---> OUT= 1
SHIFT=144.1 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0005):	290.88	3.70	14.58	28.92
SHIFT ID= 1 (0029):	290.88	3.70	16.92	28.92

CALIB
NASHYD (0007)
ID= 1 DT= 5.0 min

Area (ha)= 81.24 Curve Number (CN)= 49.0
Ia (mm)= 8.70 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.53

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 2.028

PEAK FLOW (cms)= 1.223 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 27.114
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.251

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0030)
IN= 2---> OUT= 1
SHIFT=147.5 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0007):	81.24	1.22	13.92	27.11
SHIFT ID= 1 (0030):	81.24	1.22	16.33	27.11

ADD HYD (0028)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0026):	161.56	2.341	16.08	29.02
+ ID2= 2 (0027):	84.72	1.571	15.50	32.49
ID = 3 (0028):	246.28	3.837	15.83	30.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	246.28	3.837	15.83	30.21
+ ID2= 2 (0029):	290.88	3.698	16.92	28.92
ID = 1 (0028):	537.16	7.181	16.42	29.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0028):	537.16	7.181	16.42	29.51
+ ID2= 2 (0030):	81.24	1.223	16.33	27.11
ID = 3 (0028):	618.40	8.403	16.33	29.20

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0028)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0028):   618.40   8.403    16.33    29.20
     + ID2= 2 (  0006):   391.92   5.700    14.67    34.06
       ================================================
       ID = 1 (  0028):  1010.32  13.043    16.08    31.08

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0033)|
| IN= 2---> OUT= 1 |
| SHIFT=106.7 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0028): 1010.32    13.04     16.08     31.08
    SHIFT ID= 1 (  0033): 1010.32    13.04     17.83     31.08

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0010)|   Area    (ha)= 145.33   Curve Number   (CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.70   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.25

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    0.00 | 6.167    1.92 |12.250  116.82 | 18.33    1.91
0.167    0.00 | 6.250    1.92 |12.333   18.52 | 18.42    1.91
0.250    0.00 | 6.333    1.97 |12.417   18.51 | 18.50    1.91
0.333    1.10 | 6.417    1.97 |12.500   18.51 | 18.58    1.84
0.417    1.10 | 6.500    1.97 |12.583   12.60 | 18.67    1.84
0.500    1.10 | 6.583    2.02 |12.667   12.60 | 18.75    1.84
0.583    1.12 | 6.667    2.02 |12.750   12.60 | 18.83    1.77
0.667    1.12 | 6.750    2.02 |12.833    8.67 | 18.92    1.77
0.750    1.12 | 6.833    2.08 |12.917    8.67 | 19.00    1.77
0.833    1.15 | 6.917    2.08 |13.000    8.67 | 19.08    1.71
0.917    1.15 | 7.000    2.08 |13.083    7.32 | 19.17    1.71
1.000    1.15 | 7.083    2.13 |13.167    7.32 | 19.25    1.71
1.083    1.17 | 7.167    2.13 |13.250    7.32 | 19.33    1.64
1.167    1.17 | 7.250    2.13 |13.333    6.20 | 19.42    1.64
1.250    1.17 | 7.333    2.19 |13.417    6.19 | 19.50    1.64
1.333    1.20 | 7.417    2.19 |13.500    6.19 | 19.58    1.57
1.417    1.20 | 7.500    2.19 |13.583    5.47 | 19.67    1.57
1.500    1.20 | 7.583    2.24 |13.667    5.47 | 19.75    1.57
1.583    1.23 | 7.667    2.24 |13.750    5.47 | 19.83    1.50
1.667    1.23 | 7.750    2.24 |13.833    4.80 | 19.92    1.50
1.750    1.23 | 7.833    2.30 |13.917    4.80 | 20.00    1.50
1.833    1.25 | 7.917    2.30 |14.000    4.80 | 20.08    1.44
1.917    1.25 | 8.000    2.30 |14.083    4.28 | 20.17    1.44
2.000    1.25 | 8.083    2.35 |14.167    4.28 | 20.25    1.44
2.083    1.28 | 8.167    2.35 |14.250    4.28 | 20.33    1.40
2.167    1.28 | 8.250    2.35 |14.333    3.90 | 20.42    1.40
2.250    1.28 | 8.333    2.52 |14.417    3.90 | 20.50    1.40
2.333    1.31 | 8.417    2.52 |14.500    3.90 | 20.58    1.38
2.417    1.31 | 8.500    2.52 |14.583    3.72 | 20.67    1.38
2.500    1.31 | 8.583    2.78 |14.667    3.72 | 20.75    1.38
2.583    1.34 | 8.667    2.78 |14.750    3.72 | 20.83    1.37
2.667    1.34 | 8.750    2.78 |14.833    3.52 | 20.92    1.37
2.750    1.34 | 8.833    3.06 |14.917    3.52 | 21.00    1.37
2.833    1.36 | 8.917    3.06 |15.000    3.52 | 21.08    1.36
2.917    1.36 | 9.000    3.06 |15.083    3.34 | 21.17    1.36
3.000    1.36 | 9.083    3.32 |15.167    3.34 | 21.25    1.36
3.083    1.39 | 9.167    3.32 |15.250    3.34 | 21.33    1.34
3.167    1.39 | 9.250    3.32 |15.333    3.14 | 21.42    1.34
3.250    1.39 | 9.333    3.46 |15.417    3.14 | 21.50    1.34
3.333    1.42 | 9.417    3.46 |15.500    3.14 | 21.58    1.33
3.417    1.42 | 9.500    3.46 |15.583    2.96 | 21.67    1.33
3.500    1.42 | 9.583    3.46 |15.667    2.96 | 21.75    1.33
3.583    1.45 | 9.667    3.46 |15.750    2.96 | 21.83    1.32
3.667    1.45 | 9.750    3.46 |15.833    2.76 | 21.92    1.32
3.750    1.45 | 9.833    3.68 |15.917    2.76 | 22.00    1.32
3.833    1.47 | 9.917    3.68 |16.000    2.76 | 22.08    1.30
3.917    1.47 |10.000    3.68 |16.083    2.58 | 22.17    1.30
4.000    1.47 |10.083    4.10 |16.167    2.58 | 22.25    1.30
4.083    1.50 |10.167    4.10 |16.250    2.58 | 22.33    1.29
4.167    1.50 |10.250    4.10 |16.333    2.45 | 22.42    1.29
4.250    1.50 |10.333    4.66 |16.417    2.45 | 22.50    1.29
4.333    1.54 |10.417    4.66 |16.500    2.45 | 22.58    1.28
4.417    1.54 |10.500    4.66 |16.583    2.38 | 22.67    1.28
4.500    1.54 |10.583    5.28 |16.667    2.38 | 22.75    1.28
4.583    1.59 |10.667    5.28 |16.750    2.38 | 22.83    1.26
4.667    1.59 |10.750    5.28 |16.833    2.31 | 22.92    1.26
4.750    1.59 |10.833    6.18 |16.917    2.31 | 23.00    1.26
4.833    1.65 |10.917    6.18 |17.000    2.31 | 23.08    1.25
4.917    1.65 |11.000    6.18 |17.083    2.25 | 23.17    1.25
5.000    1.65 |11.083    7.21 |17.167    2.25 | 23.25    1.25
5.083    1.70 |11.167    7.21 |17.250    2.25 | 23.33    1.24
5.167    1.70 |11.250    7.21 |17.333    2.18 | 23.42    1.24
5.250    1.70 |11.333    9.12 |17.417    2.18 | 23.50    1.24
5.333    1.76 |11.417    9.12 |17.500    2.18 | 23.58    1.22
5.417    1.76 |11.500    9.12 |17.583    2.11 | 23.67    1.22
5.500    1.76 |11.583   11.61 |17.667    2.11 | 23.75    1.22
5.583    1.81 |11.667   11.61 |17.750    2.11 | 23.83    1.21
5.667    1.81 |11.750   11.61 |17.833    2.04 | 23.92    1.21
5.750    1.81 |11.833   47.33 |17.917    2.04 | 24.00    1.21
5.833    1.86 |11.917   47.34 |18.000    2.04 | 24.08    1.19
5.917    1.86 |12.000   47.34 |18.083    1.98 | 24.17    1.19
6.000    1.86 |12.083  116.82 |18.167    1.98 | 24.25    1.19
6.083    1.92 |12.167  116.82 |18.250    1.98 |

     Unit Hyd Qpeak  (cms)=   2.467

     PEAK FLOW       (cms)=   2.628 (i)
     TIME TO PEAK    (hrs)=  14.667
     RUNOFF VOLUME    (mm)=  42.435
     TOTAL RAINFALL   (mm)= 108.000
     RUNOFF COEFFICIENT   =   0.393

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0034)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0010):   145.33   2.628    14.67    42.44
     + ID2= 2 (  0033):  1010.32  13.043    17.83    31.08
       ================================================
       ID = 3 (  0034):  1155.65  14.486    17.75    32.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| SHIFT HYD(  0040)|
| IN= 2---> OUT= 1 |
| SHIFT=232.1 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0034): 1155.65    14.49     17.75     32.51
    SHIFT ID= 1 (  0040): 1155.65    14.49     21.58     32.51

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0009)|   Area    (ha)= 249.68   Curve Number   (CN)= 58.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.41

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    0.00 | 6.167    1.92 |12.250  116.82 | 18.33    1.91
0.167    0.00 | 6.250    1.92 |12.333   18.52 | 18.42    1.91
0.250    0.00 | 6.333    1.97 |12.417   18.51 | 18.50    1.91
0.333    1.10 | 6.417    1.97 |12.500   18.51 | 18.58    1.84
0.417    1.10 | 6.500    1.97 |12.583   12.60 | 18.67    1.84
0.500    1.10 | 6.583    2.02 |12.667   12.60 | 18.75    1.84
0.583    1.12 | 6.667    2.02 |12.750   12.60 | 18.83    1.77
0.667    1.12 | 6.750    2.02 |12.833    8.67 | 18.92    1.77
0.750    1.12 | 6.833    2.08 |12.917    8.67 | 19.00    1.77
0.833    1.15 | 6.917    2.08 |13.000    8.67 | 19.08    1.71
0.917    1.15 | 7.000    2.08 |13.083    7.32 | 19.17    1.71
1.000    1.15 | 7.083    2.13 |13.167    7.32 | 19.25    1.71
1.083    1.17 | 7.167    2.13 |13.250    7.32 | 19.33    1.64
1.167    1.17 | 7.250    2.13 |13.333    6.20 | 19.42    1.64
1.250    1.17 | 7.333    2.19 |13.417    6.19 | 19.50    1.64
1.333    1.20 | 7.417    2.19 |13.500    6.19 | 19.58    1.57
1.417    1.20 | 7.500    2.19 |13.583    5.47 | 19.67    1.57
1.500    1.20 | 7.583    2.24 |13.667    5.47 | 19.75    1.57
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1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 3.957

PEAK FLOW (cms)= 3.482 (i)
TIME TO PEAK (hrs)= 14.917
RUNOFF VOLUME (mm)= 34.988
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.324

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0039)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT=208.2 min	ID= 2 (0009):	249.68	3.48	14.92	34.99
	SHIFT ID= 1 (0039):	249.68	3.48	18.33	34.99

CALIB					
NASHYD (0008)	Area (ha)= 338.84	Curve Number (CN)= 51.0			
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 2.34				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 5.531

PEAK FLOW (cms)= 3.957 (i)
TIME TO PEAK (hrs)= 14.833
RUNOFF VOLUME (mm)= 28.967
TOTAL RAINFALL (mm)= 108.000

RUNOFF COEFFICIENT = 0.268

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0035)
IN= 2---> OUT= 1
SHIFT= 63.2 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0008):	338.84	3.96	14.83	28.97
SHIFT ID= 1 (0035):	338.84	3.96	15.83	28.97

CALIB NASHYD (0014) ID= 1 DT= 5.0 min	Area (ha)= 99.92	Curve Number (CN)= 63.0
	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.66	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 2.299

PEAK FLOW (cms)= 2.138 (i)
TIME TO PEAK (hrs)= 14.000
RUNOFF VOLUME (mm)= 39.876
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.369

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0036) 1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0014):	99.92	2.138	14.00	39.88
	+ ID2= 2 (0035):	338.84	3.957	15.83	28.97
	ID = 3 (0036):	438.76	5.446	15.33	31.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0037)
IN= 2---> OUT= 1
SHIFT= 83.8 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0036):	438.76	5.45	15.33	31.45
SHIFT ID= 1 (0037):	438.76	5.45	16.67	31.45

CALIB NASHYD (0013) ID= 1 DT= 5.0 min	Area (ha)= 73.84	Curve Number (CN)= 66.0
	Ia (mm)= 8.80	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.73	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44

2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 1.630

PEAK FLOW (cms)= 1.653 (i)
TIME TO PEAK (hrs)= 14.083
RUNOFF VOLUME (mm)= 42.776
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.396

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0038)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0013):		73.84	1.653	14.08	42.78
+ ID2= 2 (0037):		438.76	5.446	16.67	31.45
ID = 3 (0038):		512.60	6.303	16.42	33.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0015)				
ID= 1 DT= 5.0 min	Area (ha)= 159.16	Curve Number (CN)= 63.0		
	Ia (mm)= 7.10	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.50			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 4.053

PEAK FLOW (cms)= 3.760 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 40.711
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.377

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| SHIFT HYD(  0042)|
| IN= 2---> OUT= 1 |
| SHIFT= 55.3 min  |      AREA     QPEAK     TPEAK      R.V.
-------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0015):  159.16      3.76     13.83     40.71
    SHIFT ID= 1 (  0042):  159.16      3.76     14.75     40.71
```

```
| ADD HYD  (  0043)|
|   1 +  2 =  3    |         AREA     QPEAK     TPEAK      R.V.
-------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 1 (  0012):   383.04    3.968     15.92     32.32
     + ID2= 2 (  0038):   512.60    6.303     16.42     33.08
       ================================================
       ID = 3 (  0043):   895.64   10.222     16.33     32.76

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
| ADD HYD  (  0043)|
|   3 +  2 =  1    |         AREA     QPEAK     TPEAK      R.V.
-------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 3 (  0043):   895.64   10.222     16.33     32.76
     + ID2= 2 (  0039):   249.68    3.482     18.33     34.99
       ================================================
       ID = 1 (  0043):  1145.32   12.514     17.25     33.24

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
| ADD HYD  (  0043)|
|   1 +  2 =  3    |         AREA     QPEAK     TPEAK      R.V.
-------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 1 (  0043):  1145.32   12.514     17.25     33.24
     + ID2= 2 (  0040):  1155.65   14.486     21.58     32.51
       ================================================
       ID = 3 (  0043):  2300.97   20.737     21.25     32.88

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
| ADD HYD  (  0043)|
|   3 +  2 =  1    |         AREA     QPEAK     TPEAK      R.V.
-------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 3 (  0043):  2300.97   20.737     21.25     32.88
     + ID2= 2 (  0041):  1009.48   11.902     20.25     34.09
       ================================================
       ID = 1 (  0043):  3310.45   31.979     21.00     33.25

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
| ADD HYD  (  0043)|
|   1 +  2 =  3    |         AREA     QPEAK     TPEAK      R.V.
-------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 1 (  0043):  3310.45   31.979     21.00     33.25
     + ID2= 2 (  0042):   159.16    3.760     14.75     40.71
       ================================================
       ID = 3 (  0043):  3469.61   32.572     20.92     33.59

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
| ADD HYD  (  0045)|
|   1 +  2 =  3    |         AREA     QPEAK     TPEAK      R.V.
-------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 1 (  0017):   147.40    1.998     13.75     23.38
     + ID2= 2 (  0043):  3469.61   32.572     20.92     33.59
       ================================================
       ID = 3 (  0045):  3617.01   32.865     20.92     33.17

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
| ADD HYD  (  0045)|
|   3 +  2 =  1    |         AREA     QPEAK     TPEAK      R.V.
-------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 3 (  0045):  3617.01   32.865     20.92     33.17
     + ID2= 2 (  0044):   147.08    3.605     14.08     40.52
       ================================================
       ID = 1 (  0045):  3764.09   33.350     20.92     33.46

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
| SHIFT HYD(  0047)|
| IN= 2---> OUT= 1 |
| SHIFT=107.5 min  |      AREA     QPEAK     TPEAK      R.V.
-------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0045): 3764.09    33.35     20.92     33.46
    SHIFT ID= 1 (  0047): 3764.09    33.35     22.67     33.46
```

```
| CALIB            |
| NASHYD   (  0019)|   Area    (ha)= 198.16   Curve Number   (CN)= 54.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.60   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.67

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28

4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 4.532

PEAK FLOW (cms)= 3.251 (i)
TIME TO PEAK (hrs)= 14.000
RUNOFF VOLUME (mm)= 31.290
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.290

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0048)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0019):	198.16	3.251	14.00	31.29
+ ID2= 2 (0046):	126.36	1.759	15.50	31.40
ID = 3 (0048):	324.52	4.547	14.67	31.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0048)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0048):	324.52	4.547	14.67	31.33
+ ID2= 2 (0047):	3764.09	33.350	22.67	33.46
ID = 1 (0048):	4088.61	34.147	22.67	33.29

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0049)
IN= 2---> OUT= 1
SHIFT= 81.0 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0048):	4088.61	34.15	22.67	33.29
SHIFT ID= 1 (0049):	4088.61	34.15	24.00	33.29

CALIB
NASHYD (0022) | ID= 1 DT= 5.0 min

Area (ha)= 119.48 Curve Number (CN)= 55.0
Ia (mm)= 8.10 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.78

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 2.564

PEAK FLOW (cms)= 1.941 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 32.432
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.300

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

ID1= 1 (0022):	119.48	1.941	14.17	32.43
+ ID2= 2 (0049):	4088.61	34.147	24.00	33.29
ID = 3 (0050):	4208.09	34.395	24.00	33.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0054)
IN= 2---> OUT= 1
SHIFT= 52.5 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0050):	4208.09	34.40	24.00	33.27
SHIFT ID= 1 (0054):	4208.09	34.40	24.83	33.27

CALIB NASHYD (0023)	Area (ha)= 111.92	Curve Number (CN)= 64.0
ID= 1 DT= 5.0 min	Ia (mm)= 8.70	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.81	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 2.362

PEAK FLOW (cms)= 2.292 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 40.716
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.377

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0020)	Area (ha)= 126.24	Curve Number (CN)= 61.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.86	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32

3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 2.592

PEAK FLOW (cms)= 2.360 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 38.172
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.353

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0051) / IN= 2---> OUT= 1 / SHIFT= 26.3 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0020):	126.24	2.36	14.25	38.17
SHIFT ID= 1 (0051):	126.24	2.36	14.67	38.17

CALIB / NASHYD (0021) / ID= 1 DT= 5.0 min			
Area	(ha)= 133.24	Curve Number	(CN)= 61.0
Ia	(mm)= 8.10	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	1.31		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 3.885

PEAK FLOW (cms)= 3.247 (i)
TIME TO PEAK (hrs)= 13.583
RUNOFF VOLUME (mm)= 38.049
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.352

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0052) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0021):	133.24	3.247	13.58	38.05
+ ID2= 2 (0051):	126.24	2.360	14.67	38.17
ID = 3 (0052):	259.48	5.209	14.00	38.11

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0053) / IN= 2---> OUT= 1 / SHIFT=106.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0052):	259.48	5.21	14.00	38.11
SHIFT ID= 1 (0053):	259.48	5.21	15.75	38.11

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| ADD HYD  (  0055)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0023):   111.92   2.292    14.17    40.72
     + ID2= 2 (  0053):   259.48   5.209    15.75    38.11
       ================================================
       ID = 3 (  0055):   371.40   6.947    15.58    38.89

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0055)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0055):   371.40   6.947    15.58    38.89
     + ID2= 2 (  0054):  4208.09  34.395    24.83    33.27
       ================================================
       ID = 1 (  0055):  4579.49  35.308    24.83    33.72

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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================================================================================================================

      V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\3643bb10-1b93
  Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\3643bb10-1b93


DATE: 09/26/2024                          TIME: 11:20:07

USER:


COMMENTS: _____________________________________________________


--------------------------------------------------------------------------------------------------------------------
  ***********************************************
  ** SIMULATION : 2yr 24hr 15min SCS Type II    **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jkoen\AppD
|                  |              ata\Local\Temp\
|                  |              20e2ad8c-fe14-43c9-b359-409ce5c63256\c1cef1c6
| Ptotal= 60.00 mm |    Comments: 2yr 24hr 15min SCS Type II
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.00    0.00 |  6.25    1.10 | 12.50    7.00 | 18.75    0.99
               0.25    0.61 |  6.50    1.12 | 12.75    4.81 | 19.00    0.95
               0.50    0.62 |  6.75    1.16 | 13.00    4.07 | 19.25    0.91
               0.75    0.64 |  7.00    1.18 | 13.25    3.44 | 19.50    0.87
               1.00    0.65 |  7.25    1.22 | 13.50    3.04 | 19.75    0.84
               1.25    0.67 |  7.50    1.24 | 13.75    2.66 | 20.00    0.80
               1.50    0.68 |  7.75    1.28 | 14.00    2.38 | 20.25    0.78
               1.75    0.70 |  8.00    1.30 | 14.25    2.17 | 20.50    0.77
               2.00    0.71 |  8.25    1.40 | 14.50    2.07 | 20.75    0.76
               2.25    0.73 |  8.50    1.54 | 14.75    1.95 | 21.00    0.75
               2.50    0.74 |  8.75    1.70 | 15.00    1.85 | 21.25    0.75
               2.75    0.76 |  9.00    1.84 | 15.25    1.75 | 21.50    0.74
               3.00    0.77 |  9.25    1.92 | 15.50    1.65 | 21.75    0.73
               3.25    0.79 |  9.50    1.92 | 15.75    1.53 | 22.00    0.72
               3.50    0.80 |  9.75    2.04 | 16.00    1.43 | 22.25    0.72
               3.75    0.82 | 10.00    2.28 | 16.25    1.36 | 22.50    0.71
               4.00    0.83 | 10.25    2.59 | 16.50    1.32 | 22.75    0.70
               4.25    0.86 | 10.50    2.93 | 16.75    1.29 | 23.00    0.69
               4.50    0.88 | 10.75    3.43 | 17.00    1.25 | 23.25    0.69
               4.75    0.92 | 11.00    4.01 | 17.25    1.21 | 23.50    0.68
               5.00    0.94 | 11.25    5.07 | 17.50    1.17 | 23.75    0.67
               5.25    0.98 | 11.50    6.45 | 17.75    1.14 | 24.00    0.66
               5.50    1.00 | 11.75   26.30 | 18.00    1.10 |
               5.75    1.04 | 12.00   64.90 | 18.25    1.06 |
               6.00    1.06 | 12.25   10.28 | 18.50    1.02 |

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| CALIB            |
| NASHYD   (  0018)|   Area    (ha)= 126.36   Curve Number    (CN)= 54.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.08

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                                  ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    0.00 | 6.167    1.06 |12.250   64.90 | 18.33    1.06
               0.167    0.00 | 6.250    1.06 |12.333   10.29 | 18.42    1.06
               0.250    0.00 | 6.333    1.10 |12.417   10.28 | 18.50    1.06
               0.333    0.61 | 6.417    1.10 |12.500   10.28 | 18.58    1.02
               0.417    0.61 | 6.500    1.10 |12.583    7.00 | 18.67    1.02
               0.500    0.61 | 6.583    1.12 |12.667    7.00 | 18.75    1.02
               0.583    0.62 | 6.667    1.12 |12.750    7.00 | 18.83    0.99
               0.667    0.62 | 6.750    1.12 |12.833    4.81 | 18.92    0.99
               0.750    0.62 | 6.833    1.16 |12.917    4.81 | 19.00    0.99
               0.833    0.64 | 6.917    1.16 |13.000    4.81 | 19.08    0.95
               0.917    0.64 | 7.000    1.16 |13.083    4.07 | 19.17    0.95
               1.000    0.64 | 7.083    1.18 |13.167    4.07 | 19.25    0.95
               1.083    0.65 | 7.167    1.18 |13.250    4.07 | 19.33    0.91
               1.167    0.65 | 7.250    1.18 |13.333    3.44 | 19.42    0.91
               1.250    0.65 | 7.333    1.22 |13.417    3.44 | 19.50    0.91
               1.333    0.67 | 7.417    1.22 |13.500    3.44 | 19.58    0.87
               1.417    0.67 | 7.500    1.22 |13.583    3.04 | 19.67    0.87
               1.500    0.67 | 7.583    1.24 |13.667    3.04 | 19.75    0.87
               1.583    0.68 | 7.667    1.24 |13.750    3.04 | 19.83    0.84
               1.667    0.68 | 7.750    1.24 |13.833    2.66 | 19.92    0.84
               1.750    0.68 | 7.833    1.28 |13.917    2.66 | 20.00    0.84
               1.833    0.70 | 7.917    1.28 |14.000    2.66 | 20.08    0.80
               1.917    0.70 | 8.000    1.28 |14.083    2.38 | 20.17    0.80
               2.000    0.70 | 8.083    1.30 |14.167    2.38 | 20.25    0.80
               2.083    0.71 | 8.167    1.30 |14.250    2.38 | 20.33    0.78
               2.167    0.71 | 8.250    1.30 |14.333    2.17 | 20.42    0.78
               2.250    0.71 | 8.333    1.40 |14.417    2.17 | 20.50    0.78
               2.333    0.73 | 8.417    1.40 |14.500    2.17 | 20.58    0.77
               2.417    0.73 | 8.500    1.40 |14.583    2.07 | 20.67    0.77
               2.500    0.73 | 8.583    1.54 |14.667    2.07 | 20.75    0.77
               2.583    0.74 | 8.667    1.54 |14.750    2.07 | 20.83    0.76
               2.667    0.74 | 8.750    1.54 |14.833    1.95 | 20.92    0.76
               2.750    0.74 | 8.833    1.70 |14.917    1.95 | 21.00    0.76
               2.833    0.76 | 8.917    1.70 |15.000    1.95 | 21.08    0.75
               2.917    0.76 | 9.000    1.70 |15.083    1.85 | 21.17    0.75
               3.000    0.76 | 9.083    1.84 |15.167    1.85 | 21.25    0.75
               3.083    0.77 | 9.167    1.84 |15.250    1.85 | 21.33    0.75
               3.167    0.77 | 9.250    1.84 |15.333    1.75 | 21.42    0.75
               3.250    0.77 | 9.333    1.92 |15.417    1.75 | 21.50    0.75
               3.333    0.79 | 9.417    1.92 |15.500    1.75 | 21.58    0.74
               3.417    0.79 | 9.500    1.92 |15.583    1.65 | 21.67    0.74
               3.500    0.79 | 9.583    1.92 |15.667    1.65 | 21.75    0.74
               3.583    0.80 | 9.667    1.92 |15.750    1.65 | 21.83    0.73
               3.667    0.80 | 9.750    1.92 |15.833    1.53 | 21.92    0.73
               3.750    0.80 | 9.833    2.04 |15.917    1.53 | 22.00    0.73
               3.833    0.82 | 9.917    2.04 |16.000    1.53 | 22.08    0.72
               3.917    0.82 |10.000    2.04 |16.083    1.43 | 22.17    0.72
               4.000    0.82 |10.083    2.28 |16.167    1.43 | 22.25    0.72
               4.083    0.83 |10.167    2.28 |16.250    1.43 | 22.33    0.72
               4.167    0.83 |10.250    2.28 |16.333    1.36 | 22.42    0.72
               4.250    0.83 |10.333    2.59 |16.417    1.36 | 22.50    0.72
               4.333    0.86 |10.417    2.59 |16.500    1.36 | 22.58    0.71
               4.417    0.86 |10.500    2.59 |16.583    1.32 | 22.67    0.71
               4.500    0.86 |10.583    2.93 |16.667    1.32 | 22.75    0.71
               4.583    0.88 |10.667    2.93 |16.750    1.32 | 22.83    0.70
```

4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.320

PEAK FLOW (cms)= 0.535 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 9.936
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.166

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0046)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0018):	126.36	0.53	14.67	9.94
SHIFT= 63.7 min	SHIFT ID= 1 (0046):	126.36	0.53	15.67	9.94

CALIB					
NASHYD (0016)	Area	(ha)= 147.08	Curve Number	(CN)= 63.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.42				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 3.956

PEAK FLOW (cms)= 1.172 (i)
TIME TO PEAK (hrs)= 13.750
RUNOFF VOLUME (mm)= 13.712
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.229

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0044)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0016):	147.08	1.17	13.75	13.71
SHIFT= 20.5 min	SHIFT ID= 1 (0044):	147.08	1.17	14.08	13.71

CALIB					
NASHYD (0017)	Area	(ha)= 147.40	Curve Number	(CN)= 44.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.60	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.43				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95

1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 3.937

PEAK FLOW (cms)= 0.579 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 7.051
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.118

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB		
NASHYD (0001)	Area (ha)= 351.84	Curve Number (CN)= 59.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.60	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 2.25	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 5.973

PEAK FLOW (cms)= 1.714 (i)
TIME TO PEAK (hrs)= 14.833
RUNOFF VOLUME (mm)= 11.995
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.200

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0024) / IN= 2---> OUT= 1 / SHIFT= 80.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0001):	351.84	1.71	14.83	12.00
SHIFT ID= 1 (0024):	351.84	1.71	16.17	12.00

CALIB NASHYD (0002) / ID= 1 DT= 5.0 min				
	Area	(ha)= 415.84	Curve Number	(CN)= 57.0
	Ia	(mm)= 8.20	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	2.65		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 5.994

PEAK FLOW (cms)= 1.634 (i)
TIME TO PEAK (hrs)= 15.417
RUNOFF VOLUME (mm)= 11.023
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.184

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0025) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	415.84	1.634	15.42	11.02
+ ID2= 2 (0024):	351.84	1.714	16.17	12.00
ID = 3 (0025):	767.68	3.301	15.92	11.47

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0031) / IN= 2---> OUT= 1 / SHIFT=129.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0025):	767.68	3.30	15.92	11.47
SHIFT ID= 1 (0031):	767.68	3.30	18.00	11.47

CALIB NASHYD (0011) / ID= 1 DT= 5.0 min				
	Area	(ha)= 241.80	Curve Number	(CN)= 53.0
	Ia	(mm)= 8.30	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.81		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78

2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 5.103

PEAK FLOW (cms)= 1.103 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 9.651
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.161

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0032)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0011):	241.80	1.103	14.33	9.65
+	ID2= 2 (0031):	767.68	3.301	18.00	11.47
	ID = 3 (0032):	1009.48	3.758	17.83	11.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0041)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=155.8 min	ID= 2 (0032):	1009.48	3.76	17.83	11.03
	SHIFT ID= 1 (0041):	1009.48	3.76	20.42	11.03

CALIB					
NASHYD (0012)	Area	(ha)= 383.04	Curve Number	(CN)= 55.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.30	# of Linear Res.(N)= 3.00		

U.H. Tp(hrs)= 3.18

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 4.601

PEAK FLOW (cms)= 1.222 (i)
TIME TO PEAK (hrs)= 16.083
RUNOFF VOLUME (mm)= 10.299
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.172

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0003) ID= 1 DT= 5.0 min	Area (ha)= 161.56 Curve Number (CN)= 51.0 Ia (mm)= 8.10 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 1.77

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 3.486

PEAK FLOW (cms)= 0.706 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 9.102
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.152

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026) IN= 2---> OUT= 1 SHIFT=115.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0003):	161.56	0.71	14.25	9.10
SHIFT ID= 1 (0026):	161.56	0.71	16.17	9.10

CALIB NASHYD (0004) ID= 1 DT= 5.0 min	Area (ha)= 84.72 Curve Number (CN)= 55.0 Ia (mm)= 8.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 1.50

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74

3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.157

PEAK FLOW (cms)= 0.483 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 10.407
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.173

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0004):	84.72	0.48	13.92	10.41
SHIFT ID= 1 (0027):	84.72	0.48	15.58	10.41

SHIFT HYD(0027)
IN= 2---> OUT= 1
SHIFT=101.8 min

CALIB
NASHYD (0006)
ID= 1 DT= 5.0 min

Area (ha)= 391.92 Curve Number (CN)= 57.0
Ia (mm)= 8.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.20

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 6.804

PEAK FLOW (cms)= 1.759 (i)
TIME TO PEAK (hrs)= 14.833
RUNOFF VOLUME (mm)= 10.947
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.182

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0005)
ID= 1 DT= 5.0 min

Area (ha)= 290.88 Curve Number (CN)= 51.0
Ia (mm)= 8.30 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.09

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02

0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 5.316

PEAK FLOW (cms)= 1.112 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 9.038
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.151

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT=144.1 min				
ID= 2 (0005):	290.88	1.11	14.67	9.04
SHIFT ID= 1 (0029):	290.88	1.11	17.00	9.04

CALIB			
NASHYD (0007)	Area (ha)= 81.24	Curve Number (CN)= 49.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.70	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.53		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67

5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.028

PEAK FLOW (cms)= 0.360 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 8.337
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.139

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0030)
IN= 2---> OUT= 1
SHIFT=147.5 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0007):	81.24	0.36	13.92	8.34
SHIFT ID= 1 (0030):	81.24	0.36	16.33	8.34

ADD HYD (0028)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0026):	161.56	0.706	16.17	9.10
+ ID2= 2 (0027):	84.72	0.483	15.58	10.41
ID = 3 (0028):	246.28	1.167	15.92	9.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	246.28	1.167	15.92	9.55
+ ID2= 2 (0029):	290.88	1.112	17.00	9.04
ID = 1 (0028):	537.16	2.172	16.50	9.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0028):	537.16	2.172	16.50	9.27
+ ID2= 2 (0030):	81.24	0.360	16.33	8.34
ID = 3 (0028):	618.40	2.531	16.42	9.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	618.40	2.531	16.42	9.15
+ ID2= 2 (0006):	391.92	1.759	14.83	10.95
ID = 1 (0028):	1010.32	3.993	16.17	9.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0033)
IN= 2---> OUT= 1
SHIFT=106.7 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0028):	1010.32	3.99	16.17	9.85
SHIFT ID= 1 (0033):	1010.32	3.99	17.92	9.85

CALIB
NASHYD (0010)
ID= 1 DT= 5.0 min

Area (ha)= 145.33 Curve Number (CN)= 65.0
Ia (mm)= 7.70 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.25

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.467

PEAK FLOW (cms)= 0.862 (i)
TIME TO PEAK (hrs)= 14.833
RUNOFF VOLUME (mm)= 14.467
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.241

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0034)|	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0010):		145.33	0.862	14.83	14.47
+ ID2= 2 (0033):		1010.32	3.993	17.92	9.85
ID = 3 (0034):		1155.65	4.492	17.75	10.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0040)|	AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=232.1 min	ID= 2 (0034):	1155.65	4.49	17.75	10.43
	SHIFT ID= 1 (0040):	1155.65	4.49	21.58	10.43

CALIB				
NASHYD (0009)	Area (ha)= 249.68	Curve Number (CN)= 58.0		
ID= 1 DT= 5.0 min	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.41			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 3.957

PEAK FLOW (cms)= 1.081 (i)
TIME TO PEAK (hrs)= 15.083
RUNOFF VOLUME (mm)= 11.304
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.188

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0039)|	AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=208.2 min	ID= 2 (0009):	249.68	1.08	15.08	11.30
	SHIFT ID= 1 (0039):	249.68	1.08	18.50	11.30

CALIB				
NASHYD (0008)	Area (ha)= 338.84	Curve Number (CN)= 51.0		
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.34			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87

1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 5.531

PEAK FLOW (cms)= 1.194 (i)
TIME TO PEAK (hrs)= 15.000
RUNOFF VOLUME (mm)= 9.070
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.151

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0035)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT= 63.2 min	ID= 2 (0008):	338.84	1.19	15.00	9.07
	SHIFT ID= 1 (0035):	338.84	1.19	16.00	9.07

CALIB NASHYD (0014) ID= 1 DT= 5.0 min				
	Area (ha)= 99.92	Curve Number (CN)= 63.0		
	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.66			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.299

PEAK FLOW (cms)= 0.680 (i)
TIME TO PEAK (hrs)= 14.083
RUNOFF VOLUME (mm)= 13.261

TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.221

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0036)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0014):	99.92	0.680	14.08	13.26
	+ ID2= 2 (0035):	338.84	1.194	16.00	9.07
	ID = 3 (0036):	438.76	1.677	15.50	10.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0037)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT= 83.8 min	ID= 2 (0036):	438.76	1.68	15.50	10.02
	SHIFT ID= 1 (0037):	438.76	1.68	16.83	10.02

CALIB					
NASHYD (0013)	Area (ha)= 73.84	Curve Number (CN)= 66.0			
ID= 1 DT= 5.0 min	Ia (mm)= 8.80	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 1.73				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 1.630

PEAK FLOW (cms)= 0.531 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 14.400
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.240

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0038)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0013):	73.84	0.531	14.17	14.40
	+ ID2= 2 (0037):	438.76	1.677	16.83	10.02
	ID = 3 (0038):	512.60	1.968	16.50	10.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0015)	Area (ha)= 159.16	Curve Number (CN)= 63.0			
ID= 1 DT= 5.0 min	Ia (mm)= 7.10	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 1.50				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84

1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 4.053

PEAK FLOW (cms)= 1.231 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 13.848
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.231

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0042)				
IN= 2---> OUT= 1				
SHIFT= 55.3 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0015):	159.16	1.23	13.83	13.85
SHIFT ID= 1 (0042):	159.16	1.23	14.75	13.85

ADD HYD (0043)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	383.04	1.222	16.08	10.30
+ ID2= 2 (0038):	512.60	1.968	16.50	10.65
ID = 3 (0043):	895.64	3.180	16.42	10.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)				
1 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	895.64	3.180	16.42	10.50
+ ID2= 2 (0039):	249.68	1.081	18.50	11.30
ID = 1 (0043):	1145.32	3.903	17.33	10.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0043):	1145.32	3.903	17.33	10.68
+ ID2= 2 (0040):	1155.65	4.492	21.58	10.43
ID = 3 (0043):	2300.97	6.576	21.33	10.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	2300.97	6.576	21.33	10.55
+ ID2= 2 (0041):	1009.48	3.758	20.42	11.03
ID = 1 (0043):	3310.45	10.162	21.00	10.70

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0043):	3310.45	10.162	21.00	10.70
+ ID2= 2 (0042):	159.16	1.231	14.75	13.85
ID = 3 (0043):	3469.61	10.385	21.00	10.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0017):	147.40	0.579	13.83	7.05
+ ID2= 2 (0043):	3469.61	10.385	21.00	10.84
ID = 3 (0045):	3617.01	10.483	21.00	10.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0045):	3617.01	10.483	21.00	10.69
+ ID2= 2 (0044):	147.08	1.172	14.08	13.71
ID = 1 (0045):	3764.09	10.666	21.00	10.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0047)				
IN= 2---> OUT= 1				
SHIFT=107.5 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0045):	3764.09	10.67	21.00	10.81
SHIFT ID= 1 (0047):	3764.09	10.67	22.75	10.81

CALIB					
NASHYD (0019)	Area (ha)= 198.16	Curve Number (CN)= 54.0			
ID= 1 DT= 5.0 min	Ia (mm)= 8.60	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 1.67				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 4.532

PEAK FLOW (cms)= 0.982 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 9.867
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.164

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0048)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0019):	198.16	0.982	14.17	9.87
+ ID2= 2 (0046):	126.36	0.535	15.67	9.94
ID = 3 (0048):	324.52	1.380	14.75	9.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0048)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0048):	324.52	1.380	14.75	9.89
+ ID2= 2 (0047):	3764.09	10.666	22.75	10.81
ID = 1 (0048):	4088.61	10.947	22.75	10.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0049)				
IN= 2---> OUT= 1				
SHIFT= 81.0 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0048):	4088.61	10.95	22.75	10.73
SHIFT ID= 1 (0049):	4088.61	10.95	24.08	10.73

CALIB					
NASHYD (0022)	Area (ha)= 119.48	Curve Number (CN)= 55.0			
ID= 1 DT= 5.0 min	Ia (mm)= 8.10	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 1.78				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78

2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.564

PEAK FLOW (cms)= 0.596 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 10.371
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.173

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0022):	119.48	0.596	14.25	10.37
+ ID2= 2 (0049):	4088.61	10.947	24.08	10.73
ID = 3 (0050):	4208.09	11.037	24.08	10.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0054)
IN= 2---> OUT= 1
SHIFT= 52.5 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0050):	4208.09	11.04	24.08	10.72
SHIFT ID= 1 (0054):	4208.09	11.04	24.92	10.72

CALIB
NASHYD (0023)
ID= 1 DT= 5.0 min

Area (ha)= 111.92 Curve Number (CN)= 64.0
Ia (mm)= 8.70 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.81

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.362

PEAK FLOW (cms)= 0.728 (i)

TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 13.553
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.226

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0020)	Area (ha)= 126.24	Curve Number (CN)= 61.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.86		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.592

PEAK FLOW (cms)= 0.751 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 12.655
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.211

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0051)				
IN= 2---> OUT= 1		AREA	QPEAK	TPEAK	R.V.
SHIFT= 26.3 min		(ha)	(cms)	(hrs)	(mm)
	ID= 2 (0020):	126.24	0.75	14.33	12.65
	SHIFT ID= 1 (0051):	126.24	0.75	14.75	12.65

CALIB			
NASHYD (0021)	Area (ha)= 133.24	Curve Number (CN)= 61.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.31		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74

3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 3.885

PEAK FLOW (cms)= 1.026 (i)
TIME TO PEAK (hrs)= 13.667
RUNOFF VOLUME (mm)= 12.570
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.209

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0052)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0021):		133.24	1.026	13.67	12.57
+ ID2= 2 (0051):		126.24	0.751	14.75	12.65
ID = 3 (0052):		259.48	1.651	14.08	12.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0053)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT=106.6 min		(ha)	(cms)	(hrs)	(mm)
ID= 2 (0052):		259.48	1.65	14.08	12.61
SHIFT ID= 1 (0053):		259.48	1.65	15.83	12.61

ADD HYD (0055)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0023):		111.92	0.728	14.25	13.55
+ ID2= 2 (0053):		259.48	1.651	15.83	12.61
ID = 3 (0055):		371.40	2.218	15.67	12.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0055)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0055):		371.40	2.218	15.67	12.90
+ ID2= 2 (0054):		4208.09	11.037	24.92	10.72
ID = 1 (0055):		4579.49	11.382	24.83	10.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
      V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M M M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
```

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
Output filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\f0827a15-5fc3
Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\f0827a15-5fc3

DATE: 09/26/2024 TIME: 11:20:09

USER:

COMMENTS: _____

****
** SIMULATION : 50yr 24hr 15min SCS Type II **
****

READ STORM	Filename: C:\Users\jkoen\AppD
	ata\Local\Temp\
	20e2ad8c-fe14-43c9-b359-409ce5c63256\4672ed23
Ptotal=120.00 mm	Comments: 50yr 24hr 15min SCS Type II

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	2.19	12.50	14.00	18.75	1.97
0.25	1.22	6.50	2.25	12.75	9.63	19.00	1.90
0.50	1.25	6.75	2.31	13.00	8.13	19.25	1.82
0.75	1.27	7.00	2.37	13.25	6.88	19.50	1.75
1.00	1.30	7.25	2.43	13.50	6.08	19.75	1.67
1.25	1.34	7.50	2.49	13.75	5.33	20.00	1.60
1.50	1.37	7.75	2.55	14.00	4.75	20.25	1.55
1.75	1.39	8.00	2.61	14.25	4.33	20.50	1.54
2.00	1.42	8.25	2.80	14.50	4.13	20.75	1.52
2.25	1.46	8.50	3.08	14.75	3.91	21.00	1.51
2.50	1.49	8.75	3.40	15.00	3.71	21.25	1.49
2.75	1.51	9.00	3.68	15.25	3.49	21.50	1.48
3.00	1.54	9.25	3.84	15.50	3.29	21.75	1.46
3.25	1.58	9.50	3.84	15.75	3.07	22.00	1.45
3.50	1.61	9.75	4.09	16.00	2.87	22.25	1.43
3.75	1.63	10.00	4.55	16.25	2.72	22.50	1.42
4.00	1.66	10.25	5.17	16.50	2.65	22.75	1.40
4.25	1.71	10.50	5.87	16.75	2.57	23.00	1.39
4.50	1.77	10.75	6.86	17.00	2.50	23.25	1.37
4.75	1.83	11.00	8.02	17.25	2.42	23.50	1.36
5.00	1.89	11.25	10.14	17.50	2.35	23.75	1.34
5.25	1.95	11.50	12.90	17.75	2.27	24.00	1.33
5.50	2.01	11.75	52.60	18.00	2.20		
5.75	2.07	12.00	129.80	18.25	2.12		
6.00	2.13	12.25	20.56	18.50	2.05		

CALIB					
NASHYD (0018)	Area	(ha)= 126.36	Curve Number	(CN)= 54.0
ID= 1 DT= 5.0 min	Ia	(mm)= 8.40	# of Linear Res.(N)= 3.00

---------- U.H. Tp(hrs)= 2.08

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 2.320

PEAK FLOW (cms)= 2.139 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 37.975
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.316

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0046)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0018):	126.36	2.14	14.50	37.97
SHIFT= 63.7 min	SHIFT ID= 1 (0046):	126.36	2.14	15.50	37.97

CALIB NASHYD (0016)	Area (ha)= 147.08	Curve Number (CN)= 63.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.42	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42

4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 3.956

PEAK FLOW (cms)= 4.333 (i)
TIME TO PEAK (hrs)= 13.667
RUNOFF VOLUME (mm)= 48.434
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.404

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0044) / IN= 2---> OUT= 1 / SHIFT= 20.5 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0016):	147.08	4.33	13.67	48.43
SHIFT ID= 1 (0044):	147.08	4.33	14.00	48.43

CALIB / NASHYD (0017) / ID= 1 DT= 5.0 min | Area (ha)= 147.40 | Curve Number (CN)= 44.0 | Ia (mm)= 8.60 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.43

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 3.937

PEAK FLOW (cms)= 2.454 (i)
TIME TO PEAK (hrs)= 13.750
RUNOFF VOLUME (mm)= 28.550
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.238

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB / NASHYD (0001) / ID= 1 DT= 5.0 min | Area (ha)= 351.84 | Curve Number (CN)= 59.0 | Ia (mm)= 7.60 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 2.25

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67

1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 5.973

PEAK FLOW (cms)= 6.517 (i)
TIME TO PEAK (hrs)= 14.750
RUNOFF VOLUME (mm)= 43.729
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.364

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0024)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0001):	351.84	6.52	14.75	43.73
SHIFT= 80.8 min	SHIFT ID= 1 (0024):	351.84	6.52	16.08	43.73

CALIB NASHYD (0002)	Area (ha)= 415.84	Curve Number (CN)= 57.0
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 2.65	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 5.994

PEAK FLOW (cms)= 6.369 (i)
TIME TO PEAK (hrs)= 15.250
RUNOFF VOLUME (mm)= 41.195
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.343

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0025)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0002):		415.84	6.369	15.25	41.20
+ ID2= 2 (0024):		351.84	6.517	16.08	43.73
ID = 3 (0025):		767.68	12.670	15.75	42.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0031)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=129.8 min	ID= 2 (0025):	767.68	12.67	15.75	42.36
	SHIFT ID= 1 (0031):	767.68	12.67	17.83	42.36

CALIB					
NASHYD (0011)	Area	(ha)= 241.80	Curve Number	(CN)= 53.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.30	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.81				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 5.103

PEAK FLOW (cms)= 4.434 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 37.029
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.309

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0032)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0011):		241.80	4.434	14.17	37.03
+ ID2= 2 (0031):		767.68	12.670	17.83	42.36
ID = 3 (0032):		1009.48	14.386	17.67	41.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0041)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=155.8 min	ID= 2 (0032):	1009.48	14.39	17.67	41.08
	SHIFT ID= 1 (0041):	1009.48	14.39	20.25	41.08

CALIB					
NASHYD (0012)	Area	(ha)= 383.04	Curve Number	(CN)= 55.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.30	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 3.18				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82

1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 4.601

PEAK FLOW (cms)= 4.815 (i)
TIME TO PEAK (hrs)= 15.917
RUNOFF VOLUME (mm)= 39.049
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.325

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0003)	Area (ha)= 161.56	Curve Number (CN)= 51.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.77		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 3.486

PEAK FLOW (cms)= 2.854 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 35.179
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.293

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026) IN= 2---> OUT= 1 SHIFT=115.6 min		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID= 2 (0003):	161.56	2.85	14.17	35.18
	SHIFT ID= 1 (0026):	161.56	2.85	16.08	35.18

CALIB NASHYD (0004) ID= 1 DT= 5.0 min	Area (ha)= 84.72	Curve Number (CN)= 55.0
	Ia (mm)= 8.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.50	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 2.157

PEAK FLOW (cms)= 1.907 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 39.222
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.327

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027) IN= 2---> OUT= 1 SHIFT=101.8 min		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID= 2 (0004):	84.72	1.91	13.83	39.22
	SHIFT ID= 1 (0027):	84.72	1.91	15.50	39.22

CALIB NASHYD (0006) ID= 1 DT= 5.0 min	Area (ha)= 391.92	Curve Number (CN)= 57.0
	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 2.20	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48

3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 6.804

PEAK FLOW (cms)= 6.911 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 41.075
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.342

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0005)	Area	(ha)= 290.88	Curve Number	(CN)= 51.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.30	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.09				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 5.316

PEAK FLOW (cms)= 4.509 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 35.073
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.292

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029)				
IN= 2---> OUT= 1				
SHIFT=144.1 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0005):	290.88	4.51	14.58	35.07
SHIFT ID= 1 (0029):	290.88	4.51	16.92	35.07

CALIB					
NASHYD (0007)	Area	(ha)= 81.24	Curve Number	(CN)= 49.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.70	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.53				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05

0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 2.028

PEAK FLOW (cms)= 1.496 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 32.975
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.275

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0030)
IN= 2---> OUT= 1
SHIFT=147.5 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0007):	81.24	1.50	13.83	32.98
SHIFT ID= 1 (0030):	81.24	1.50	16.25	32.98

ADD HYD (0028)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0026):	161.56	2.854	16.08	35.18
+ ID2= 2 (0027):	84.72	1.907	15.50	39.22
ID = 3 (0028):	246.28	4.670	15.83	36.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	246.28	4.670	15.83	36.57
+ ID2= 2 (0029):	290.88	4.509	16.92	35.07
ID = 1 (0028):	537.16	8.747	16.33	35.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0028):	537.16	8.747	16.33	35.76
+ ID2= 2 (0030):	81.24	1.496	16.25	32.98
ID = 3 (0028):	618.40	10.243	16.33	35.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	618.40	10.243	16.33	35.39
+ ID2= 2 (0006):	391.92	6.911	14.67	41.08
ID = 1 (0028):	1010.32	15.848	16.08	37.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0033)
IN= 2---> OUT= 1
SHIFT=106.7 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0028):	1010.32	15.85	16.08	37.60
SHIFT ID= 1 (0033):	1010.32	15.85	17.83	37.60

CALIB
NASHYD (0010)
ID= 1 DT= 5.0 min

Area (ha)= 145.33 Curve Number (CN)= 65.0
Ia (mm)= 7.70 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.25

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90

0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 2.467

PEAK FLOW (cms)= 3.153 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 50.634
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.422

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0034)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0010):	145.33	3.153	14.67	50.63
+ ID2= 2 (0033):	1010.32	15.848	17.83	37.60
ID = 3 (0034):	1155.65	17.565	17.67	39.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0040)
IN= 2---> OUT= 1
SHIFT=232.1 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0034):	1155.65	17.56	17.67	39.24
SHIFT ID= 1 (0040):	1155.65	17.56	21.50	39.24

CALIB
NASHYD (0009)
ID= 1 DT= 5.0 min

Area (ha)= 249.68 Curve Number (CN)= 58.0
Ia (mm)= 8.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.41

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39

5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 3.957

PEAK FLOW (cms)= 4.217 (i)
TIME TO PEAK (hrs)= 14.917
RUNOFF VOLUME (mm)= 42.143
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.351

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0039)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=208.2 min	ID= 2 (0009):	249.68	4.22	14.92	42.14
	SHIFT ID= 1 (0039):	249.68	4.22	18.33	42.14

CALIB					
NASHYD (0008)	Area	(ha)= 338.84	Curve Number	(CN)= 51.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.20	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.34				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 5.531

PEAK FLOW (cms)= 4.824 (i)
TIME TO PEAK (hrs)= 14.833
RUNOFF VOLUME (mm)= 35.126
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.293

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0035)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 63.2 min	ID= 2 (0008):	338.84	4.82	14.83	35.13
	SHIFT ID= 1 (0035):	338.84	4.82	15.83	35.13

CALIB					
NASHYD (0014)	Area	(ha)= 99.92	Curve Number	(CN)= 63.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.66				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75

1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 2.299

PEAK FLOW (cms)= 2.576 (i)
TIME TO PEAK (hrs)= 14.000
RUNOFF VOLUME (mm)= 47.760
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.398

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0036)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0014):	99.92	2.576	14.00	47.76
+ ID2= 2 (0035):	338.84	4.824	15.83	35.13
ID = 3 (0036):	438.76	6.611	15.33	38.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0037)
IN= 2---> OUT= 1

SHIFT= 83.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0036):	438.76	6.61	15.33	38.00
SHIFT ID= 1 (0037):	438.76	6.61	16.67	38.00

CALIB			
NASHYD (0013)	Area (ha)= 73.84	Curve Number (CN)= 66.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.80	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.73		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36

5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 1.630

PEAK FLOW (cms)= 1.985 (i)
TIME TO PEAK (hrs)= 14.083
RUNOFF VOLUME (mm)= 51.087
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.426

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0038)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0013):	73.84	1.985	14.08	51.09
+ ID2= 2 (0037):	438.76	6.611	16.67	38.00
ID = 3 (0038):	512.60	7.631	16.42	39.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0015)
ID= 1 DT= 5.0 min

Area (ha)= 159.16 Curve Number (CN)= 63.0
Ia (mm)= 7.10 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.50

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 4.053

PEAK FLOW (cms)= 4.514 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 48.637
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.405

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0042)
IN= 2---> OUT= 1
SHIFT= 55.3 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0015):	159.16	4.51	13.83	48.64
SHIFT ID= 1 (0042):	159.16	4.51	14.75	48.64

ADD HYD (0043)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	383.04	4.815	15.92	39.05
+ ID2= 2 (0038):	512.60	7.631	16.42	39.89
ID = 3 (0043):	895.64	12.384	16.33	39.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	895.64	12.384	16.33	39.53
+ ID2= 2 (0039):	249.68	4.217	18.33	42.14
ID = 1 (0043):	1145.32	15.155	17.17	40.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0043):	1145.32	15.155	17.17	40.10
+ ID2= 2 (0040):	1155.65	17.565	21.50	39.24

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       ================================================
       ID = 3 (  0043):  2300.97  25.055    21.25    39.67

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0043)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0043):  2300.97  25.055    21.25    39.67
     + ID2= 2 (  0041):  1009.48  14.386    20.25    41.08
       ================================================
       ID = 1 (  0043):  3310.45  38.621    20.92    40.10

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0043)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0043):  3310.45  38.621    20.92    40.10
     + ID2= 2 (  0042):   159.16   4.514    14.75    48.64
       ================================================
       ID = 3 (  0043):  3469.61  39.317    20.92    40.49

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0045)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0017):   147.40   2.454    13.75    28.55
     + ID2= 2 (  0043):  3469.61  39.317    20.92    40.49
       ================================================
       ID = 3 (  0045):  3617.01  39.669    20.92    40.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0045)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0045):  3617.01  39.669    20.92    40.00
     + ID2= 2 (  0044):   147.08   4.333    14.00    48.43
       ================================================
       ID = 1 (  0045):  3764.09  40.236    20.92    40.33

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0047)|
| IN= 2---> OUT= 1 |
| SHIFT=107.5 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0045): 3764.09    40.24     20.92     40.33
    SHIFT ID= 1 (  0047): 3764.09    40.24     22.67     40.33

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| CALIB            |
| NASHYD   (  0019)|   Area    (ha)= 198.16   Curve Number   (CN)= 54.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.60   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.67

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    2.13 |12.250  129.80 | 18.33    2.12
 0.167    0.00 | 6.250    2.13 |12.333   20.58 | 18.42    2.12
 0.250    0.00 | 6.333    2.19 |12.417   20.56 | 18.50    2.12
 0.333    1.22 | 6.417    2.19 |12.500   20.56 | 18.58    2.05
 0.417    1.22 | 6.500    2.19 |12.583   14.00 | 18.67    2.05
 0.500    1.22 | 6.583    2.25 |12.667   14.00 | 18.75    2.05
 0.583    1.25 | 6.667    2.25 |12.750   14.00 | 18.83    1.97
 0.667    1.25 | 6.750    2.25 |12.833    9.63 | 18.92    1.97
 0.750    1.25 | 6.833    2.31 |12.917    9.63 | 19.00    1.97
 0.833    1.27 | 6.917    2.31 |13.000    9.63 | 19.08    1.90
 0.917    1.27 | 7.000    2.31 |13.083    8.13 | 19.17    1.90
 1.000    1.27 | 7.083    2.37 |13.167    8.13 | 19.25    1.90
 1.083    1.30 | 7.167    2.37 |13.250    8.13 | 19.33    1.82
 1.167    1.30 | 7.250    2.37 |13.333    6.88 | 19.42    1.82
 1.250    1.30 | 7.333    2.43 |13.417    6.88 | 19.50    1.82
 1.333    1.34 | 7.417    2.43 |13.500    6.88 | 19.58    1.75
 1.417    1.34 | 7.500    2.43 |13.583    6.08 | 19.67    1.75
 1.500    1.34 | 7.583    2.49 |13.667    6.08 | 19.75    1.75
 1.583    1.37 | 7.667    2.49 |13.750    6.08 | 19.83    1.67
 1.667    1.37 | 7.750    2.49 |13.833    5.33 | 19.92    1.67
 1.750    1.37 | 7.833    2.55 |13.917    5.33 | 20.00    1.67
 1.833    1.39 | 7.917    2.55 |14.000    5.33 | 20.08    1.60
 1.917    1.39 | 8.000    2.55 |14.083    4.75 | 20.17    1.60
 2.000    1.39 | 8.083    2.61 |14.167    4.75 | 20.25    1.60
 2.083    1.42 | 8.167    2.61 |14.250    4.75 | 20.33    1.55
 2.167    1.42 | 8.250    2.61 |14.333    4.33 | 20.42    1.55
 2.250    1.42 | 8.333    2.80 |14.417    4.33 | 20.50    1.55
 2.333    1.46 | 8.417    2.80 |14.500    4.33 | 20.58    1.54
 2.417    1.46 | 8.500    2.80 |14.583    4.13 | 20.67    1.54
 2.500    1.46 | 8.583    3.08 |14.667    4.13 | 20.75    1.54
 2.583    1.49 | 8.667    3.08 |14.750    4.13 | 20.83    1.52
 2.667    1.49 | 8.750    3.08 |14.833    3.91 | 20.92    1.52
 2.750    1.49 | 8.833    3.40 |14.917    3.91 | 21.00    1.52
 2.833    1.51 | 8.917    3.40 |15.000    3.91 | 21.08    1.51
 2.917    1.51 | 9.000    3.40 |15.083    3.71 | 21.17    1.51
 3.000    1.51 | 9.083    3.68 |15.167    3.71 | 21.25    1.51
 3.083    1.54 | 9.167    3.68 |15.250    3.71 | 21.33    1.49
 3.167    1.54 | 9.250    3.68 |15.333    3.49 | 21.42    1.49
 3.250    1.54 | 9.333    3.84 |15.417    3.49 | 21.50    1.49
 3.333    1.58 | 9.417    3.84 |15.500    3.49 | 21.58    1.48
 3.417    1.58 | 9.500    3.84 |15.583    3.29 | 21.67    1.48
 3.500    1.58 | 9.583    3.84 |15.667    3.29 | 21.75    1.48
 3.583    1.61 | 9.667    3.84 |15.750    3.29 | 21.83    1.46
 3.667    1.61 | 9.750    3.84 |15.833    3.07 | 21.92    1.46
 3.750    1.61 | 9.833    4.09 |15.917    3.07 | 22.00    1.46
 3.833    1.63 | 9.917    4.09 |16.000    3.07 | 22.08    1.45
 3.917    1.63 |10.000    4.09 |16.083    2.87 | 22.17    1.45
 4.000    1.63 |10.083    4.55 |16.167    2.87 | 22.25    1.45
 4.083    1.66 |10.167    4.55 |16.250    2.87 | 22.33    1.43
 4.167    1.66 |10.250    4.55 |16.333    2.72 | 22.42    1.43
 4.250    1.66 |10.333    5.17 |16.417    2.72 | 22.50    1.43
 4.333    1.71 |10.417    5.17 |16.500    2.72 | 22.58    1.42
 4.417    1.71 |10.500    5.17 |16.583    2.65 | 22.67    1.42
 4.500    1.71 |10.583    5.87 |16.667    2.65 | 22.75    1.42
 4.583    1.77 |10.667    5.87 |16.750    2.65 | 22.83    1.40
 4.667    1.77 |10.750    5.87 |16.833    2.57 | 22.92    1.40
 4.750    1.77 |10.833    6.86 |16.917    2.57 | 23.00    1.40
 4.833    1.83 |10.917    6.86 |17.000    2.57 | 23.08    1.39
 4.917    1.83 |11.000    6.86 |17.083    2.50 | 23.17    1.39
 5.000    1.83 |11.083    8.02 |17.167    2.50 | 23.25    1.39
 5.083    1.89 |11.167    8.02 |17.250    2.50 | 23.33    1.37
 5.167    1.89 |11.250    8.02 |17.333    2.42 | 23.42    1.37
 5.250    1.89 |11.333   10.14 |17.417    2.42 | 23.50    1.37
 5.333    1.95 |11.417   10.14 |17.500    2.42 | 23.58    1.36
 5.417    1.95 |11.500   10.14 |17.583    2.35 | 23.67    1.36
 5.500    1.95 |11.583   12.90 |17.667    2.35 | 23.75    1.36
 5.583    2.01 |11.667   12.90 |17.750    2.35 | 23.83    1.34
 5.667    2.01 |11.750   12.90 |17.833    2.27 | 23.92    1.34
 5.750    2.01 |11.833   52.59 |17.917    2.27 | 24.00    1.34
 5.833    2.07 |11.917   52.60 |18.000    2.27 | 24.08    1.33
 5.917    2.07 |12.000   52.60 |18.083    2.20 | 24.17    1.33
 6.000    2.07 |12.083  129.79 |18.167    2.20 | 24.25    1.33
 6.083    2.13 |12.167  129.80 |18.250    2.20 |

     Unit Hyd Qpeak  (cms)=   4.532

     PEAK FLOW       (cms)=   3.958 (i)
     TIME TO PEAK    (hrs)=  14.000
     RUNOFF VOLUME    (mm)=  37.862
     TOTAL RAINFALL   (mm)= 120.000
     RUNOFF COEFFICIENT   =   0.316

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD  (  0048)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0019):   198.16   3.958    14.00    37.86
     + ID2= 2 (  0046):   126.36   2.139    15.50    37.97
       ================================================
       ID = 3 (  0048):   324.52   5.529    14.67    37.91
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0048)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0048):	324.52	5.529	14.67	37.91
	+ ID2= 2 (0047):	3764.09	40.236	22.67	40.33
	ID = 1 (0048):	4088.61	41.182	22.67	40.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0049)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT= 81.0 min		(ha)	(cms)	(hrs)	(mm)
	ID= 2 (0048):	4088.61	41.18	22.67	40.14
	SHIFT ID= 1 (0049):	4088.61	41.18	24.00	40.14

CALIB					
NASHYD (0022)	Area	(ha)= 119.48	Curve Number	(CN)= 55.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.10	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.78				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 2.564

PEAK FLOW (cms)= 2.356 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 39.165
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.326

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0022):	119.48	2.356	14.17	39.16
	+ ID2= 2 (0049):	4088.61	41.182	24.00	40.14
	ID = 3 (0050):	4208.09	41.475	24.00	40.11

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0054)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT= 52.5 min		(ha)	(cms)	(hrs)	(mm)
	ID= 2 (0050):	4208.09	41.48	24.00	40.11
	SHIFT ID= 1 (0054):	4208.09	41.48	24.83	40.11

CALIB					
NASHYD (0023)	Area	(ha)= 111.92	Curve Number	(CN)= 64.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.70	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.81				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82

1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 2.362

PEAK FLOW (cms)= 2.760 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 48.737
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.406

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0020) | Area (ha)= 126.24 Curve Number (CN)= 61.0
ID= 1 DT= 5.0 min | Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.86

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 2.592

PEAK FLOW (cms)= 2.846 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 45.780
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.382

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| SHIFT HYD(  0051)|
| IN= 2---> OUT= 1 |
| SHIFT= 26.3 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0020):  126.24     2.85     14.25     45.78
    SHIFT ID= 1 (  0051):  126.24     2.85     14.67     45.78

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0021)|   Area    (ha)= 133.24   Curve Number   (CN)= 61.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.10   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.31

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    0.00 | 6.167    2.13 |12.250  129.80 | 18.33    2.12
0.167    0.00 | 6.250    2.13 |12.333   20.58 | 18.42    2.12
0.250    0.00 | 6.333    2.19 |12.417   20.56 | 18.50    2.12
0.333    1.22 | 6.417    2.19 |12.500   20.56 | 18.58    2.05
0.417    1.22 | 6.500    2.19 |12.583   14.00 | 18.67    2.05
0.500    1.22 | 6.583    2.25 |12.667   14.00 | 18.75    2.05
0.583    1.25 | 6.667    2.25 |12.750   14.00 | 18.83    1.97
0.667    1.25 | 6.750    2.25 |12.833    9.63 | 18.92    1.97
0.750    1.25 | 6.833    2.31 |12.917    9.63 | 19.00    1.97
0.833    1.27 | 6.917    2.31 |13.000    9.63 | 19.08    1.90
0.917    1.27 | 7.000    2.31 |13.083    8.13 | 19.17    1.90
1.000    1.27 | 7.083    2.37 |13.167    8.13 | 19.25    1.90
1.083    1.30 | 7.167    2.37 |13.250    8.13 | 19.33    1.82
1.167    1.30 | 7.250    2.37 |13.333    6.88 | 19.42    1.82
1.250    1.30 | 7.333    2.43 |13.417    6.88 | 19.50    1.82
1.333    1.34 | 7.417    2.43 |13.500    6.88 | 19.58    1.75
1.417    1.34 | 7.500    2.43 |13.583    6.08 | 19.67    1.75
1.500    1.34 | 7.583    2.49 |13.667    6.08 | 19.75    1.75
1.583    1.37 | 7.667    2.49 |13.750    6.08 | 19.83    1.67
1.667    1.37 | 7.750    2.49 |13.833    5.33 | 19.92    1.67
1.750    1.37 | 7.833    2.55 |13.917    5.33 | 20.00    1.67
1.833    1.39 | 7.917    2.55 |14.000    5.33 | 20.08    1.60
1.917    1.39 | 8.000    2.55 |14.083    4.75 | 20.17    1.60
2.000    1.39 | 8.083    2.61 |14.167    4.75 | 20.25    1.60
2.083    1.42 | 8.167    2.61 |14.250    4.75 | 20.33    1.55
2.167    1.42 | 8.250    2.61 |14.333    4.33 | 20.42    1.55
2.250    1.42 | 8.333    2.80 |14.417    4.33 | 20.50    1.55
2.333    1.46 | 8.417    2.80 |14.500    4.33 | 20.58    1.54
2.417    1.46 | 8.500    2.80 |14.583    4.13 | 20.67    1.54
2.500    1.46 | 8.583    3.08 |14.667    4.13 | 20.75    1.54
2.583    1.49 | 8.667    3.08 |14.750    4.13 | 20.83    1.52
2.667    1.49 | 8.750    3.08 |14.833    3.91 | 20.92    1.52
2.750    1.49 | 8.833    3.40 |14.917    3.91 | 21.00    1.52
2.833    1.51 | 8.917    3.40 |15.000    3.91 | 21.08    1.51
2.917    1.51 | 9.000    3.40 |15.083    3.71 | 21.17    1.51
3.000    1.51 | 9.083    3.68 |15.167    3.71 | 21.25    1.51
3.083    1.54 | 9.167    3.68 |15.250    3.71 | 21.33    1.49
3.167    1.54 | 9.250    3.68 |15.333    3.49 | 21.42    1.49
3.250    1.54 | 9.333    3.84 |15.417    3.49 | 21.50    1.49
3.333    1.58 | 9.417    3.84 |15.500    3.49 | 21.58    1.48
3.417    1.58 | 9.500    3.84 |15.583    3.29 | 21.67    1.48
3.500    1.58 | 9.583    3.84 |15.667    3.29 | 21.75    1.48
3.583    1.61 | 9.667    3.84 |15.750    3.29 | 21.83    1.46
3.667    1.61 | 9.750    3.84 |15.833    3.07 | 21.92    1.46
3.750    1.61 | 9.833    4.09 |15.917    3.07 | 22.00    1.46
3.833    1.63 | 9.917    4.09 |16.000    3.07 | 22.08    1.45
3.917    1.63 |10.000    4.09 |16.083    2.87 | 22.17    1.45
4.000    1.63 |10.083    4.55 |16.167    2.87 | 22.25    1.45
4.083    1.66 |10.167    4.55 |16.250    2.87 | 22.33    1.43
4.167    1.66 |10.250    4.55 |16.333    2.72 | 22.42    1.43
4.250    1.66 |10.333    5.17 |16.417    2.72 | 22.50    1.43
4.333    1.71 |10.417    5.17 |16.500    2.72 | 22.58    1.42
4.417    1.71 |10.500    5.17 |16.583    2.65 | 22.67    1.42
4.500    1.71 |10.583    5.87 |16.667    2.65 | 22.75    1.42
4.583    1.77 |10.667    5.87 |16.750    2.65 | 22.83    1.40
4.667    1.77 |10.750    5.87 |16.833    2.57 | 22.92    1.40
4.750    1.77 |10.833    6.86 |16.917    2.57 | 23.00    1.40
4.833    1.83 |10.917    6.86 |17.000    2.57 | 23.08    1.39
4.917    1.83 |11.000    6.86 |17.083    2.50 | 23.17    1.39
5.000    1.83 |11.083    8.02 |17.167    2.50 | 23.25    1.39
5.083    1.89 |11.167    8.02 |17.250    2.50 | 23.33    1.37
5.167    1.89 |11.250    8.02 |17.333    2.42 | 23.42    1.37
5.250    1.89 |11.333   10.14 |17.417    2.42 | 23.50    1.37
5.333    1.95 |11.417   10.14 |17.500    2.42 | 23.58    1.36
5.417    1.95 |11.500   10.14 |17.583    2.35 | 23.67    1.36
5.500    1.95 |11.583   12.90 |17.667    2.35 | 23.75    1.36
5.583    2.01 |11.667   12.90 |17.750    2.35 | 23.83    1.34
5.667    2.01 |11.750   12.90 |17.833    2.27 | 23.92    1.34
5.750    2.01 |11.833   52.59 |17.917    2.27 | 24.00    1.34
5.833    2.07 |11.917   52.60 |18.000    2.27 | 24.08    1.33
5.917    2.07 |12.000   52.60 |18.083    2.20 | 24.17    1.33
6.000    2.07 |12.083  129.79 |18.167    2.20 | 24.25    1.33
6.083    2.13 |12.167  129.80 |18.250    2.20 |

     Unit Hyd Qpeak  (cms)=   3.885

     PEAK FLOW       (cms)=   3.919 (i)
     TIME TO PEAK    (hrs)=  13.583
     RUNOFF VOLUME    (mm)=  45.650
     TOTAL RAINFALL   (mm)= 120.000
     RUNOFF COEFFICIENT   =   0.380

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0052)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0021):   133.24    3.919    13.58    45.65
     + ID2= 2 (  0051):   126.24    2.846    14.67    45.78
       ==========================================
       ID = 3 (  0052):   259.48    6.284    14.00    45.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| SHIFT HYD(  0053)|
| IN= 2---> OUT= 1 |
| SHIFT=106.6 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0052):  259.48     6.28     14.00     45.71
    SHIFT ID= 1 (  0053):  259.48     6.28     15.75     45.71

--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0055)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0023):   111.92    2.760    14.17    48.74
     + ID2= 2 (  0053):   259.48    6.284    15.75    45.71
       ==========================================
       ID = 3 (  0055):   371.40    8.369    15.58    46.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0055)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0055):   371.40    8.369    15.58    46.62
     + ID2= 2 (  0054):  4208.09   41.475    24.83    40.11
       ==========================================
       ID = 1 (  0055):  4579.49   42.544    24.75    40.64

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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================================================================================

       V    V   I    SSSSS  U   U    A    L                (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
Output filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\b30ab6fc-9654
Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\b30ab6fc-9654

DATE: 09/26/2024 TIME: 11:20:07

USER:

COMMENTS: _____

****
** SIMULATION : 5yr 24hr 15min SCS Type II **
****

READ STORM | Ptotal= 79.20 mm
Filename: C:\Users\jkoen\AppData\Local\Temp\20e2ad8c-fe14-43c9-b359-409ce5c63256\218ba2d0
Comments: 5yr 24hr 15min SCS Type II

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	1.45	12.50	9.24	18.75	1.30
0.25	0.80	6.50	1.48	12.75	6.36	19.00	1.25
0.50	0.82	6.75	1.53	13.00	5.37	19.25	1.20
0.75	0.84	7.00	1.56	13.25	4.54	19.50	1.15
1.00	0.86	7.25	1.60	13.50	4.01	19.75	1.10
1.25	0.88	7.50	1.64	13.75	3.52	20.00	1.05
1.50	0.90	7.75	1.68	14.00	3.14	20.25	1.02
1.75	0.92	8.00	1.72	14.25	2.86	20.50	1.02
2.00	0.94	8.25	1.85	14.50	2.73	20.75	1.00
2.25	0.96	8.50	2.04	14.75	2.58	21.00	0.99
2.50	0.98	8.75	2.24	15.00	2.45	21.25	0.99
2.75	1.00	9.00	2.43	15.25	2.30	21.50	0.98
3.00	1.02	9.25	2.53	15.50	2.17	21.75	0.96
3.25	1.04	9.50	2.53	15.75	2.03	22.00	0.96
3.50	1.06	9.75	2.70	16.00	1.89	22.25	0.95
3.75	1.08	10.00	3.00	16.25	1.80	22.50	0.94
4.00	1.10	10.25	3.42	16.50	1.75	22.75	0.93
4.25	1.13	10.50	3.87	16.75	1.70	23.00	0.92
4.50	1.17	10.75	4.53	17.00	1.65	23.25	0.91
4.75	1.21	11.00	5.29	17.25	1.60	23.50	0.90
5.00	1.25	11.25	6.69	17.50	1.55	23.75	0.89
5.25	1.29	11.50	8.52	17.75	1.50	24.00	0.88
5.50	1.33	11.75	34.71	18.00	1.45		
5.75	1.37	12.00	85.67	18.25	1.40		
6.00	1.41	12.25	13.57	18.50	1.35		

CALIB NASHYD (0018) | ID= 1 DT= 5.0 min
Area (ha)= 126.36 Curve Number (CN)= 54.0
Ia (mm)= 8.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.08

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 2.320

PEAK FLOW (cms)= 0.960 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 17.455
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.220

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0046) | IN= 2---> OUT= 1 | SHIFT= 63.7 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0018):	126.36	0.96	14.58	17.46
SHIFT ID= 1 (0046):	126.36	0.96	15.58	17.46

CALIB NASHYD (0016) | Area (ha)= 147.08 Curve Number (CN)= 63.0

|ID= 1 DT= 5.0 min | Ia (mm)= 7.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.42

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 3.956

PEAK FLOW (cms)= 2.038 (i)
TIME TO PEAK (hrs)= 13.750
RUNOFF VOLUME (mm)= 23.330
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.295

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0044)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0016):	147.08	2.04	13.75	23.33
SHIFT ID= 1 (0044):	147.08	2.04	14.08	23.33

CALIB NASHYD (0017)	Area (ha)= 147.40	Curve Number (CN)= 44.0
ID= 1 DT= 5.0 min	Ia (mm)= 8.60	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.43	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94

4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 3.937

PEAK FLOW (cms)= 1.062 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 12.655
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.160

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0001)	Area (ha)= 351.84	Curve Number (CN)= 59.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.60	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.25		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 5.973

PEAK FLOW (cms)= 3.012 (i)
TIME TO PEAK (hrs)= 14.750
RUNOFF VOLUME (mm)= 20.663
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.261

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0024)				
IN= 2---> OUT= 1				
SHIFT= 80.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0001):	351.84	3.01	14.75	20.66
SHIFT ID= 1 (0024):	351.84	3.01	16.08	20.66

CALIB			
NASHYD (0002)	Area (ha)= 415.84	Curve Number (CN)= 57.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.65		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15

1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 5.994

PEAK FLOW (cms)= 2.902 (i)
TIME TO PEAK (hrs)= 15.333
RUNOFF VOLUME (mm)= 19.196
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.242

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0025) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	415.84	2.902	15.33	19.20
+ ID2= 2 (0024):	351.84	3.012	16.08	20.66
ID = 3 (0025):	767.68	5.823	15.83	19.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0031) IN= 2---> OUT= 1 SHIFT=129.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0025):	767.68	5.82	15.83	19.87
SHIFT ID= 1 (0031):	767.68	5.82	17.92	19.87

CALIB NASHYD (0011) ID= 1 DT= 5.0 min			
Area	(ha)= 241.80	Curve Number	(CN)= 53.0
Ia	(mm)= 8.30	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	1.81		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89

5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 5.103

PEAK FLOW (cms)= 1.984 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 16.974
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.214

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0032)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0011):	241.80	1.984	14.25	16.97
+ ID2= 2 (0031):	767.68	5.823	17.92	19.87
ID = 3 (0032):	1009.48	6.620	17.75	19.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0041)
IN= 2---> OUT= 1
SHIFT=155.8 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0032):	1009.48	6.62	17.75	19.17
SHIFT ID= 1 (0041):	1009.48	6.62	20.33	19.17

CALIB
NASHYD (0012) ID= 1 DT= 5.0 min

Area (ha)= 383.04 Curve Number (CN)= 55.0
Ia (mm)= 8.30 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 3.18

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 4.601

PEAK FLOW (cms)= 2.179 (i)
TIME TO PEAK (hrs)= 16.000
RUNOFF VOLUME (mm)= 18.035
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.228

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0003) ID= 1 DT= 5.0 min

Area (ha)= 161.56 Curve Number (CN)= 51.0
Ia (mm)= 8.10 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.77

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10

1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 3.486

PEAK FLOW (cms)= 1.271 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 16.041
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.203

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0003):	161.56	1.27	14.17	16.04
SHIFT ID= 1 (0026):	161.56	1.27	16.08	16.04

CALIB NASHYD (0004) | ID= 1 DT= 5.0 min

Area (ha)= 84.72 Curve Number (CN)= 55.0
Ia (mm)= 8.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.50

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 2.157

PEAK FLOW (cms)= 0.862 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 18.169
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.229

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027) IN= 2---> OUT= 1 SHIFT=101.8 min		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID= 2 (0004):	84.72	0.86	13.83	18.17
	SHIFT ID= 1 (0027):	84.72	0.86	15.50	18.17

CALIB NASHYD (0006) ID= 1 DT= 5.0 min			
	Area	(ha)= 391.92	Curve Number (CN)= 57.0
	Ia	(mm)= 8.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	2.20	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 6.804

PEAK FLOW (cms)= 3.137 (i)
TIME TO PEAK (hrs)= 14.750
RUNOFF VOLUME (mm)= 19.102
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.241

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0005) ID= 1 DT= 5.0 min			
	Area	(ha)= 290.88	Curve Number (CN)= 51.0
	Ia	(mm)= 8.30	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	2.09	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96

4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 5.316

PEAK FLOW (cms)= 2.005 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 15.961
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.202

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT=144.1 min	ID= 2 (0005):	290.88	2.01	14.58	15.96
	SHIFT ID= 1 (0029):	290.88	2.01	16.92	15.96

CALIB					
NASHYD (0007)	Area (ha)=	81.24	Curve Number (CN)=	49.0	
ID= 1 DT= 5.0 min	Ia (mm)=	8.70	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.53			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 2.028

PEAK FLOW (cms)= 0.657 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 14.842
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.187

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0030)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT=147.5 min	ID= 2 (0007):	81.24	0.66	13.92	14.84
	SHIFT ID= 1 (0030):	81.24	0.66	16.33	14.84

ADD HYD (0028)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0026):	161.56	1.271	16.08	16.04
	+ ID2= 2 (0027):	84.72	0.862	15.50	18.17
	ID = 3 (0028):	246.28	2.092	15.92	16.77

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1					

```
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0028):   246.28   2.092    15.92    16.77
     + ID2= 2 (  0029):   290.88   2.005    16.92    15.96
       ================================================
       ID = 1 (  0028):   537.16   3.906    16.42    16.33

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0028)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0028):   537.16   3.906    16.42    16.33
     + ID2= 2 (  0030):    81.24   0.657    16.33    14.84
       ================================================
       ID = 3 (  0028):   618.40   4.562    16.42    16.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ADD HYD  (  0028)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0028):   618.40   4.562    16.42    16.14
     + ID2= 2 (  0006):   391.92   3.137    14.75    19.10
       ================================================
       ID = 1 (  0028):  1010.32   7.141    16.08    17.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0033)|
| IN= 2---> OUT= 1 |
| SHIFT=106.7 min  |       AREA      QPEAK      TPEAK       R.V.
--------------------       (ha)      (cms)      (hrs)       (mm)
         ID= 2 (  0028): 1010.32       7.14      16.08      17.29
    SHIFT ID= 1 (  0033): 1010.32       7.14      17.83      17.29

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| CALIB            |
| NASHYD   (  0010)|   Area    (ha)= 145.33   Curve Number   (CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.70   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.25

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.41 |12.250   85.67 | 18.33    1.40
 0.167    0.00 | 6.250    1.41 |12.333   13.58 | 18.42    1.40
 0.250    0.00 | 6.333    1.45 |12.417   13.57 | 18.50    1.40
 0.333    0.80 | 6.417    1.45 |12.500   13.57 | 18.58    1.35
 0.417    0.80 | 6.500    1.45 |12.583    9.24 | 18.67    1.35
 0.500    0.80 | 6.583    1.48 |12.667    9.24 | 18.75    1.35
 0.583    0.82 | 6.667    1.48 |12.750    9.24 | 18.83    1.30
 0.667    0.82 | 6.750    1.48 |12.833    6.36 | 18.92    1.30
 0.750    0.82 | 6.833    1.53 |12.917    6.36 | 19.00    1.30
 0.833    0.84 | 6.917    1.53 |13.000    6.36 | 19.08    1.25
 0.917    0.84 | 7.000    1.53 |13.083    5.37 | 19.17    1.25
 1.000    0.84 | 7.083    1.56 |13.167    5.37 | 19.25    1.25
 1.083    0.86 | 7.167    1.56 |13.250    5.37 | 19.33    1.20
 1.167    0.86 | 7.250    1.56 |13.333    4.54 | 19.42    1.20
 1.250    0.86 | 7.333    1.60 |13.417    4.54 | 19.50    1.20
 1.333    0.88 | 7.417    1.60 |13.500    4.54 | 19.58    1.15
 1.417    0.88 | 7.500    1.60 |13.583    4.01 | 19.67    1.15
 1.500    0.88 | 7.583    1.64 |13.667    4.01 | 19.75    1.15
 1.583    0.90 | 7.667    1.64 |13.750    4.01 | 19.83    1.10
 1.667    0.90 | 7.750    1.64 |13.833    3.52 | 19.92    1.10
 1.750    0.90 | 7.833    1.68 |13.917    3.52 | 20.00    1.10
 1.833    0.92 | 7.917    1.68 |14.000    3.52 | 20.08    1.05
 1.917    0.92 | 8.000    1.68 |14.083    3.14 | 20.17    1.05
 2.000    0.92 | 8.083    1.72 |14.167    3.14 | 20.25    1.05
 2.083    0.94 | 8.167    1.72 |14.250    3.14 | 20.33    1.02
 2.167    0.94 | 8.250    1.72 |14.333    2.86 | 20.42    1.02
 2.250    0.94 | 8.333    1.85 |14.417    2.86 | 20.50    1.02
 2.333    0.96 | 8.417    1.85 |14.500    2.86 | 20.58    1.02
 2.417    0.96 | 8.500    1.85 |14.583    2.73 | 20.67    1.02
 2.500    0.96 | 8.583    2.04 |14.667    2.73 | 20.75    1.02
 2.583    0.98 | 8.667    2.04 |14.750    2.73 | 20.83    1.00
 2.667    0.98 | 8.750    2.04 |14.833    2.58 | 20.92    1.00
 2.750    0.98 | 8.833    2.24 |14.917    2.58 | 21.00    1.00
 2.833    1.00 | 8.917    2.24 |15.000    2.58 | 21.08    0.99
 2.917    1.00 | 9.000    2.24 |15.083    2.45 | 21.17    0.99
 3.000    1.00 | 9.083    2.43 |15.167    2.45 | 21.25    0.99
 3.083    1.02 | 9.167    2.43 |15.250    2.45 | 21.33    0.99
 3.167    1.02 | 9.250    2.43 |15.333    2.30 | 21.42    0.99
 3.250    1.02 | 9.333    2.53 |15.417    2.30 | 21.50    0.99
 3.333    1.04 | 9.417    2.53 |15.500    2.30 | 21.58    0.98
 3.417    1.04 | 9.500    2.53 |15.583    2.17 | 21.67    0.98
 3.500    1.04 | 9.583    2.53 |15.667    2.17 | 21.75    0.98
 3.583    1.06 | 9.667    2.53 |15.750    2.17 | 21.83    0.96
 3.667    1.06 | 9.750    2.53 |15.833    2.03 | 21.92    0.96
 3.750    1.06 | 9.833    2.70 |15.917    2.03 | 22.00    0.96
 3.833    1.08 | 9.917    2.70 |16.000    2.03 | 22.08    0.96
 3.917    1.08 |10.000    2.70 |16.083    1.89 | 22.17    0.96
 4.000    1.08 |10.083    3.00 |16.167    1.89 | 22.25    0.96
 4.083    1.10 |10.167    3.00 |16.250    1.89 | 22.33    0.95
 4.167    1.10 |10.250    3.00 |16.333    1.80 | 22.42    0.95
 4.250    1.10 |10.333    3.42 |16.417    1.80 | 22.50    0.95
 4.333    1.13 |10.417    3.42 |16.500    1.80 | 22.58    0.94
 4.417    1.13 |10.500    3.42 |16.583    1.75 | 22.67    0.94
 4.500    1.13 |10.583    3.87 |16.667    1.75 | 22.75    0.94
 4.583    1.17 |10.667    3.87 |16.750    1.75 | 22.83    0.93
 4.667    1.17 |10.750    3.87 |16.833    1.70 | 22.92    0.93
 4.750    1.17 |10.833    4.53 |16.917    1.70 | 23.00    0.93
 4.833    1.21 |10.917    4.53 |17.000    1.70 | 23.08    0.92
 4.917    1.21 |11.000    4.53 |17.083    1.65 | 23.17    0.92
 5.000    1.21 |11.083    5.29 |17.167    1.65 | 23.25    0.92
 5.083    1.25 |11.167    5.29 |17.250    1.65 | 23.33    0.91
 5.167    1.25 |11.250    5.29 |17.333    1.60 | 23.42    0.91
 5.250    1.25 |11.333    6.69 |17.417    1.60 | 23.50    0.91
 5.333    1.29 |11.417    6.69 |17.500    1.60 | 23.58    0.90
 5.417    1.29 |11.500    6.69 |17.583    1.55 | 23.67    0.90
 5.500    1.29 |11.583    8.52 |17.667    1.55 | 23.75    0.90
 5.583    1.33 |11.667    8.52 |17.750    1.55 | 23.83    0.89
 5.667    1.33 |11.750    8.52 |17.833    1.50 | 23.92    0.89
 5.750    1.33 |11.833   34.71 |17.917    1.50 | 24.00    0.89
 5.833    1.37 |11.917   34.71 |18.000    1.50 | 24.08    0.88
 5.917    1.37 |12.000   34.71 |18.083    1.45 | 24.17    0.88
 6.000    1.37 |12.083   85.66 |18.167    1.45 | 24.25    0.88
 6.083    1.41 |12.167   85.67 |18.250    1.45 |

     Unit Hyd Qpeak  (cms)=   2.467

     PEAK FLOW       (cms)=   1.494 (i)
     TIME TO PEAK    (hrs)=  14.750
     RUNOFF VOLUME    (mm)=  24.546
     TOTAL RAINFALL   (mm)=  79.200
     RUNOFF COEFFICIENT   =   0.310

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD  (  0034)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0010):   145.33   1.494    14.75    24.55
     + ID2= 2 (  0033):  1010.32   7.141    17.83    17.29
       ================================================
       ID = 3 (  0034):  1155.65   7.984    17.75    18.20

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| SHIFT HYD(  0040)|
| IN= 2---> OUT= 1 |
| SHIFT=232.1 min  |       AREA      QPEAK      TPEAK       R.V.
--------------------       (ha)      (cms)      (hrs)       (mm)
         ID= 2 (  0034): 1155.65       7.98      17.75      18.20
    SHIFT ID= 1 (  0040): 1155.65       7.98      21.58      18.20

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| CALIB            |
| NASHYD   (  0009)|   Area    (ha)= 249.68   Curve Number   (CN)= 58.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.41

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 3.957

PEAK FLOW (cms)= 1.923 (i)
TIME TO PEAK (hrs)= 15.000
RUNOFF VOLUME (mm)= 19.678
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.248

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0039) / IN= 2---> OUT= 1 / SHIFT=208.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0009):	249.68	1.92	15.00	19.68
SHIFT ID= 1 (0039):	249.68	1.92	18.42	19.68

CALIB / NASHYD (0008) / ID= 1 DT= 5.0 min | Area (ha)= 338.84 | Curve Number (CN)= 51.0 | Ia (mm)= 8.20 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 2.34

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92

5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 5.531

PEAK FLOW (cms)= 2.149 (i)
TIME TO PEAK (hrs)= 14.917
RUNOFF VOLUME (mm)= 16.001
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.202

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0035) / IN= 2---> OUT= 1 / SHIFT= 63.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0008):	338.84	2.15	14.92	16.00
SHIFT ID= 1 (0035):	338.84	2.15	15.92	16.00

CALIB NASHYD (0014) | ID= 1 DT= 5.0 min | Area (ha)= 99.92 Curve Number (CN)= 63.0 | Ia (mm)= 8.40 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.66

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 2.299

PEAK FLOW (cms)= 1.197 (i)
TIME TO PEAK (hrs)= 14.083
RUNOFF VOLUME (mm)= 22.787
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.288

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0036) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0014):	99.92	1.197	14.08	22.79
+ ID2= 2 (0035):	338.84	2.149	15.92	16.00
ID = 3 (0036):	438.76	2.991	15.42	17.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0037) / IN= 2---> OUT= 1 / SHIFT= 83.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0036):	438.76	2.99	15.42	17.55
SHIFT ID= 1 (0037):	438.76	2.99	16.75	17.55

CALIB NASHYD (0013) | ID= 1 DT= 5.0 min | Area (ha)= 73.84 Curve Number (CN)= 66.0 | Ia (mm)= 8.80 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.73

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40

0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 1.630

PEAK FLOW (cms)= 0.931 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 24.627
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.311

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0038)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0013):	73.84	0.931	14.17	24.63
	+ ID2= 2 (0037):	438.76	2.991	16.75	17.55
	ID = 3 (0038):	512.60	3.488	16.50	18.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0015) | ID= 1 DT= 5.0 min	Area (ha)= 159.16	Curve Number (CN)= 63.0
	Ia (mm)= 7.10	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.50	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91

5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 4.053

PEAK FLOW (cms)= 2.132 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 23.493
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.297

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0042) | IN= 2---> OUT= 1 | SHIFT= 55.3 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0015):	159.16	2.13	13.83	23.49
SHIFT ID= 1 (0042):	159.16	2.13	14.75	23.49

ADD HYD (0043) | 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	383.04	2.179	16.00	18.04
+ ID2= 2 (0038):	512.60	3.488	16.50	18.57
ID = 3 (0043):	895.64	5.644	16.42	18.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043) | 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	895.64	5.644	16.42	18.34
+ ID2= 2 (0039):	249.68	1.923	18.42	19.68
ID = 1 (0043):	1145.32	6.918	17.25	18.63

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043) | 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0043):	1145.32	6.918	17.25	18.63
+ ID2= 2 (0040):	1155.65	7.984	21.58	18.20
ID = 3 (0043):	2300.97	11.555	21.25	18.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043) | 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	2300.97	11.555	21.25	18.41
+ ID2= 2 (0041):	1009.48	6.620	20.33	19.17
ID = 1 (0043):	3310.45	17.844	21.00	18.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043) | 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0043):	3310.45	17.844	21.00	18.65
+ ID2= 2 (0042):	159.16	2.132	14.75	23.49
ID = 3 (0043):	3469.61	18.202	21.00	18.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045) | 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0017):	147.40	1.062	13.83	12.65
+ ID2= 2 (0043):	3469.61	18.202	21.00	18.87
ID = 3 (0045):	3617.01	18.368	21.00	18.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045) | 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0045):	3617.01	18.368	21.00	18.62
+ ID2= 2 (0044):	147.08	2.038	14.08	23.33
ID = 1 (0045):	3764.09	18.662	20.92	18.80

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0047) | IN= 2---> OUT= 1 | SHIFT=107.5 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0045):	3764.09	18.66	20.92	18.80
SHIFT ID= 1 (0047):	3764.09	18.66	22.67	18.80

CALIB | NASHYD (0019) | ID= 1 DT= 5.0 min	Area (ha)= 198.16	Curve Number (CN)= 54.0
	Ia (mm)= 8.60	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.67	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00

2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 4.532

PEAK FLOW (cms)= 1.770 (i)
TIME TO PEAK (hrs)= 14.083
RUNOFF VOLUME (mm)= 17.369
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.219

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0048)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0019):	198.16	1.770	14.08	17.37
+ ID2= 2 (0046):	126.36	0.960	15.58	17.46
ID = 3 (0048):	324.52	2.480	14.67	17.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0048)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0048):	324.52	2.480	14.67	17.40
+ ID2= 2 (0047):	3764.09	18.662	22.67	18.80
ID = 1 (0048):	4088.61	19.132	22.67	18.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0049)
IN= 2---> OUT= 1
SHIFT= 81.0 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0048):	4088.61	19.13	22.67	18.69

SHIFT ID= 1 (0049): 4088.61 19.13 24.00 18.69

CALIB
NASHYD (0022)
ID= 1 DT= 5.0 min

Area (ha)= 119.48 Curve Number (CN)= 55.0
Ia (mm)= 8.10 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.78

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89

5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 2.564

PEAK FLOW (cms)= 1.064 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 18.124
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.229

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0022):		119.48	1.064	14.25	18.12
+ ID2= 2 (0049):		4088.61	19.132	24.00	18.69
ID = 3 (0050):		4208.09	19.280	24.00	18.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0054)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT= 52.5 min		(ha)	(cms)	(hrs)	(mm)
ID= 2 (0050):		4208.09	19.28	24.00	18.67
SHIFT ID= 1 (0054):		4208.09	19.28	24.83	18.67

CALIB					
NASHYD (0023)	Area	(ha)= 111.92	Curve Number	(CN)= 64.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.70	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.81				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 2.362

PEAK FLOW (cms)= 1.285 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 23.294
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.294

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0020)	Area	(ha)= 126.24	Curve Number	(CN)= 61.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.90	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.86				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05

1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 2.592

PEAK FLOW (cms)= 1.320 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 21.754
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.275

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0051)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT= 26.3 min				
ID= 2 (0020):	126.24	1.32	14.33	21.75
SHIFT ID= 1 (0051):	126.24	1.32	14.75	21.75

CALIB			
NASHYD (0021)	Area (ha)= 133.24	Curve Number (CN)= 61.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.31		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 3.885

PEAK FLOW (cms)= 1.810 (i)
TIME TO PEAK (hrs)= 13.583
RUNOFF VOLUME (mm)= 21.650
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.273

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0052)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0021):   133.24   1.810    13.58    21.65
     + ID2= 2 (  0051):   126.24   1.320    14.75    21.75
       ================================================
       ID = 3 (  0052):   259.48   2.908    14.08    21.70

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| SHIFT HYD(  0053)|
| IN= 2---> OUT= 1 |
| SHIFT=106.6 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0052):  259.48     2.91     14.08     21.70
    SHIFT ID= 1 (  0053):  259.48     2.91     15.83     21.70

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--------------------
| ADD HYD  (  0055)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0023):   111.92   1.285    14.25    23.29
     + ID2= 2 (  0053):   259.48   2.908    15.83    21.70
       ================================================
       ID = 3 (  0055):   371.40   3.894    15.58    22.18

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0055)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0055):   371.40   3.894    15.58    22.18
     + ID2= 2 (  0054):  4208.09  19.280    24.83    18.67
       ================================================
       ID = 1 (  0055):  4579.49  19.839    24.83    18.96

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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================================================================================================================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
         V  V   I       SS  U   U  A   A  L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M  M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\6938b51d-31a7
  Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\6938b51d-31a7


DATE: 09/26/2024                          TIME: 11:20:27

USER:


COMMENTS: _____________________________________________________


----------------------------------------------------------------------------------------------------------------
  ***********************************************
  ** SIMULATION : Hzl12h15                     **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jkoen\AppD
|                  |              ata\Local\Temp\
|                  |              edee1ed6-4a81-4f8b-a131-6e8eedc0aa7b\3e126d9e
| Ptotal=212.00 mm |    Comments: Hzl12h15
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.00    6.00 |  3.00   13.00 |   6.00   23.00 |  9.00   53.00
               0.25    6.00 |  3.25   13.00 |   6.25   23.00 |  9.25   53.00
               0.50    6.00 |  3.50   13.00 |   6.50   23.00 |  9.50   53.00
               0.75    6.00 |  3.75   13.00 |   6.75   23.00 |  9.75   53.00
               1.00    4.00 |  4.00   17.00 |   7.00   13.00 | 10.00   38.00
               1.25    4.00 |  4.25   17.00 |   7.25   13.00 | 10.25   38.00
               1.50    4.00 |  4.50   17.00 |   7.50   13.00 | 10.50   38.00
               1.75    4.00 |  4.75   17.00 |   7.75   13.00 | 10.75   38.00
               2.00    6.00 |  5.00   13.00 |   8.00   13.00 | 11.00   13.00
               2.25    6.00 |  5.25   13.00 |   8.25   13.00 | 11.25   13.00
               2.50    6.00 |  5.50   13.00 |   8.50   13.00 | 11.50   13.00
               2.75    6.00 |  5.75   13.00 |   8.75   13.00 | 11.75   13.00

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| CALIB            |
| NASHYD   (  0016)|   Area    (ha)= 147.08   Curve Number   (CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.42

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
               0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
               0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
               0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
               0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
               0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
               0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
               0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
               0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
               0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
               0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
               1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
               1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
               1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
               1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
               1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
               1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
               1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
               1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
               1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
               1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
               1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
               1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
               2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
               2.083    6.00 | 5.083   13.00 | 8.083   13.00 | 11.08   13.00
               2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
               2.250    6.00 | 5.250   13.00 | 8.250   13.00 | 11.25   13.00
               2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
               2.417    6.00 | 5.417   13.00 | 8.417   13.00 | 11.42   13.00
               2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
               2.583    6.00 | 5.583   13.00 | 8.583   13.00 | 11.58   13.00
               2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
               2.750    6.00 | 5.750   13.00 | 8.750   13.00 | 11.75   13.00
               2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
               2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
               3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

     Unit Hyd Qpeak  (cms)=   3.956

     PEAK FLOW       (cms)=  12.448 (i)
     TIME TO PEAK    (hrs)=  11.500
     RUNOFF VOLUME    (mm)= 153.834
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.726

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| SHIFT HYD(  0044)|
| IN= 2---> OUT= 1 |
| SHIFT= 20.5 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0016):  147.08    12.45     11.50    153.83
    SHIFT ID= 1 (  0044):  147.08    12.45     11.83    153.83

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--------------------
| CALIB            |
| NASHYD   (  0017)|   Area    (ha)= 147.40   Curve Number   (CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.60   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.43

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
               0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
               0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
               0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
               0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
               0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
               0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
               0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
               0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
               0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
               0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
               1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
               1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
               1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
               1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
               1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
               1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
               1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
               1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
               1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
               1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
               1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
               1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
               2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
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2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 3.937

PEAK FLOW (cms)= 10.439 (i)
TIME TO PEAK (hrs)= 11.583
RUNOFF VOLUME (mm)= 121.621
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.574

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0001)	Area (ha)= 351.84	Curve Number (CN)= 77.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.60	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.25		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 5.973

PEAK FLOW (cms)= 23.366 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 149.068
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.703

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0024)				
IN= 2---> OUT= 1				
SHIFT= 80.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0001):	351.84	23.37	12.25	149.07
SHIFT ID= 1 (0024):	351.84	23.37	13.58	149.07

CALIB			
NASHYD (0002)	Area (ha)= 415.84	Curve Number (CN)= 75.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.65		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 5.994

PEAK FLOW (cms)= 24.555 (i)
TIME TO PEAK (hrs)= 12.583
RUNOFF VOLUME (mm)= 143.984
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.679

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0025)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	415.84	24.555	12.58	143.98
+ ID2= 2 (0024):	351.84	23.366	13.58	149.07
ID = 3 (0025):	767.68	46.516	13.17	146.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0031)
IN= 2---> OUT= 1

SHIFT=129.8 min		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0025):		767.68	46.52	13.17	146.31
SHIFT ID= 1 (0031):		767.68	46.52	15.25	146.31

CALIB NASHYD (0011) ID= 1 DT= 5.0 min	Area (ha)= 241.80	Curve Number (CN)= 73.0
	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.81	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 5.103

PEAK FLOW (cms)= 17.061 (i)
TIME TO PEAK (hrs)= 11.917
RUNOFF VOLUME (mm)= 139.407
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.658

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0032) 1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0011):		241.80	17.061	11.92	139.41
+ ID2= 2 (0031):		767.68	46.516	15.25	146.31
ID = 3 (0032):		1009.48	51.302	14.92	144.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0041) IN= 2---> OUT= 1 SHIFT=155.8 min		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0032):		1009.48	51.30	14.92	144.66
SHIFT ID= 1 (0041):		1009.48	51.30	17.50	144.66

CALIB NASHYD (0003) ID= 1 DT= 5.0 min	Area (ha)= 161.56	Curve Number (CN)= 70.0
	Ia (mm)= 8.10	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.77	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 3.486

PEAK FLOW (cms)= 11.092 (i)
TIME TO PEAK (hrs)= 11.917
RUNOFF VOLUME (mm)= 132.931
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.627

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026) IN= 2---> OUT= 1 SHIFT=115.6 min		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0003):		161.56	11.09	11.92	132.93
SHIFT ID= 1 (0026):		161.56	11.09	13.83	132.93

CALIB NASHYD (0004) ID= 1 DT= 5.0 min	Area (ha)= 84.72	Curve Number (CN)= 74.0
	Ia (mm)= 8.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.50	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr

0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.157

PEAK FLOW (cms)= 6.617 (i)
TIME TO PEAK (hrs)= 11.583
RUNOFF VOLUME (mm)= 141.916
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.669

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=101.8 min	ID= 2 (0004):	84.72	6.62	11.58	141.92
	SHIFT ID= 1 (0027):	84.72	6.62	13.25	141.92

CALIB					
NASHYD (0005)	Area	(ha)= 290.88	Curve Number	(CN)= 70.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.30	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.09				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 5.316

PEAK FLOW (cms)= 18.358 (i)
TIME TO PEAK (hrs)= 12.167
RUNOFF VOLUME (mm)= 132.756
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.626

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=144.1 min	ID= 2 (0005):	290.88	18.36	12.17	132.76
	SHIFT ID= 1 (0029):	290.88	18.36	14.50	132.76

CALIB					
NASHYD (0006)	Area	(ha)= 391.92	Curve Number	(CN)= 76.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.20				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00

2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 6.804

PEAK FLOW (cms)= 25.984 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 146.059
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.689

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0007)	Area	(ha)= 81.24	Curve Number	(CN)= 69.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.70	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.53				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.028

PEAK FLOW (cms)= 5.895 (i)
TIME TO PEAK (hrs)= 11.667
RUNOFF VOLUME (mm)= 130.211
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.614

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0030)				
IN= 2---> OUT= 1				
SHIFT=147.5 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0007):	81.24	5.89	11.67	130.21
SHIFT ID= 1 (0030):	81.24	5.89	14.08	130.21

ADD HYD (0028)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0026):	161.56	11.092	13.83	132.93
+ ID2= 2 (0027):	84.72	6.617	13.25	141.92
ID = 3 (0028):	246.28	17.499	13.58	136.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	246.28	17.499	13.58	136.02
+ ID2= 2 (0029):	290.88	18.358	14.50	132.76
ID = 1 (0028):	537.16	34.712	14.00	134.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0028):	537.16	34.712	14.00	134.25
+ ID2= 2 (0030):	81.24	5.895	14.08	130.21
ID = 3 (0028):	618.40	40.600	14.00	133.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	618.40	40.600	14.00	133.72
+ ID2= 2 (0006):	391.92	25.984	12.25	146.06
ID = 1 (0028):	1010.32	59.976	13.58	138.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0033)				
IN= 2---> OUT= 1				
SHIFT=106.7 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0028):	1010.32	59.98	13.58	138.51
SHIFT ID= 1 (0033):	1010.32	59.98	15.33	138.51

CALIB					
NASHYD (0010)	Area	(ha)= 145.33	Curve Number	(CN)= 81.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.70	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.25				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00

1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.467

PEAK FLOW (cms)= 10.087 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 158.172
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.746

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0034)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0010):	145.33	10.087	12.25	158.17
+ ID2= 2 (0033):	1010.32	59.976	15.33	138.51
ID = 3 (0034):	1155.65	64.180	15.17	140.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0040)				
IN= 2---> OUT= 1				
SHIFT=232.1 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0034):	1155.65	64.18	15.17	140.98
SHIFT ID= 1 (0040):	1155.65	64.18	19.00	140.98

CALIB				
NASHYD (0008)	Area (ha)= 338.84		Curve Number (CN)= 71.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.20		# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.34			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 5.531

PEAK FLOW (cms)= 20.389 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 135.051
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.637

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0035)				
IN= 2---> OUT= 1				
SHIFT= 63.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0008):	338.84	20.39	12.33	135.05
SHIFT ID= 1 (0035):	338.84	20.39	13.33	135.05

CALIB				
NASHYD (0014)	Area (ha)= 99.92		Curve Number (CN)= 80.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.40		# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.66			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00

2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.299

PEAK FLOW (cms)= 7.950 (i)
TIME TO PEAK (hrs)= 11.750
RUNOFF VOLUME (mm)= 155.196
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.732

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0036)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0014):	99.92	7.950	11.75	155.20
	+ ID2= 2 (0035):	338.84	20.389	13.33	135.05
	ID = 3 (0036):	438.76	26.142	12.92	139.64

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0037)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0036):	438.76	26.14	12.92	139.64
SHIFT= 83.8 min	SHIFT ID= 1 (0037):	438.76	26.14	14.25	139.64

CALIB NASHYD (0013)					
ID= 1 DT= 5.0 min	Area (ha)= 73.84	Curve Number (CN)= 82.0	Ia (mm)= 8.80	# of Linear Res.(N)= 3.00	U.H. Tp(hrs)= 1.73

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 1.630

PEAK FLOW (cms)= 5.874 (i)
TIME TO PEAK (hrs)= 11.750
RUNOFF VOLUME (mm)= 159.449
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.752

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0038)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0013):	73.84	5.874	11.75	159.45
	+ ID2= 2 (0037):	438.76	26.142	14.25	139.64
	ID = 3 (0038):	512.60	28.843	14.00	142.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0009)					
ID= 1 DT= 5.0 min	Area (ha)= 249.68	Curve Number (CN)= 76.0	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00	U.H. Tp(hrs)= 2.41

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 3.957

PEAK FLOW (cms)= 15.755 (i)
TIME TO PEAK (hrs)= 12.417
RUNOFF VOLUME (mm)= 146.059
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.689

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| SHIFT HYD(  0039)|
| IN= 2---> OUT= 1 |
| SHIFT=208.2 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0009):  249.68    15.76     12.42    146.06
    SHIFT ID= 1 (  0039):  249.68    15.76     15.83    146.06

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--------------------
| CALIB            |
| NASHYD   (  0012)|   Area    (ha)= 383.04   Curve Number   (CN)= 74.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.30   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   3.18

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
2.083    6.00 | 5.083   13.00 | 8.083   13.00 | 11.08   13.00
2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
2.250    6.00 | 5.250   13.00 | 8.250   13.00 | 11.25   13.00
2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
2.417    6.00 | 5.417   13.00 | 8.417   13.00 | 11.42   13.00
2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
2.583    6.00 | 5.583   13.00 | 8.583   13.00 | 11.58   13.00
2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
2.750    6.00 | 5.750   13.00 | 8.750   13.00 | 11.75   13.00
2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

    Unit Hyd Qpeak  (cms)=   4.601

    PEAK FLOW       (cms)=  19.924 (i)
    TIME TO PEAK    (hrs)=  13.000
    RUNOFF VOLUME    (mm)= 141.644
    TOTAL RAINFALL   (mm)= 212.000
    RUNOFF COEFFICIENT   =   0.668

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| NASHYD   (  0015)|   Area    (ha)= 159.16   Curve Number   (CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.10   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.50

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
2.083    6.00 | 5.083   13.00 | 8.083   13.00 | 11.08   13.00
2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
2.250    6.00 | 5.250   13.00 | 8.250   13.00 | 11.25   13.00
2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
2.417    6.00 | 5.417   13.00 | 8.417   13.00 | 11.42   13.00
2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
2.583    6.00 | 5.583   13.00 | 8.583   13.00 | 11.58   13.00
2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
2.750    6.00 | 5.750   13.00 | 8.750   13.00 | 11.75   13.00
2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

    Unit Hyd Qpeak  (cms)=   4.053

    PEAK FLOW       (cms)=  13.154 (i)
    TIME TO PEAK    (hrs)=  11.583
    RUNOFF VOLUME    (mm)= 154.116
    TOTAL RAINFALL   (mm)= 212.000
    RUNOFF COEFFICIENT   =   0.727

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| SHIFT HYD(  0042)|
| IN= 2---> OUT= 1 |
| SHIFT= 55.3 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0015):  159.16    13.15     11.58    154.12
    SHIFT ID= 1 (  0042):  159.16    13.15     12.50    154.12

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--------------------
| ADD HYD  (  0043)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0012):   383.04  19.924    13.00   141.64
     + ID2= 2 (  0038):   512.60  28.843    14.00   142.49
       ==============================================
       ID = 3 (  0043):   895.64  47.861    13.67   142.13

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0043)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0043):   895.64  47.861    13.67   142.13
     + ID2= 2 (  0039):   249.68  15.755    15.83   146.06
       ==============================================
       ID = 1 (  0043):  1145.32  57.962    14.25   142.99

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ADD HYD  (  0043)|
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|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)     (cms)    (hrs)     (mm)
       ID1= 1 (  0043):  1145.32  57.962    14.25   142.99
     + ID2= 2 (  0040):  1155.65  64.180    19.00   140.98
       ================================================
       ID = 3 (  0043):  2300.97  87.917    15.83   141.98

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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-------------------
| ADD HYD  (  0043)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)     (cms)    (hrs)     (mm)
       ID1= 3 (  0043):  2300.97  87.917    15.83   141.98
     + ID2= 2 (  0041):  1009.48  51.302    17.50   144.66
       ================================================
       ID = 1 (  0043):  3310.45 134.996    17.00   142.80

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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-------------------
| ADD HYD  (  0043)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)     (cms)    (hrs)     (mm)
       ID1= 1 (  0043):  3310.45 134.996    17.00   142.80
     + ID2= 2 (  0042):   159.16  13.154    12.50   154.12
       ================================================
       ID = 3 (  0043):  3469.61 135.899    16.83   143.32

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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-------------------
| ADD HYD  (  0045)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)     (cms)    (hrs)     (mm)
       ID1= 1 (  0017):   147.40  10.439    11.58   121.62
     + ID2= 2 (  0043):  3469.61 135.899    16.83   143.32
       ================================================
       ID = 3 (  0045):  3617.01 136.164    16.75   142.43

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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-------------------
| ADD HYD  (  0045)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)     (cms)    (hrs)     (mm)
       ID1= 3 (  0045):  3617.01 136.164    16.75   142.43
     + ID2= 2 (  0044):   147.08  12.448    11.83   153.83
       ================================================
       ID = 1 (  0045):  3764.09 136.629    16.58   142.88

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
-------------------
| SHIFT HYD(  0047)|
| IN= 2---> OUT= 1 |
| SHIFT=107.5 min  |      AREA     QPEAK     TPEAK      R.V.
-------------------      (ha)      (cms)     (hrs)      (mm)
         ID= 2 (  0045): 3764.09   136.63     16.58    142.88
    SHIFT ID= 1 (  0047): 3764.09   136.63     18.33    142.88

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-------------------
| CALIB            |
| NASHYD   (  0018)|   Area    (ha)= 126.36   Curve Number   (CN)= 73.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.40   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   2.08

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
 0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
 0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
 0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
 0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
 0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
 0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
 0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
 0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
 0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
 0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
 1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
 1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
 1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
 1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
 1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
 1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
 1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
 1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
 1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
 1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
 1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
 1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
 2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
 2.083    6.00 | 5.083   13.00 | 8.083   13.00 | 11.08   13.00
 2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
 2.250    6.00 | 5.250   13.00 | 8.250   13.00 | 11.25   13.00
 2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
 2.417    6.00 | 5.417   13.00 | 8.417   13.00 | 11.42   13.00
 2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
 2.583    6.00 | 5.583   13.00 | 8.583   13.00 | 11.58   13.00
 2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
 2.750    6.00 | 5.750   13.00 | 8.750   13.00 | 11.75   13.00
 2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
 2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
 3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

     Unit Hyd Qpeak  (cms)=   2.320

     PEAK FLOW       (cms)=   8.314 (i)
     TIME TO PEAK    (hrs)=  12.167
     RUNOFF VOLUME    (mm)= 139.317
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.657

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
-------------------
| SHIFT HYD(  0046)|
| IN= 2---> OUT= 1 |
| SHIFT= 63.7 min  |      AREA     QPEAK     TPEAK      R.V.
-------------------      (ha)      (cms)     (hrs)      (mm)
         ID= 2 (  0018):  126.36     8.31     12.17    139.32
    SHIFT ID= 1 (  0046):  126.36     8.31     13.17    139.32

-------------------------------------------------------------------------------
-------------------
| CALIB            |
| NASHYD   (  0019)|   Area    (ha)= 198.16   Curve Number   (CN)= 73.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.60   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.67

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
 0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
 0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
 0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
 0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
 0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
 0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
 0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
 0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
 0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
 0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
 1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
 1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
 1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
 1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
 1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
 1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
 1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
 1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
 1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
 1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
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1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 4.532

PEAK FLOW (cms)= 14.526 (i)
TIME TO PEAK (hrs)= 11.750
RUNOFF VOLUME (mm)= 139.136
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.656

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0048)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0019):		198.16	14.526	11.75	139.14
+ ID2= 2 (0046):		126.36	8.314	13.17	139.32
ID = 3 (0048):		324.52	21.350	12.25	139.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0048)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0048):		324.52	21.350	12.25	139.21
+ ID2= 2 (0047):		3764.09	136.629	18.33	142.88
ID = 1 (0048):		4088.61	137.781	18.08	142.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0049)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 81.0 min	ID= 2 (0048):	4088.61	137.78	18.08	142.59
	SHIFT ID= 1 (0049):	4088.61	137.78	19.42	142.59

CALIB				
NASHYD (0022)	Area	(ha)= 119.48	Curve Number	(CN)= 73.0
ID= 1 DT= 5.0 min	Ia	(mm)= 8.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)=	1.78		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.564

PEAK FLOW (cms)= 8.501 (i)
TIME TO PEAK (hrs)= 11.917
RUNOFF VOLUME (mm)= 139.587
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.658

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0022):		119.48	8.501	11.92	139.59
+ ID2= 2 (0049):		4088.61	137.781	19.42	142.59
ID = 3 (0050):		4208.09	137.849	19.42	142.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0054)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 52.5 min	ID= 2 (0050):	4208.09	137.85	19.42	142.50
	SHIFT ID= 1 (0054):	4208.09	137.85	20.25	142.50

CALIB				
NASHYD (0020)	Area	(ha)= 126.24	Curve Number	(CN)= 78.0
ID= 1 DT= 5.0 min	Ia	(mm)= 7.90	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)=	1.86		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00

1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.592

PEAK FLOW (cms)= 9.326 (i)
TIME TO PEAK (hrs)= 11.917
RUNOFF VOLUME (mm)= 151.072
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.713

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0051) / IN= 2---> OUT= 1 / SHIFT= 26.3 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0020):	126.24	9.33	11.92	151.07
SHIFT ID= 1 (0051):	126.24	9.33	12.33	151.07

CALIB / NASHYD (0021) / ID= 1 DT= 5.0 min			
	Area (ha)= 133.24	Curve Number (CN)= 79.0	
	Ia (mm)= 8.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.31		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 3.885

PEAK FLOW (cms)= 11.661 (i)
TIME TO PEAK (hrs)= 11.417
RUNOFF VOLUME (mm)= 153.177
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.723

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0052) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0021):	133.24	11.661	11.42	153.18
+ ID2= 2 (0051):	126.24	9.326	12.33	151.07
ID = 3 (0052):	259.48	20.128	11.75	152.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0053) / IN= 2---> OUT= 1 / SHIFT=106.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0052):	259.48	20.13	11.75	152.15
SHIFT ID= 1 (0053):	259.48	20.13	13.50	152.15

CALIB / NASHYD (0023) / ID= 1 DT= 5.0 min			
	Area (ha)= 111.92	Curve Number (CN)= 80.0	
	Ia (mm)= 8.70	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.81		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00

```
              2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
              2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
              3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

     Unit Hyd Qpeak  (cms)=   2.362

     PEAK FLOW       (cms)=   8.545 (i)
     TIME TO PEAK    (hrs)=  11.833
     RUNOFF VOLUME    (mm)= 154.913
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.731

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0055)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0023):   111.92   8.545    11.83   154.91
     + ID2= 2 (  0053):   259.48  20.128    13.50   152.15
       ================================================
       ID = 3 (  0055):   371.40  26.298    13.17   152.98

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0055)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0055):   371.40  26.298    13.17   152.98
     + ID2= 2 (  0054):  4208.09 137.849    20.25   142.50
       ================================================
       ID = 1 (  0055):  4579.49 139.573    17.75   143.35

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

 FINISH
================================================================================================================
```

Project Name: Centre Wellington 4 Bridges EA
Project No: 300058118
Location: Township of Centre Wellington
Designer: J.Koen
Date: 27-Sep-2024

BURNSIDE
R. J. Burnside & Associates Limited
3 Ronell Crescent, Collingwood, Ontario
telephone (705) 446-0515 fax (705) 446-2399
web www.rjburnside.com

Bridge 5-E

Storm Event	VO	UOFM
	Q-Peak (cms)	Q-Peak (cms)
2-year	11.77	14.82
5-Year	20.46	-
10-Year	26.71	25.20
25-Year	36.32	30.65
50-Year	43.73	34.75
100-Year	51.52	39.30
Regional	140.40	-
Drainage Area (ha)	5566.68	5599.6

UNIFIED ONTARIO FLOOD METHOD

Bridge 5-E

$Q_{uofm} = Kr * A^a * Li^b * P^c$

Inputs

Parameter	Symbol	Units	Input*
Drainage Area	A	km^2	55.996
Ecozone		Input 1 = Boreal Sheild or 2 = Mixed Wood Plains	2
Lake/Wetland Areas	WA	km^2	12.89
Lake Attenuation Index	LI (LI = 1+(WA/A))	dimensionless	1.230195014
Mean Annual Precipitaiton	P	mm	940

*Input from OFAT



Figure 1: Ecozones of Ontario (EcoZone, 2012)

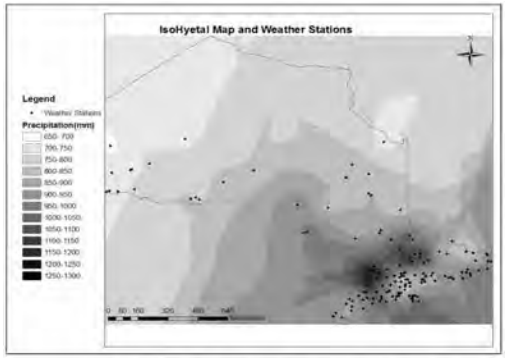

Figure 2: Isohyetal Map with Location of Environment Canada Weather Stations

Regression Parameters

x	a	b	c	
-5.483	0.756	-3.061	1.837	
-4.139	0.734	-3.78	1.491	
-3.68	0.728	-4.017	1.372	
-3.397	0.724	-4.162	1.299	
-3.151	0.721	-4.287	1.236	

T	Standard Error	Lower Limit (%)	Upper Limit (%)
2	0.159	-29	40
10	0.174	-32	46
25	0.183	-33	50
50	0.189	-35	53
100	0.195	-36	57

Results

T	Flow (Q_{uofm}) m^3/s	Lower Limit m^3/s	Upper Limit m^3/s
2	10.5884	7.51780	14.82383
10	17.258	11.73514	25.19603
25	20.435	13.69112	30.65177
50	22.714	14.76388	34.75190
100	25.032	16.02023	39.29963

```
=============================================================================================================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
         V V    I       SS  U   U  A   A  L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M M M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\7f3219ee-b108
  Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\7f3219ee-b108


DATE: 09/27/2024                          TIME: 12:31:20

USER:


COMMENTS: _____________________________________________________


-------------------------------------------------------------------------------------------------------------------
  ***********************************************
  ** SIMULATION : 100yr 24hr 15min SCS Type II_ **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jkoen\AppD
|                  |              ata\Local\Temp\
|                  |              33a2935f-00c8-4f23-9a93-7abdd6141ba8\bfb3b633
| Ptotal=132.00 mm |    Comments: 100yr 24hr 15min SCS Type II_5E
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  6.25    2.38 | 12.50   19.01 | 18.75    2.38
                0.25    1.45 |  6.50    2.38 | 12.75    9.77 | 19.00    2.38
                0.50    1.45 |  6.75    2.38 | 13.00    9.77 | 19.25    2.38
                0.75    1.45 |  7.00    2.38 | 13.25    7.13 | 19.50    2.38
                1.00    1.45 |  7.25    2.90 | 13.50    7.13 | 19.75    2.38
                1.25    1.45 |  7.50    2.90 | 13.75    5.54 | 20.00    2.38
                1.50    1.45 |  7.75    2.90 | 14.00    5.54 | 20.25    1.58
                1.75    1.45 |  8.00    2.90 | 14.25    3.96 | 20.50    1.58
                2.00    1.45 |  8.25    3.43 | 14.50    3.96 | 20.75    1.58
                2.25    1.72 |  8.50    3.43 | 14.75    3.96 | 21.00    1.58
                2.50    1.72 |  8.75    3.70 | 15.00    3.96 | 21.25    1.58
                2.75    1.72 |  9.00    3.70 | 15.25    3.96 | 21.50    1.58
                3.00    1.72 |  9.25    4.22 | 15.50    3.96 | 21.75    1.58
                3.25    1.72 |  9.50    4.22 | 15.75    3.96 | 22.00    1.58
                3.50    1.72 |  9.75    4.75 | 16.00    3.96 | 22.25    1.58
                3.75    1.72 | 10.00    4.75 | 16.25    2.38 | 22.50    1.58
                4.00    1.72 | 10.25    6.07 | 16.50    2.38 | 22.75    1.58
                4.25    2.11 | 10.50    6.07 | 16.75    2.38 | 23.00    1.58
                4.50    2.11 | 10.75    8.18 | 17.00    2.38 | 23.25    1.58
                4.75    2.11 | 11.00    8.18 | 17.25    2.38 | 23.50    1.58
                5.00    2.11 | 11.25   12.67 | 17.50    2.38 | 23.75    1.58
                5.25    2.11 | 11.50   12.67 | 17.75    2.38 | 24.00    1.58
                5.50    2.11 | 11.75   39.07 | 18.00    2.38 |
                5.75    2.11 | 12.00  161.57 | 18.25    2.38 |
                6.00    2.11 | 12.25   19.01 | 18.50    2.38 |

-------------------------------------------------------------------------------

--------------------
| CALIB            |
| NASHYD   (  0001)|   Area    (ha)= 351.84   Curve Number   (CN)= 59.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.60   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.25

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

```
Unit Hyd Qpeak  (cms)=   5.973

PEAK FLOW       (cms)=   7.700 (i)
TIME TO PEAK    (hrs)=  14.667
RUNOFF VOLUME    (mm)=  51.429
TOTAL RAINFALL   (mm)= 132.000
```

RUNOFF COEFFICIENT = 0.390

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0024) / IN= 2---> OUT= 1 / SHIFT= 80.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0001):	351.84	7.70	14.67	51.43
SHIFT ID= 1 (0024):	351.84	7.70	16.00	51.43

CALIB NASHYD (0002) / ID= 1 DT= 5.0 min				
	Area	(ha)= 415.84	Curve Number	(CN)= 57.0
	Ia	(mm)= 8.20	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	2.65		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 5.994

PEAK FLOW (cms)= 7.536 (i)
TIME TO PEAK (hrs)= 15.167
RUNOFF VOLUME (mm)= 48.592
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.368

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0025) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	415.84	7.536	15.17	48.59
+ ID2= 2 (0024):	351.84	7.700	16.00	51.43
ID = 3 (0025):	767.68	14.959	15.75	49.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0031) / IN= 2---> OUT= 1 / SHIFT=129.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0025):	767.68	14.96	15.75	49.89
SHIFT ID= 1 (0031):	767.68	14.96	17.83	49.89

CALIB NASHYD (0011) / ID= 1 DT= 5.0 min				
	Area	(ha)= 241.80	Curve Number	(CN)= 53.0
	Ia	(mm)= 8.30	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.81		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38

2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 5.103

PEAK FLOW (cms)= 5.280 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 43.851
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.332

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0032) | 1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0011):		241.80	5.280	14.17	43.85
+ ID2= 2 (0031):		767.68	14.959	17.83	49.89
ID = 3 (0032):		1009.48	16.963	17.67	48.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0041) | IN= 2---> OUT= 1 | SHIFT=155.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0032):	1009.48	16.96	17.67	48.45
SHIFT ID= 1 (0041):	1009.48	16.96	20.25	48.45

CALIB

NASHYD (0003) | ID= 1 DT= 5.0 min	Area (ha)= 161.56	Curve Number (CN)= 51.0
	Ia (mm)= 8.10	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.77	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 3.486

PEAK FLOW (cms)= 3.404 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 41.722
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.316

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT=115.6 min	ID= 2 (0003):	161.56	3.40	14.17	41.72
	SHIFT ID= 1 (0026):	161.56	3.40	16.08	41.72

CALIB					
NASHYD (0004)	Area (ha)= 84.72	Curve Number (CN)= 55.0			
ID= 1 DT= 5.0 min	Ia (mm)= 8.00	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 1.50				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 2.157

PEAK FLOW (cms)= 2.266 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 46.339
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.351

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT=101.8 min	ID= 2 (0004):	84.72	2.27	13.83	46.34
	SHIFT ID= 1 (0027):	84.72	2.27	15.50	46.34

CALIB					
NASHYD (0005)	Area (ha)= 290.88	Curve Number (CN)= 51.0			
ID= 1 DT= 5.0 min	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 2.09				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58

2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 5.316

PEAK FLOW (cms)= 5.377 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 41.610
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.315

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0005):	290.88	5.38	14.58	41.61
SHIFT=144.1 min	SHIFT ID= 1 (0029):	290.88	5.38	16.92	41.61

CALIB NASHYD (0006)					
ID= 1 DT= 5.0 min	Area (ha)= 391.92	Curve Number (CN)= 57.0	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00	U.H. Tp(hrs)= 2.20

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 6.804

PEAK FLOW (cms)= 8.196 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 48.466
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.367

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0007)					
ID= 1 DT= 5.0 min	Area (ha)= 81.24	Curve Number (CN)= 49.0	Ia (mm)= 8.70	# of Linear Res.(N)= 3.00	U.H. Tp(hrs)= 1.53

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 2.028

PEAK FLOW (cms)= 1.790 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 39.216

TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.297

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0030)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT=147.5 min				
ID= 2 (0007):	81.24	1.79	13.92	39.22
SHIFT ID= 1 (0030):	81.24	1.79	16.33	39.22

ADD HYD (0028)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0026):	161.56	3.404	16.08	41.72
+ ID2= 2 (0027):	84.72	2.266	15.50	46.34
ID = 3 (0028):	246.28	5.561	15.83	43.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1				
ID1= 3 (0028):	246.28	5.561	15.83	43.31
+ ID2= 2 (0029):	290.88	5.377	16.92	41.61
ID = 1 (0028):	537.16	10.421	16.42	42.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0028):	537.16	10.421	16.42	42.39
+ ID2= 2 (0030):	81.24	1.790	16.33	39.22
ID = 3 (0028):	618.40	12.212	16.33	41.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1				
ID1= 3 (0028):	618.40	12.212	16.33	41.97
+ ID2= 2 (0006):	391.92	8.196	14.67	48.47
ID = 1 (0028):	1010.32	18.791	16.08	44.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0033)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT=106.7 min				
ID= 2 (0028):	1010.32	18.79	16.08	44.49
SHIFT ID= 1 (0033):	1010.32	18.79	17.83	44.49

CALIB			
NASHYD (0010)	Area (ha)= 145.33	Curve Number (CN)= 65.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.70	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.25		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr

0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 2.467

PEAK FLOW (cms)= 3.702 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 59.182
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.448

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0034)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0010):		145.33	3.702	14.67	59.18
+ ID2= 2 (0033):		1010.32	18.791	17.83	44.49
ID = 3 (0034):		1155.65	20.771	17.75	46.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0040)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT=232.1 min		(ha)	(cms)	(hrs)	(mm)
ID= 2 (0034):		1155.65	20.77	17.75	46.34
SHIFT ID= 1 (0040):		1155.65	20.77	21.58	46.34

CALIB				
NASHYD (0008)	Area	(ha)= 338.84	Curve Number	(CN)= 51.0
ID= 1 DT= 5.0 min	Ia	(mm)= 8.20	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)=	2.34		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58

4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 5.531

PEAK FLOW (cms)= 5.747 (i)
TIME TO PEAK (hrs)= 14.833
RUNOFF VOLUME (mm)= 41.666
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.316

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0035) / IN= 2---> OUT= 1 / SHIFT= 63.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0008):	338.84	5.75	14.83	41.67
SHIFT ID= 1 (0035):	338.84	5.75	15.83	41.67

CALIB / NASHYD (0014) / ID= 1 DT= 5.0 min | Area (ha)= 99.92 | Curve Number (CN)= 63.0 | Ia (mm)= 8.40 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.66

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 2.299

PEAK FLOW (cms)= 3.037 (i)
TIME TO PEAK (hrs)= 14.000
RUNOFF VOLUME (mm)= 56.006
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.424

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0036) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0014):	99.92	3.037	14.00	56.01
+ ID2= 2 (0035):	338.84	5.747	15.83	41.67
ID = 3 (0036):	438.76	7.838	15.33	44.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0037) / IN= 2---> OUT= 1 / SHIFT= 83.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0036):	438.76	7.84	15.33	44.93
SHIFT ID= 1 (0037):	438.76	7.84	16.67	44.93

CALIB / NASHYD (0013) / ID= 1 DT= 5.0 min | Area (ha)= 73.84 | Curve Number (CN)= 66.0 | Ia (mm)= 8.80 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.73

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 1.630

PEAK FLOW (cms)= 2.334 (i)
TIME TO PEAK (hrs)= 14.083

RUNOFF VOLUME (mm)= 59.746
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.453

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0038)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0013):	73.84	2.334	14.08	59.75
	+ ID2= 2 (0037):	438.76	7.838	16.67	44.93
	ID = 3 (0038):	512.60	9.021	16.42	47.07

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0009)	ID= 1 DT= 5.0 min

Area (ha)= 249.68 Curve Number (CN)= 58.0
Ia (mm)= 8.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.41

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58

4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 3.957

PEAK FLOW (cms)= 4.992 (i)
TIME TO PEAK (hrs)= 14.917
RUNOFF VOLUME (mm)= 49.676
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.376

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0039)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0009):	249.68	4.99	14.92	49.68
SHIFT=208.2 min	SHIFT ID= 1 (0039):	249.68	4.99	18.33	49.68

CALIB NASHYD (0012)					
ID= 1 DT= 5.0 min	Area (ha)= 383.04	Curve Number (CN)= 55.0	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00	U.H. Tp(hrs)= 3.18

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 4.601

PEAK FLOW (cms)= 5.696 (i)
TIME TO PEAK (hrs)= 15.833
RUNOFF VOLUME (mm)= 46.157
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.350

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0015)					
ID= 1 DT= 5.0 min	Area (ha)= 159.16	Curve Number (CN)= 63.0	Ia (mm)= 7.10	# of Linear Res.(N)= 3.00	U.H. Tp(hrs)= 1.50

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38

1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 4.053

PEAK FLOW (cms)= 5.312 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 56.919
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.431

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0042)			
IN= 2---> OUT= 1			
SHIFT= 55.3 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0015):	159.16	5.31	13.83	56.92
SHIFT ID= 1 (0042):	159.16	5.31	14.75	56.92

ADD HYD (0043)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	383.04	5.696	15.83	46.16
+ ID2= 2 (0038):	512.60	9.021	16.42	47.07
ID = 3 (0043):	895.64	14.635	16.33	46.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	895.64	14.635	16.33	46.68
+ ID2= 2 (0039):	249.68	4.992	18.33	49.68
ID = 1 (0043):	1145.32	17.901	17.17	47.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0043):	1145.32	17.901	17.17	47.33
+ ID2= 2 (0040):	1155.65	20.771	21.58	46.34
ID = 3 (0043):	2300.97	29.487	21.25	46.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	2300.97	29.487	21.25	46.83
+ ID2= 2 (0041):	1009.48	16.963	20.25	48.45
ID = 1 (0043):	3310.45	45.410	20.92	47.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0043):	3310.45	45.410	20.92	47.32
+ ID2= 2 (0042):	159.16	5.312	14.75	56.92
ID = 3 (0043):	3469.61	46.208	20.92	47.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0016)			
ID= 1 DT= 5.0 min	Area (ha)= 147.08	Curve Number (CN)= 63.0	
	Ia (mm)= 7.40	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.42		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38

1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38				
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38				
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38				
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38				
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58				
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58				
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58				
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58				
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58				
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58				
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58				
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58				
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58				
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58				
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58				
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58				
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58				
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58				
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58				
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58				
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58				
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58				
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58				
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58				
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58				
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58				
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58				
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58				
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58				
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58				
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58				
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58				
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58				
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58				
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58				
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58				
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58				
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58				
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58				
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58				
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58				
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58				
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58				
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58				
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58				
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58				
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58				
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58				
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58				
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58				
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58				
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58				
6.083	2.11	12.167	161.57	18.250	2.38						

Unit Hyd Qpeak (cms)= 3.956

PEAK FLOW (cms)= 5.100 (i)
TIME TO PEAK (hrs)= 13.750
RUNOFF VOLUME (mm)= 56.708
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.430

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0044)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT= 20.5 min	ID= 2 (0016):	147.08	5.10	13.75	56.71
	SHIFT ID= 1 (0044):	147.08	5.10	14.08	56.71

CALIB					
NASHYD (0017)	Area	(ha)= 147.40	Curve Number	(CN)= 44.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.60	# of Linear Res.	(N)= 3.00	
	U.H. Tp(hrs)= 1.43				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 3.937

PEAK FLOW (cms)= 2.947 (i)
TIME TO PEAK (hrs)= 13.750
RUNOFF VOLUME (mm)= 34.091
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.258

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0045)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0017):	147.40	2.947	13.75	34.09
	+ ID2= 2 (0043):	3469.61	46.208	20.92	47.76
	ID = 3 (0045):	3617.01	46.653	20.92	47.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0045):	3617.01	46.653	20.92	47.21
	+ ID2= 2 (0044):	147.08	5.100	14.08	56.71
	ID = 1 (0045):	3764.09	47.342	20.92	47.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0047)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT=107.5 min		(ha)	(cms)	(hrs)	(mm)
	ID= 2 (0045):	3764.09	47.34	20.92	47.58
	SHIFT ID= 1 (0047):	3764.09	47.34	22.67	47.58

CALIB					
NASHYD (0018)	Area	(ha)= 126.36	Curve Number	(CN)= 54.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.08				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 2.320

PEAK FLOW (cms)= 2.545 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 44.936
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.340

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0046)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT= 63.7 min		(ha)	(cms)	(hrs)	(mm)
	ID= 2 (0018):	126.36	2.55	14.50	44.94
	SHIFT ID= 1 (0046):	126.36	2.55	15.50	44.94

CALIB					
NASHYD (0019)	Area	(ha)= 198.16	Curve Number	(CN)= 54.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.60	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.67				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38

1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 4.532

PEAK FLOW (cms)= 4.712 (i)
TIME TO PEAK (hrs)= 14.000
RUNOFF VOLUME (mm)= 44.817
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.340

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0048)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0019):		198.16	4.712	14.00	44.82
+ ID2= 2 (0046):		126.36	2.545	15.50	44.94
ID = 3 (0048):		324.52	6.577	14.67	44.86

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0048)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0048):		324.52	6.577	14.67	44.86
+ ID2= 2 (0047):		3764.09	47.342	22.67	47.58
ID = 1 (0048):		4088.61	48.484	22.67	47.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0049)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT= 81.0 min		(ha)	(cms)	(hrs)	(mm)
ID= 2 (0048):		4088.61	48.48	22.67	47.36
SHIFT ID= 1 (0049):		4088.61	48.48	24.00	47.36

CALIB					
NASHYD (0022)	Area	(ha)= 119.48	Curve Number	(CN)= 55.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.10	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.78				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58

4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 2.564

PEAK FLOW (cms)= 2.800 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 46.278
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.351

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0022):	119.48	2.800	14.17	46.28
+ ID2= 2 (0049):	4088.61	48.484	24.00	47.36
ID = 3 (0050):	4208.09	48.833	24.00	47.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0054)				
IN= 2---> OUT= 1				
SHIFT= 52.5 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0050):	4208.09	48.83	24.00	47.33
SHIFT ID= 1 (0054):	4208.09	48.83	24.83	47.33

CALIB					
NASHYD (0020)	Area	(ha)= 126.24	Curve Number	(CN)= 61.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.90	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.86				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 2.592

PEAK FLOW (cms)= 3.360 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 53.756
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.407

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0051)				
IN= 2---> OUT= 1				
SHIFT= 26.3 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0020):	126.24	3.36	14.25	53.76
SHIFT ID= 1 (0051):	126.24	3.36	14.67	53.76

CALIB					
NASHYD (0021)	Area	(ha)= 133.24	Curve Number	(CN)= 61.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.10	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.31				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 3.885

PEAK FLOW (cms)= 4.630 (i)
TIME TO PEAK (hrs)= 13.583
RUNOFF VOLUME (mm)= 53.621
TOTAL RAINFALL (mm)= 132.000

RUNOFF COEFFICIENT = 0.406

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0052)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0021):	133.24	4.630	13.58	53.62
	+ ID2= 2 (0051):	126.24	3.360	14.67	53.76
	ID = 3 (0052):	259.48	7.422	14.00	53.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0053) IN= 2---> OUT= 1 SHIFT=106.6 min		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID= 2 (0052):	259.48	7.42	14.00	53.69
	SHIFT ID= 1 (0053):	259.48	7.42	15.75	53.69

CALIB NASHYD (0023) ID= 1 DT= 5.0 min		
	Area (ha)= 111.92	Curve Number (CN)= 64.0
	Ia (mm)= 8.70	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.81	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58

3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 2.362

PEAK FLOW (cms)= 3.252 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 57.116
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.433

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0055)
1 + 2 = 3

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0023):		111.92	3.252	14.17	57.12
+ ID2= 2 (0053):		259.48	7.422	15.75	53.69
ID = 3 (0055):		371.40	9.852	15.58	54.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0055)
3 + 2 = 1

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0055):		371.40	9.852	15.58	54.72
+ ID2= 2 (0054):		4208.09	48.833	24.83	47.33
ID = 1 (0055):		4579.49	50.097	24.83	47.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0065)
IN= 2---> OUT= 1
SHIFT= 80.8 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0055):	4579.49	50.10	24.83	47.93
SHIFT ID= 1 (0065):	4579.49	50.10	26.17	47.93

CALIB
NASHYD (0057)
ID= 1 DT= 5.0 min

Area (ha)= 329.71 Curve Number (CN)= 64.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.00

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 6.297

PEAK FLOW (cms)= 8.956 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 57.687
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.437

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0064)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0057):		329.71	8.956	14.42	57.69
+ ID2= 2 (0065):		4579.49	50.097	26.17	47.93
ID = 3 (0064):		4909.20	50.854	26.08	48.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0063)					
IN= 2---> OUT= 1					
SHIFT= 47.8 min		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID= 2 (0064):		4909.20	50.85	26.08	48.59
SHIFT ID= 1 (0063):		4909.20	50.85	26.83	48.59

CALIB					
NASHYD (0059)	Area	(ha)= 158.28	Curve Number	(CN)= 61.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.96				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 3.084

PEAK FLOW (cms)= 4.071 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 54.096
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.410

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0068)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0059):		158.28	4.071	14.33	54.10
+ ID2= 2 (0063):		4909.20	50.854	26.83	48.59
ID = 3 (0068):		5067.48	51.098	26.83	48.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0072)					
IN= 2---> OUT= 1					
SHIFT= 99.0 min		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID= 2 (0068):		5067.48	51.10	26.83	48.76
SHIFT ID= 1 (0072):		5067.48	51.10	28.42	48.76

CALIB					
NASHYD (0058)	Area	(ha)= 138.00	Curve Number	(CN)= 67.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.30	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.83				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38

1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 2.880

PEAK FLOW (cms)= 4.359 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 62.249
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.472

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0066)				
IN= 2---> OUT= 1				
SHIFT= 87.0 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0058):	138.00	4.36	14.17	62.25
SHIFT ID= 1 (0066):	138.00	4.36	15.58	62.25

CALIB					
NASHYD (0060)	Area (ha)=	92.48	Curve Number (CN)=	67.0
ID= 1 DT= 5.0 min	Ia (mm)=	7.30	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.85		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 1.909

PEAK FLOW (cms)= 2.896 (i)
TIME TO PEAK (hrs)= 14.167

RUNOFF VOLUME (mm)= 62.249
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.472

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0067)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 22.8 min	ID= 2 (0060):	92.48	2.90	14.17	62.25
	SHIFT ID= 1 (0067):	92.48	2.90	14.50	62.25

CALIB					
NASHYD (0061)	Area	(ha)= 134.36	Curve Number	(CN)= 67.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.85				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38
0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 2.774

PEAK FLOW (cms)= 4.202 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 62.174
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.471

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0069)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0061):	134.36	4.202	14.17	62.17
	+ ID2= 2 (0066):	138.00	4.359	15.58	62.25
	ID = 3 (0069):	272.36	7.842	15.17	62.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0069)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0069):	272.36	7.842	15.17	62.21
	+ ID2= 2 (0067):	92.48	2.896	14.50	62.25
	ID = 1 (0069):	364.84	10.601	15.00	62.22

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0070)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 5.6 min	ID= 2 (0069):	364.84	10.60	15.00	62.22
	SHIFT ID= 1 (0070):	364.84	10.60	15.08	62.22

CALIB					
NASHYD (0062)	Area	(ha)= 134.36	Curve Number	(CN)= 67.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.85				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.11	12.250	161.57	18.33	2.38
0.167	0.00	6.250	2.11	12.333	19.03	18.42	2.38
0.250	0.00	6.333	2.38	12.417	19.01	18.50	2.38
0.333	1.45	6.417	2.38	12.500	19.01	18.58	2.38
0.417	1.45	6.500	2.38	12.583	19.01	18.67	2.38
0.500	1.45	6.583	2.38	12.667	19.01	18.75	2.38
0.583	1.45	6.667	2.38	12.750	19.01	18.83	2.38
0.667	1.45	6.750	2.38	12.833	9.77	18.92	2.38
0.750	1.45	6.833	2.38	12.917	9.77	19.00	2.38
0.833	1.45	6.917	2.38	13.000	9.77	19.08	2.38

0.917	1.45	7.000	2.38	13.083	9.77	19.17	2.38
1.000	1.45	7.083	2.38	13.167	9.77	19.25	2.38
1.083	1.45	7.167	2.38	13.250	9.77	19.33	2.38
1.167	1.45	7.250	2.38	13.333	7.13	19.42	2.38
1.250	1.45	7.333	2.90	13.417	7.13	19.50	2.38
1.333	1.45	7.417	2.90	13.500	7.13	19.58	2.38
1.417	1.45	7.500	2.90	13.583	7.13	19.67	2.38
1.500	1.45	7.583	2.90	13.667	7.13	19.75	2.38
1.583	1.45	7.667	2.90	13.750	7.13	19.83	2.38
1.667	1.45	7.750	2.90	13.833	5.54	19.92	2.38
1.750	1.45	7.833	2.90	13.917	5.54	20.00	2.38
1.833	1.45	7.917	2.90	14.000	5.54	20.08	2.38
1.917	1.45	8.000	2.90	14.083	5.54	20.17	2.38
2.000	1.45	8.083	2.90	14.167	5.54	20.25	2.38
2.083	1.45	8.167	2.90	14.250	5.54	20.33	1.58
2.167	1.45	8.250	2.90	14.333	3.96	20.42	1.58
2.250	1.45	8.333	3.43	14.417	3.96	20.50	1.58
2.333	1.72	8.417	3.43	14.500	3.96	20.58	1.58
2.417	1.72	8.500	3.43	14.583	3.96	20.67	1.58
2.500	1.72	8.583	3.43	14.667	3.96	20.75	1.58
2.583	1.72	8.667	3.43	14.750	3.96	20.83	1.58
2.667	1.72	8.750	3.43	14.833	3.96	20.92	1.58
2.750	1.72	8.833	3.70	14.917	3.96	21.00	1.58
2.833	1.72	8.917	3.70	15.000	3.96	21.08	1.58
2.917	1.72	9.000	3.70	15.083	3.96	21.17	1.58
3.000	1.72	9.083	3.70	15.167	3.96	21.25	1.58
3.083	1.72	9.167	3.70	15.250	3.96	21.33	1.58
3.167	1.72	9.250	3.70	15.333	3.96	21.42	1.58
3.250	1.72	9.333	4.22	15.417	3.96	21.50	1.58
3.333	1.72	9.417	4.22	15.500	3.96	21.58	1.58
3.417	1.72	9.500	4.22	15.583	3.96	21.67	1.58
3.500	1.72	9.583	4.22	15.667	3.96	21.75	1.58
3.583	1.72	9.667	4.22	15.750	3.96	21.83	1.58
3.667	1.72	9.750	4.22	15.833	3.96	21.92	1.58
3.750	1.72	9.833	4.75	15.917	3.96	22.00	1.58
3.833	1.72	9.917	4.75	16.000	3.96	22.08	1.58
3.917	1.72	10.000	4.75	16.083	3.96	22.17	1.58
4.000	1.72	10.083	4.75	16.167	3.96	22.25	1.58
4.083	1.72	10.167	4.75	16.250	3.96	22.33	1.58
4.167	1.72	10.250	4.75	16.333	2.38	22.42	1.58
4.250	1.72	10.333	6.07	16.417	2.38	22.50	1.58
4.333	2.11	10.417	6.07	16.500	2.38	22.58	1.58
4.417	2.11	10.500	6.07	16.583	2.38	22.67	1.58
4.500	2.11	10.583	6.07	16.667	2.38	22.75	1.58
4.583	2.11	10.667	6.07	16.750	2.38	22.83	1.58
4.667	2.11	10.750	6.07	16.833	2.38	22.92	1.58
4.750	2.11	10.833	8.18	16.917	2.38	23.00	1.58
4.833	2.11	10.917	8.18	17.000	2.38	23.08	1.58
4.917	2.11	11.000	8.18	17.083	2.38	23.17	1.58
5.000	2.11	11.083	8.18	17.167	2.38	23.25	1.58
5.083	2.11	11.167	8.18	17.250	2.38	23.33	1.58
5.167	2.11	11.250	8.18	17.333	2.38	23.42	1.58
5.250	2.11	11.333	12.67	17.417	2.38	23.50	1.58
5.333	2.11	11.417	12.67	17.500	2.38	23.58	1.58
5.417	2.11	11.500	12.67	17.583	2.38	23.67	1.58
5.500	2.11	11.583	12.67	17.667	2.38	23.75	1.58
5.583	2.11	11.667	12.67	17.750	2.38	23.83	1.58
5.667	2.11	11.750	12.67	17.833	2.38	23.92	1.58
5.750	2.11	11.833	39.07	17.917	2.38	24.00	1.58
5.833	2.11	11.917	39.07	18.000	2.38	24.08	1.58
5.917	2.11	12.000	39.07	18.083	2.38	24.17	1.58
6.000	2.11	12.083	161.55	18.167	2.38	24.25	1.58
6.083	2.11	12.167	161.57	18.250	2.38		

Unit Hyd Qpeak (cms)= 2.774

PEAK FLOW (cms)= 4.202 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 62.174
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.471

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0071)| | 1 + 2 = 3 |	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0062):	134.36	4.202	14.17	62.17
+ ID2= 2 (0070):	364.84	10.601	15.08	62.22
ID = 3 (0071):	499.20	14.418	14.92	62.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0071)| | 3 + 2 = 1 |	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0071):	499.20	14.418	14.92	62.21
+ ID2= 2 (0072):	5067.48	51.098	28.42	48.76
ID = 1 (0071):	5566.68	51.524	28.42	49.96

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH

V V I SSSSS U U A L (v 6.2.2017)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL

OOO TTTTT TTTTT H H Y Y M M OOO TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
OOO T T H H Y M M OOO

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
Output filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\37812c7c-3a13
Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\37812c7c-3a13

DATE: 09/27/2024 TIME: 12:31:18

USER:

COMMENTS: _____

** SIMULATION : 10yr 24hr 15min SCS Type II_5 **

READ STORM | Ptotal= 91.20 mm |	Filename: C:\Users\jkoen\AppData\Local\Temp\33a2935f-00c8-4f23-9a93-7abdd6141ba8\b1143c9f Comments: 10yr 24hr 15min SCS Type II_5E

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	1.64	12.50	13.13	18.75	1.64
0.25	1.00	6.50	1.64	12.75	6.75	19.00	1.64
0.50	1.00	6.75	1.64	13.00	6.75	19.25	1.64
0.75	1.00	7.00	1.64	13.25	4.92	19.50	1.64
1.00	1.00	7.25	2.01	13.50	4.92	19.75	1.64
1.25	1.00	7.50	2.01	13.75	3.83	20.00	1.64
1.50	1.00	7.75	2.01	14.00	3.83	20.25	1.09
1.75	1.00	8.00	2.01	14.25	2.74	20.50	1.09
2.00	1.00	8.25	2.37	14.50	2.74	20.75	1.09
2.25	1.19	8.50	2.37	14.75	2.74	21.00	1.09
2.50	1.19	8.75	2.55	15.00	2.74	21.25	1.09
2.75	1.19	9.00	2.55	15.25	2.74	21.50	1.09
3.00	1.19	9.25	2.92	15.50	2.74	21.75	1.09
3.25	1.19	9.50	2.92	15.75	2.74	22.00	1.09
3.50	1.19	9.75	3.28	16.00	2.74	22.25	1.09
3.75	1.19	10.00	3.28	16.25	1.64	22.50	1.09
4.00	1.19	10.25	4.20	16.50	1.64	22.75	1.09

4.25	1.46	10.50	4.20	16.75	1.64	23.00	1.09
4.50	1.46	10.75	5.65	17.00	1.64	23.25	1.09
4.75	1.46	11.00	5.65	17.25	1.64	23.50	1.09
5.00	1.46	11.25	8.76	17.50	1.64	23.75	1.09
5.25	1.46	11.50	8.76	17.75	1.64	24.00	1.09
5.50	1.46	11.75	27.00	18.00	1.64		
5.75	1.46	12.00	111.63	18.25	1.64		
6.00	1.46	12.25	13.13	18.50	1.64		

CALIB NASHYD (0001)	Area (ha)= 351.84	Curve Number (CN)= 59.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.60	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 2.25	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 5.973

PEAK FLOW (cms)= 3.950 (i)
TIME TO PEAK (hrs)= 14.750
RUNOFF VOLUME (mm)= 26.869
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.295

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0024)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT= 80.8 min	ID= 2 (0001):	351.84	3.95	14.75	26.87
	SHIFT ID= 1 (0024):	351.84	3.95	16.08	26.87

CALIB NASHYD (0002)	Area (ha)= 415.84	Curve Number (CN)= 57.0
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 2.65	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09

3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 5.994

PEAK FLOW (cms)= 3.818 (i)
TIME TO PEAK (hrs)= 15.250
RUNOFF VOLUME (mm)= 25.086
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.275

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0025)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):		415.84	3.818	15.25	25.09
+ ID2= 2 (0024):		351.84	3.950	16.08	26.87
ID = 3 (0025):		767.68	7.636	15.83	25.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0031)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT=129.8 min				
ID= 2 (0025):	767.68	7.64	15.83	25.90
SHIFT ID= 1 (0031):	767.68	7.64	17.92	25.90

CALIB NASHYD (0011)			
ID= 1 DT= 5.0 min	Area (ha)= 241.80	Curve Number (CN)= 53.0	
	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.81		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 5.103

PEAK FLOW (cms)= 2.634 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 22.303
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.245

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0032)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3					

```
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0011):   241.80   2.634    14.25    22.30
     + ID2= 2 (  0031):   767.68   7.636    17.92    25.90
       ================================================
       ID = 3 (  0032):  1009.48   8.665    17.75    25.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| SHIFT HYD(  0041)|
| IN= 2---> OUT= 1 |
| SHIFT=155.8 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0032): 1009.48     8.67     17.75     25.04
    SHIFT ID= 1 (  0041): 1009.48     8.67     20.33     25.04

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0003)|   Area    (ha)= 161.56   Curve Number   (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.10   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.77

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.46 |12.250  111.63 | 18.33    1.64
 0.167    0.00 | 6.250    1.46 |12.333   13.15 | 18.42    1.64
 0.250    0.00 | 6.333    1.64 |12.417   13.13 | 18.50    1.64
 0.333    1.00 | 6.417    1.64 |12.500   13.13 | 18.58    1.64
 0.417    1.00 | 6.500    1.64 |12.583   13.13 | 18.67    1.64
 0.500    1.00 | 6.583    1.64 |12.667   13.13 | 18.75    1.64
 0.583    1.00 | 6.667    1.64 |12.750   13.13 | 18.83    1.64
 0.667    1.00 | 6.750    1.64 |12.833    6.75 | 18.92    1.64
 0.750    1.00 | 6.833    1.64 |12.917    6.75 | 19.00    1.64
 0.833    1.00 | 6.917    1.64 |13.000    6.75 | 19.08    1.64
 0.917    1.00 | 7.000    1.64 |13.083    6.75 | 19.17    1.64
 1.000    1.00 | 7.083    1.64 |13.167    6.75 | 19.25    1.64
 1.083    1.00 | 7.167    1.64 |13.250    6.75 | 19.33    1.64
 1.167    1.00 | 7.250    1.64 |13.333    4.93 | 19.42    1.64
 1.250    1.00 | 7.333    2.01 |13.417    4.92 | 19.50    1.64
 1.333    1.00 | 7.417    2.01 |13.500    4.92 | 19.58    1.64
 1.417    1.00 | 7.500    2.01 |13.583    4.92 | 19.67    1.64
 1.500    1.00 | 7.583    2.01 |13.667    4.92 | 19.75    1.64
 1.583    1.00 | 7.667    2.01 |13.750    4.92 | 19.83    1.64
 1.667    1.00 | 7.750    2.01 |13.833    3.83 | 19.92    1.64
 1.750    1.00 | 7.833    2.01 |13.917    3.83 | 20.00    1.64
 1.833    1.00 | 7.917    2.01 |14.000    3.83 | 20.08    1.64
 1.917    1.00 | 8.000    2.01 |14.083    3.83 | 20.17    1.64
 2.000    1.00 | 8.083    2.01 |14.167    3.83 | 20.25    1.64
 2.083    1.00 | 8.167    2.01 |14.250    3.83 | 20.33    1.09
 2.167    1.00 | 8.250    2.01 |14.333    2.74 | 20.42    1.09
 2.250    1.00 | 8.333    2.37 |14.417    2.74 | 20.50    1.09
 2.333    1.19 | 8.417    2.37 |14.500    2.74 | 20.58    1.09
 2.417    1.19 | 8.500    2.37 |14.583    2.74 | 20.67    1.09
 2.500    1.19 | 8.583    2.37 |14.667    2.74 | 20.75    1.09
 2.583    1.19 | 8.667    2.37 |14.750    2.74 | 20.83    1.09
 2.667    1.19 | 8.750    2.37 |14.833    2.74 | 20.92    1.09
 2.750    1.19 | 8.833    2.55 |14.917    2.74 | 21.00    1.09
 2.833    1.19 | 8.917    2.55 |15.000    2.74 | 21.08    1.09
 2.917    1.19 | 9.000    2.55 |15.083    2.74 | 21.17    1.09
 3.000    1.19 | 9.083    2.55 |15.167    2.74 | 21.25    1.09
 3.083    1.19 | 9.167    2.55 |15.250    2.74 | 21.33    1.09
 3.167    1.19 | 9.250    2.55 |15.333    2.74 | 21.42    1.09
 3.250    1.19 | 9.333    2.92 |15.417    2.74 | 21.50    1.09
 3.333    1.19 | 9.417    2.92 |15.500    2.74 | 21.58    1.09
 3.417    1.19 | 9.500    2.92 |15.583    2.74 | 21.67    1.09
 3.500    1.19 | 9.583    2.92 |15.667    2.74 | 21.75    1.09
 3.583    1.19 | 9.667    2.92 |15.750    2.74 | 21.83    1.09
 3.667    1.19 | 9.750    2.92 |15.833    2.74 | 21.92    1.09
 3.750    1.19 | 9.833    3.28 |15.917    2.74 | 22.00    1.09
 3.833    1.19 | 9.917    3.28 |16.000    2.74 | 22.08    1.09
 3.917    1.19 |10.000    3.28 |16.083    2.74 | 22.17    1.09
 4.000    1.19 |10.083    3.28 |16.167    2.74 | 22.25    1.09
 4.083    1.19 |10.167    3.28 |16.250    2.74 | 22.33    1.09
 4.167    1.19 |10.250    3.28 |16.333    1.64 | 22.42    1.09
 4.250    1.19 |10.333    4.20 |16.417    1.64 | 22.50    1.09
 4.333    1.46 |10.417    4.20 |16.500    1.64 | 22.58    1.09
 4.417    1.46 |10.500    4.20 |16.583    1.64 | 22.67    1.09
 4.500    1.46 |10.583    4.20 |16.667    1.64 | 22.75    1.09
 4.583    1.46 |10.667    4.20 |16.750    1.64 | 22.83    1.09
 4.667    1.46 |10.750    4.20 |16.833    1.64 | 22.92    1.09
 4.750    1.46 |10.833    5.65 |16.917    1.64 | 23.00    1.09
 4.833    1.46 |10.917    5.65 |17.000    1.64 | 23.08    1.09
 4.917    1.46 |11.000    5.65 |17.083    1.64 | 23.17    1.09
 5.000    1.46 |11.083    5.65 |17.167    1.64 | 23.25    1.09
 5.083    1.46 |11.167    5.65 |17.250    1.64 | 23.33    1.09
 5.167    1.46 |11.250    5.65 |17.333    1.64 | 23.42    1.09
 5.250    1.46 |11.333    8.75 |17.417    1.64 | 23.50    1.09
 5.333    1.46 |11.417    8.76 |17.500    1.64 | 23.58    1.09
 5.417    1.46 |11.500    8.76 |17.583    1.64 | 23.67    1.09
 5.500    1.46 |11.583    8.76 |17.667    1.64 | 23.75    1.09
 5.583    1.46 |11.667    8.76 |17.750    1.64 | 23.83    1.09
 5.667    1.46 |11.750    8.76 |17.833    1.64 | 23.92    1.09
 5.750    1.46 |11.833   26.99 |17.917    1.64 | 24.00    1.09
 5.833    1.46 |11.917   27.00 |18.000    1.64 | 24.08    1.09
 5.917    1.46 |12.000   27.00 |18.083    1.64 | 24.17    1.09
 6.000    1.46 |12.083  111.62 |18.167    1.64 | 24.25    1.09
 6.083    1.46 |12.167  111.63 |18.250    1.64 |

     Unit Hyd Qpeak  (cms)=   3.486

     PEAK FLOW       (cms)=   1.689 (i)
     TIME TO PEAK    (hrs)=  14.167
     RUNOFF VOLUME    (mm)=  21.109
     TOTAL RAINFALL   (mm)=  91.200
     RUNOFF COEFFICIENT   =   0.231

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| SHIFT HYD(  0026)|
| IN= 2---> OUT= 1 |
| SHIFT=115.6 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0003):  161.56     1.69     14.17     21.11
    SHIFT ID= 1 (  0026):  161.56     1.69     16.08     21.11

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--------------------
| CALIB            |
| NASHYD   (  0004)|   Area    (ha)=  84.72   Curve Number   (CN)= 55.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.50

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.46 |12.250  111.63 | 18.33    1.64
 0.167    0.00 | 6.250    1.46 |12.333   13.15 | 18.42    1.64
 0.250    0.00 | 6.333    1.64 |12.417   13.13 | 18.50    1.64
 0.333    1.00 | 6.417    1.64 |12.500   13.13 | 18.58    1.64
 0.417    1.00 | 6.500    1.64 |12.583   13.13 | 18.67    1.64
 0.500    1.00 | 6.583    1.64 |12.667   13.13 | 18.75    1.64
 0.583    1.00 | 6.667    1.64 |12.750   13.13 | 18.83    1.64
 0.667    1.00 | 6.750    1.64 |12.833    6.75 | 18.92    1.64
 0.750    1.00 | 6.833    1.64 |12.917    6.75 | 19.00    1.64
 0.833    1.00 | 6.917    1.64 |13.000    6.75 | 19.08    1.64
 0.917    1.00 | 7.000    1.64 |13.083    6.75 | 19.17    1.64
 1.000    1.00 | 7.083    1.64 |13.167    6.75 | 19.25    1.64
 1.083    1.00 | 7.167    1.64 |13.250    6.75 | 19.33    1.64
 1.167    1.00 | 7.250    1.64 |13.333    4.93 | 19.42    1.64
 1.250    1.00 | 7.333    2.01 |13.417    4.92 | 19.50    1.64
 1.333    1.00 | 7.417    2.01 |13.500    4.92 | 19.58    1.64
 1.417    1.00 | 7.500    2.01 |13.583    4.92 | 19.67    1.64
 1.500    1.00 | 7.583    2.01 |13.667    4.92 | 19.75    1.64
 1.583    1.00 | 7.667    2.01 |13.750    4.92 | 19.83    1.64
 1.667    1.00 | 7.750    2.01 |13.833    3.83 | 19.92    1.64
 1.750    1.00 | 7.833    2.01 |13.917    3.83 | 20.00    1.64
 1.833    1.00 | 7.917    2.01 |14.000    3.83 | 20.08    1.64
 1.917    1.00 | 8.000    2.01 |14.083    3.83 | 20.17    1.64
 2.000    1.00 | 8.083    2.01 |14.167    3.83 | 20.25    1.64
 2.083    1.00 | 8.167    2.01 |14.250    3.83 | 20.33    1.09
 2.167    1.00 | 8.250    2.01 |14.333    2.74 | 20.42    1.09
 2.250    1.00 | 8.333    2.37 |14.417    2.74 | 20.50    1.09
 2.333    1.19 | 8.417    2.37 |14.500    2.74 | 20.58    1.09
 2.417    1.19 | 8.500    2.37 |14.583    2.74 | 20.67    1.09
 2.500    1.19 | 8.583    2.37 |14.667    2.74 | 20.75    1.09
 2.583    1.19 | 8.667    2.37 |14.750    2.74 | 20.83    1.09
 2.667    1.19 | 8.750    2.37 |14.833    2.74 | 20.92    1.09
 2.750    1.19 | 8.833    2.55 |14.917    2.74 | 21.00    1.09
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2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 2.157

PEAK FLOW (cms)= 1.140 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 23.786
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.261

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=101.8 min	ID= 2 (0004):	84.72	1.14	13.83	23.79
	SHIFT ID= 1 (0027):	84.72	1.14	15.50	23.79

CALIB NASHYD (0005)	Area (ha)= 290.88	Curve Number (CN)= 51.0
ID= 1 DT= 5.0 min	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 2.09	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 5.316

PEAK FLOW (cms)= 2.666 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 21.021
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.230

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=144.1 min	ID= 2 (0005):	290.88	2.67	14.58	21.02
	SHIFT ID= 1 (0029):	290.88	2.67	16.92	21.02

CALIB					
NASHYD (0006)	Area (ha)= 391.92	Curve Number (CN)= 57.0			
ID= 1 DT= 5.0 min	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 2.20				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 6.804

PEAK FLOW (cms)= 4.142 (i)
TIME TO PEAK (hrs)= 14.750
RUNOFF VOLUME (mm)= 24.984
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.274

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0007)	Area (ha)= 81.24	Curve Number (CN)= 49.0			
ID= 1 DT= 5.0 min	Ia (mm)= 8.70	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 1.53				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09

5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 2.028

PEAK FLOW (cms)= 0.878 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 19.622
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.215

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| SHIFT HYD(0030)
| IN= 2---> OUT= 1
SHIFT=147.5 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0007):	81.24	0.88	13.92	19.62
SHIFT ID= 1 (0030):	81.24	0.88	16.33	19.62

| ADD HYD (0028)
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0026):	161.56	1.689	16.08	21.11
+ ID2= 2 (0027):	84.72	1.140	15.50	23.79
ID = 3 (0028):	246.28	2.775	15.92	22.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0028)
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	246.28	2.775	15.92	22.03
+ ID2= 2 (0029):	290.88	2.666	16.92	21.02
ID = 1 (0028):	537.16	5.185	16.42	21.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0028)
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0028):	537.16	5.185	16.42	21.48
+ ID2= 2 (0030):	81.24	0.878	16.33	19.62
ID = 3 (0028):	618.40	6.061	16.42	21.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0028)
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	618.40	6.061	16.42	21.24
+ ID2= 2 (0006):	391.92	4.142	14.75	24.98
ID = 1 (0028):	1010.32	9.424	16.08	22.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| SHIFT HYD(0033)
| IN= 2---> OUT= 1
SHIFT=106.7 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0028):	1010.32	9.42	16.08	22.69
SHIFT ID= 1 (0033):	1010.32	9.42	17.83	22.69

| CALIB NASHYD (0010)
|ID= 1 DT= 5.0 min | Area (ha)= 145.33 | Curve Number (CN)= 65.0
| Ia (mm)= 7.70 | # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 2.25

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09

5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 2.467

PEAK FLOW (cms)= 1.944 (i)
TIME TO PEAK (hrs)= 14.750
RUNOFF VOLUME (mm)= 31.653
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.347

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0034)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0010):		145.33	1.944	14.75	31.65
+ ID2= 2 (0033):		1010.32	9.424	17.83	22.69
ID = 3 (0034):		1155.65	10.497	17.75	23.82

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0040)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=232.1 min	ID= 2 (0034):	1155.65	10.50	17.75	23.82
	SHIFT ID= 1 (0040):	1155.65	10.50	21.58	23.82

CALIB					
NASHYD (0008)	Area	(ha)= 338.84	Curve Number	(CN)= 51.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.20	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.34				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 5.531

PEAK FLOW (cms)= 2.852 (i)
TIME TO PEAK (hrs)= 14.917
RUNOFF VOLUME (mm)= 21.065
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.231

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0035)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 63.2 min	ID= 2 (0008):	338.84	2.85	14.92	21.06
	SHIFT ID= 1 (0035):	338.84	2.85	15.92	21.06

CALIB					
NASHYD (0014)	Area	(ha)= 99.92	Curve Number	(CN)= 63.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.66				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64

0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 2.299

PEAK FLOW (cms)= 1.570 (i)
TIME TO PEAK (hrs)= 14.083
RUNOFF VOLUME (mm)= 29.554
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.324

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0036)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0014):		99.92	1.570	14.08	29.55
+ ID2= 2 (0035):		338.84	2.852	15.92	21.06
ID = 3 (0036):		438.76	3.945	15.42	23.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0037)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 83.8 min	ID= 2 (0036):	438.76	3.94	15.42	23.00
	SHIFT ID= 1 (0037):	438.76	3.94	16.75	23.00

CALIB				
NASHYD (0013)	Area	(ha)= 73.84	Curve Number	(CN)= 66.0
ID= 1 DT= 5.0 min	Ia	(mm)= 8.80	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.73			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09

5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 1.630

PEAK FLOW (cms)= 1.218 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 31.840
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.349

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0038)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0013):	73.84	1.218	14.17	31.84
	+ ID2= 2 (0037):	438.76	3.945	16.75	23.00
	ID = 3 (0038):	512.60	4.583	16.50	24.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0009) ID= 1 DT= 5.0 min			
	Area	(ha)= 249.68	Curve Number (CN)= 58.0
	Ia	(mm)= 8.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	2.41	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 3.957

PEAK FLOW (cms)= 2.533 (i)
TIME TO PEAK (hrs)= 15.000
RUNOFF VOLUME (mm)= 25.703
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.282

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0039) IN= 2---> OUT= 1 SHIFT=208.2 min		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID= 2 (0009):	249.68	2.53	15.00	25.70
	SHIFT ID= 1 (0039):	249.68	2.53	18.42	25.70

CALIB NASHYD (0012) ID= 1 DT= 5.0 min			
	Area	(ha)= 383.04	Curve Number (CN)= 55.0
	Ia	(mm)= 8.30	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	3.18	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64

1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 4.601

PEAK FLOW (cms)= 2.867 (i)
TIME TO PEAK (hrs)= 15.917
RUNOFF VOLUME (mm)= 23.640
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.259

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0015)	Area (ha)= 159.16	Curve Number (CN)= 63.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.50		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 4.053

PEAK FLOW (cms)= 2.778 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 30.320
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.332

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| SHIFT HYD(  0042)|
| IN= 2---> OUT= 1 |
| SHIFT= 55.3 min  |      AREA     QPEAK     TPEAK      R.V.
-------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0015):  159.16     2.78     13.83     30.32
    SHIFT ID= 1 (  0042):  159.16     2.78     14.75     30.32

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| ADD HYD  (  0043)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0012):   383.04   2.867    15.92    23.64
     + ID2= 2 (  0038):   512.60   4.583    16.50    24.27
       ================================================
       ID = 3 (  0043):   895.64   7.416    16.33    24.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ADD HYD  (  0043)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0043):   895.64   7.416    16.33    24.00
     + ID2= 2 (  0039):   249.68   2.533    18.42    25.70
       ================================================
       ID = 1 (  0043):  1145.32   9.082    17.25    24.37

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0043)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0043):  1145.32   9.082    17.25    24.37
     + ID2= 2 (  0040):  1155.65  10.497    21.58    23.82
       ================================================
       ID = 3 (  0043):  2300.97  15.087    21.25    24.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0043)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0043):  2300.97  15.087    21.25    24.09
     + ID2= 2 (  0041):  1009.48   8.665    20.33    25.04
       ================================================
       ID = 1 (  0043):  3310.45  23.276    21.00    24.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ADD HYD  (  0043)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0043):  3310.45  23.276    21.00    24.38
     + ID2= 2 (  0042):   159.16   2.778    14.75    30.32
       ================================================
       ID = 3 (  0043):  3469.61  23.728    21.00    24.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| CALIB            |
| NASHYD   (  0016)|   Area    (ha)= 147.08   Curve Number   (CN)= 63.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.40   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.42

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.46 |12.250  111.63 | 18.33    1.64
 0.167    0.00 | 6.250    1.46 |12.333   13.15 | 18.42    1.64
 0.250    0.00 | 6.333    1.64 |12.417   13.13 | 18.50    1.64
 0.333    1.00 | 6.417    1.64 |12.500   13.13 | 18.58    1.64
 0.417    1.00 | 6.500    1.64 |12.583   13.13 | 18.67    1.64
 0.500    1.00 | 6.583    1.64 |12.667   13.13 | 18.75    1.64
 0.583    1.00 | 6.667    1.64 |12.750   13.13 | 18.83    1.64
 0.667    1.00 | 6.750    1.64 |12.833    6.75 | 18.92    1.64
 0.750    1.00 | 6.833    1.64 |12.917    6.75 | 19.00    1.64
 0.833    1.00 | 6.917    1.64 |13.000    6.75 | 19.08    1.64
 0.917    1.00 | 7.000    1.64 |13.083    6.75 | 19.17    1.64
 1.000    1.00 | 7.083    1.64 |13.167    6.75 | 19.25    1.64
 1.083    1.00 | 7.167    1.64 |13.250    6.75 | 19.33    1.64
 1.167    1.00 | 7.250    1.64 |13.333    4.93 | 19.42    1.64
 1.250    1.00 | 7.333    2.01 |13.417    4.92 | 19.50    1.64
 1.333    1.00 | 7.417    2.01 |13.500    4.92 | 19.58    1.64
 1.417    1.00 | 7.500    2.01 |13.583    4.92 | 19.67    1.64
 1.500    1.00 | 7.583    2.01 |13.667    4.92 | 19.75    1.64
 1.583    1.00 | 7.667    2.01 |13.750    4.92 | 19.83    1.64
 1.667    1.00 | 7.750    2.01 |13.833    3.83 | 19.92    1.64
 1.750    1.00 | 7.833    2.01 |13.917    3.83 | 20.00    1.64
 1.833    1.00 | 7.917    2.01 |14.000    3.83 | 20.08    1.64
 1.917    1.00 | 8.000    2.01 |14.083    3.83 | 20.17    1.64
 2.000    1.00 | 8.083    2.01 |14.167    3.83 | 20.25    1.64
 2.083    1.00 | 8.167    2.01 |14.250    3.83 | 20.33    1.09
 2.167    1.00 | 8.250    2.01 |14.333    2.74 | 20.42    1.09
 2.250    1.00 | 8.333    2.37 |14.417    2.74 | 20.50    1.09
 2.333    1.19 | 8.417    2.37 |14.500    2.74 | 20.58    1.09
 2.417    1.19 | 8.500    2.37 |14.583    2.74 | 20.67    1.09
 2.500    1.19 | 8.583    2.37 |14.667    2.74 | 20.75    1.09
 2.583    1.19 | 8.667    2.37 |14.750    2.74 | 20.83    1.09
 2.667    1.19 | 8.750    2.37 |14.833    2.74 | 20.92    1.09
 2.750    1.19 | 8.833    2.55 |14.917    2.74 | 21.00    1.09
 2.833    1.19 | 8.917    2.55 |15.000    2.74 | 21.08    1.09
 2.917    1.19 | 9.000    2.55 |15.083    2.74 | 21.17    1.09
 3.000    1.19 | 9.083    2.55 |15.167    2.74 | 21.25    1.09
 3.083    1.19 | 9.167    2.55 |15.250    2.74 | 21.33    1.09
 3.167    1.19 | 9.250    2.55 |15.333    2.74 | 21.42    1.09
 3.250    1.19 | 9.333    2.92 |15.417    2.74 | 21.50    1.09
 3.333    1.19 | 9.417    2.92 |15.500    2.74 | 21.58    1.09
 3.417    1.19 | 9.500    2.92 |15.583    2.74 | 21.67    1.09
 3.500    1.19 | 9.583    2.92 |15.667    2.74 | 21.75    1.09
 3.583    1.19 | 9.667    2.92 |15.750    2.74 | 21.83    1.09
 3.667    1.19 | 9.750    2.92 |15.833    2.74 | 21.92    1.09
 3.750    1.19 | 9.833    3.28 |15.917    2.74 | 22.00    1.09
 3.833    1.19 | 9.917    3.28 |16.000    2.74 | 22.08    1.09
 3.917    1.19 |10.000    3.28 |16.083    2.74 | 22.17    1.09
 4.000    1.19 |10.083    3.28 |16.167    2.74 | 22.25    1.09
 4.083    1.19 |10.167    3.28 |16.250    2.74 | 22.33    1.09
 4.167    1.19 |10.250    3.28 |16.333    1.64 | 22.42    1.09
 4.250    1.19 |10.333    4.20 |16.417    1.64 | 22.50    1.09
 4.333    1.46 |10.417    4.20 |16.500    1.64 | 22.58    1.09
 4.417    1.46 |10.500    4.20 |16.583    1.64 | 22.67    1.09
 4.500    1.46 |10.583    4.20 |16.667    1.64 | 22.75    1.09
 4.583    1.46 |10.667    4.20 |16.750    1.64 | 22.83    1.09
 4.667    1.46 |10.750    4.20 |16.833    1.64 | 22.92    1.09
 4.750    1.46 |10.833    5.65 |16.917    1.64 | 23.00    1.09
 4.833    1.46 |10.917    5.65 |17.000    1.64 | 23.08    1.09
 4.917    1.46 |11.000    5.65 |17.083    1.64 | 23.17    1.09
 5.000    1.46 |11.083    5.65 |17.167    1.64 | 23.25    1.09
 5.083    1.46 |11.167    5.65 |17.250    1.64 | 23.33    1.09
 5.167    1.46 |11.250    5.65 |17.333    1.64 | 23.42    1.09
 5.250    1.46 |11.333    8.75 |17.417    1.64 | 23.50    1.09
 5.333    1.46 |11.417    8.76 |17.500    1.64 | 23.58    1.09
 5.417    1.46 |11.500    8.76 |17.583    1.64 | 23.67    1.09
 5.500    1.46 |11.583    8.76 |17.667    1.64 | 23.75    1.09
 5.583    1.46 |11.667    8.76 |17.750    1.64 | 23.83    1.09
 5.667    1.46 |11.750    8.76 |17.833    1.64 | 23.92    1.09
 5.750    1.46 |11.833   26.99 |17.917    1.64 | 24.00    1.09
 5.833    1.46 |11.917   27.00 |18.000    1.64 | 24.08    1.09
 5.917    1.46 |12.000   27.00 |18.083    1.64 | 24.17    1.09
 6.000    1.46 |12.083  111.62 |18.167    1.64 | 24.25    1.09
 6.083    1.46 |12.167  111.63 |18.250    1.64 |

     Unit Hyd Qpeak  (cms)=   3.956

     PEAK FLOW       (cms)=   2.660 (i)
     TIME TO PEAK    (hrs)=  13.750
     RUNOFF VOLUME    (mm)=  30.143
     TOTAL RAINFALL   (mm)=  91.200
     RUNOFF COEFFICIENT   =   0.331

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| SHIFT HYD(  0044)|
| IN= 2---> OUT= 1 |
| SHIFT= 20.5 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0016):  147.08     2.66     13.75     30.14
    SHIFT ID= 1 (  0044):  147.08     2.66     14.08     30.14

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| CALIB            |
| NASHYD   (  0017)|   Area    (ha)= 147.40   Curve Number   (CN)= 44.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.60   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.43

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    0.00 | 6.167    1.46 |12.250  111.63 | 18.33    1.64
0.167    0.00 | 6.250    1.46 |12.333   13.15 | 18.42    1.64
0.250    0.00 | 6.333    1.64 |12.417   13.13 | 18.50    1.64
0.333    1.00 | 6.417    1.64 |12.500   13.13 | 18.58    1.64
0.417    1.00 | 6.500    1.64 |12.583   13.13 | 18.67    1.64
0.500    1.00 | 6.583    1.64 |12.667   13.13 | 18.75    1.64
0.583    1.00 | 6.667    1.64 |12.750   13.13 | 18.83    1.64
0.667    1.00 | 6.750    1.64 |12.833    6.75 | 18.92    1.64
0.750    1.00 | 6.833    1.64 |12.917    6.75 | 19.00    1.64
0.833    1.00 | 6.917    1.64 |13.000    6.75 | 19.08    1.64
0.917    1.00 | 7.000    1.64 |13.083    6.75 | 19.17    1.64
1.000    1.00 | 7.083    1.64 |13.167    6.75 | 19.25    1.64
1.083    1.00 | 7.167    1.64 |13.250    6.75 | 19.33    1.64
1.167    1.00 | 7.250    1.64 |13.333    4.93 | 19.42    1.64
1.250    1.00 | 7.333    2.01 |13.417    4.92 | 19.50    1.64
1.333    1.00 | 7.417    2.01 |13.500    4.92 | 19.58    1.64
1.417    1.00 | 7.500    2.01 |13.583    4.92 | 19.67    1.64
1.500    1.00 | 7.583    2.01 |13.667    4.92 | 19.75    1.64
1.583    1.00 | 7.667    2.01 |13.750    4.92 | 19.83    1.64
1.667    1.00 | 7.750    2.01 |13.833    3.83 | 19.92    1.64
1.750    1.00 | 7.833    2.01 |13.917    3.83 | 20.00    1.64
1.833    1.00 | 7.917    2.01 |14.000    3.83 | 20.08    1.64
1.917    1.00 | 8.000    2.01 |14.083    3.83 | 20.17    1.64
2.000    1.00 | 8.083    2.01 |14.167    3.83 | 20.25    1.64
2.083    1.00 | 8.167    2.01 |14.250    3.83 | 20.33    1.09
2.167    1.00 | 8.250    2.01 |14.333    2.74 | 20.42    1.09
2.250    1.00 | 8.333    2.37 |14.417    2.74 | 20.50    1.09
2.333    1.19 | 8.417    2.37 |14.500    2.74 | 20.58    1.09
2.417    1.19 | 8.500    2.37 |14.583    2.74 | 20.67    1.09
2.500    1.19 | 8.583    2.37 |14.667    2.74 | 20.75    1.09
2.583    1.19 | 8.667    2.37 |14.750    2.74 | 20.83    1.09
2.667    1.19 | 8.750    2.37 |14.833    2.74 | 20.92    1.09
2.750    1.19 | 8.833    2.55 |14.917    2.74 | 21.00    1.09
2.833    1.19 | 8.917    2.55 |15.000    2.74 | 21.08    1.09
2.917    1.19 | 9.000    2.55 |15.083    2.74 | 21.17    1.09
3.000    1.19 | 9.083    2.55 |15.167    2.74 | 21.25    1.09
3.083    1.19 | 9.167    2.55 |15.250    2.74 | 21.33    1.09
3.167    1.19 | 9.250    2.55 |15.333    2.74 | 21.42    1.09
3.250    1.19 | 9.333    2.92 |15.417    2.74 | 21.50    1.09
3.333    1.19 | 9.417    2.92 |15.500    2.74 | 21.58    1.09
3.417    1.19 | 9.500    2.92 |15.583    2.74 | 21.67    1.09
3.500    1.19 | 9.583    2.92 |15.667    2.74 | 21.75    1.09
3.583    1.19 | 9.667    2.92 |15.750    2.74 | 21.83    1.09
3.667    1.19 | 9.750    2.92 |15.833    2.74 | 21.92    1.09
3.750    1.19 | 9.833    3.28 |15.917    2.74 | 22.00    1.09
3.833    1.19 | 9.917    3.28 |16.000    2.74 | 22.08    1.09
3.917    1.19 |10.000    3.28 |16.083    2.74 | 22.17    1.09
4.000    1.19 |10.083    3.28 |16.167    2.74 | 22.25    1.09
4.083    1.19 |10.167    3.28 |16.250    2.74 | 22.33    1.09
4.167    1.19 |10.250    3.28 |16.333    1.64 | 22.42    1.09
4.250    1.19 |10.333    4.20 |16.417    1.64 | 22.50    1.09
4.333    1.46 |10.417    4.20 |16.500    1.64 | 22.58    1.09
4.417    1.46 |10.500    4.20 |16.583    1.64 | 22.67    1.09
4.500    1.46 |10.583    4.20 |16.667    1.64 | 22.75    1.09
4.583    1.46 |10.667    4.20 |16.750    1.64 | 22.83    1.09
4.667    1.46 |10.750    4.20 |16.833    1.64 | 22.92    1.09
4.750    1.46 |10.833    5.65 |16.917    1.64 | 23.00    1.09
4.833    1.46 |10.917    5.65 |17.000    1.64 | 23.08    1.09
4.917    1.46 |11.000    5.65 |17.083    1.64 | 23.17    1.09
5.000    1.46 |11.083    5.65 |17.167    1.64 | 23.25    1.09
5.083    1.46 |11.167    5.65 |17.250    1.64 | 23.33    1.09
5.167    1.46 |11.250    5.65 |17.333    1.64 | 23.42    1.09
5.250    1.46 |11.333    8.75 |17.417    1.64 | 23.50    1.09
5.333    1.46 |11.417    8.76 |17.500    1.64 | 23.58    1.09
5.417    1.46 |11.500    8.76 |17.583    1.64 | 23.67    1.09
5.500    1.46 |11.583    8.76 |17.667    1.64 | 23.75    1.09
5.583    1.46 |11.667    8.76 |17.750    1.64 | 23.83    1.09
5.667    1.46 |11.750    8.76 |17.833    1.64 | 23.92    1.09
5.750    1.46 |11.833   26.99 |17.917    1.64 | 24.00    1.09
5.833    1.46 |11.917   27.00 |18.000    1.64 | 24.08    1.09
5.917    1.46 |12.000   27.00 |18.083    1.64 | 24.17    1.09
6.000    1.46 |12.083  111.62 |18.167    1.64 | 24.25    1.09
6.083    1.46 |12.167  111.63 |18.250    1.64 |

     Unit Hyd Qpeak  (cms)=   3.937

     PEAK FLOW       (cms)=   1.425 (i)
     TIME TO PEAK    (hrs)=  13.833
     RUNOFF VOLUME    (mm)=  16.810
     TOTAL RAINFALL   (mm)=  91.200
     RUNOFF COEFFICIENT   =   0.184

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0045)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0017):   147.40   1.425    13.83    16.81
     + ID2= 2 (  0043):  3469.61  23.728    21.00    24.66
       ================================================
       ID = 3 (  0045):  3617.01  23.959    21.00    24.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0045)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0045):  3617.01  23.959    21.00    24.34
     + ID2= 2 (  0044):   147.08   2.660    14.08    30.14
       ================================================
       ID = 1 (  0045):  3764.09  24.351    21.00    24.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| SHIFT HYD(  0047)|
| IN= 2---> OUT= 1 |
| SHIFT=107.5 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0045): 3764.09    24.35     21.00     24.56
    SHIFT ID= 1 (  0047): 3764.09    24.35     22.75     24.56

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0018)|   Area    (ha)= 126.36   Curve Number   (CN)= 54.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.08

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    0.00 | 6.167    1.46 |12.250  111.63 | 18.33    1.64
0.167    0.00 | 6.250    1.46 |12.333   13.15 | 18.42    1.64
0.250    0.00 | 6.333    1.64 |12.417   13.13 | 18.50    1.64
0.333    1.00 | 6.417    1.64 |12.500   13.13 | 18.58    1.64
0.417    1.00 | 6.500    1.64 |12.583   13.13 | 18.67    1.64
0.500    1.00 | 6.583    1.64 |12.667   13.13 | 18.75    1.64
0.583    1.00 | 6.667    1.64 |12.750   13.13 | 18.83    1.64
0.667    1.00 | 6.750    1.64 |12.833    6.75 | 18.92    1.64
0.750    1.00 | 6.833    1.64 |12.917    6.75 | 19.00    1.64
0.833    1.00 | 6.917    1.64 |13.000    6.75 | 19.08    1.64
0.917    1.00 | 7.000    1.64 |13.083    6.75 | 19.17    1.64
1.000    1.00 | 7.083    1.64 |13.167    6.75 | 19.25    1.64
1.083    1.00 | 7.167    1.64 |13.250    6.75 | 19.33    1.64
1.167    1.00 | 7.250    1.64 |13.333    4.93 | 19.42    1.64
1.250    1.00 | 7.333    2.01 |13.417    4.92 | 19.50    1.64
1.333    1.00 | 7.417    2.01 |13.500    4.92 | 19.58    1.64
1.417    1.00 | 7.500    2.01 |13.583    4.92 | 19.67    1.64
```

1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 2.320

PEAK FLOW (cms)= 1.273 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 22.916
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.251

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0046)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT= 63.7 min	ID= 2 (0018):	126.36	1.27	14.58	22.92
	SHIFT ID= 1 (0046):	126.36	1.27	15.58	22.92

CALIB			
NASHYD (0019)	Area (ha)= 198.16	Curve Number (CN)= 54.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.60	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.67		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 4.532

PEAK FLOW (cms)= 2.351 (i)
TIME TO PEAK (hrs)= 14.083
RUNOFF VOLUME (mm)= 22.821

TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.250

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0048)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0019):		198.16	2.351	14.08	22.82
+ ID2= 2 (0046):		126.36	1.273	15.58	22.92
ID = 3 (0048):		324.52	3.287	14.67	22.86

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0048)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0048):		324.52	3.287	14.67	22.86
+ ID2= 2 (0047):		3764.09	24.351	22.75	24.56
ID = 1 (0048):		4088.61	24.972	22.67	24.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0049)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 81.0 min	ID= 2 (0048):	4088.61	24.97	22.67	24.43
	SHIFT ID= 1 (0049):	4088.61	24.97	24.00	24.43

CALIB					
NASHYD (0022)	Area	(ha)= 119.48	Curve Number	(CN)= 55.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.10	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.78				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 2.564

PEAK FLOW (cms)= 1.408 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 23.737
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.260

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0022):		119.48	1.408	14.25	23.74
+ ID2= 2 (0049):		4088.61	24.972	24.00	24.43
ID = 3 (0050):		4208.09	25.164	24.00	24.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0054)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 52.5 min	ID= 2 (0050):	4208.09	25.16	24.00	24.41
	SHIFT ID= 1 (0054):	4208.09	25.16	24.83	24.41

CALIB					
NASHYD (0020)	Area	(ha)= 126.24	Curve Number	(CN)= 61.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.90	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.86				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN

hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 2.592

PEAK FLOW (cms)= 1.731 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 28.242
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.310

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0051)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT= 26.3 min				
ID= 2 (0020):	126.24	1.73	14.25	28.24
SHIFT ID= 1 (0051):	126.24	1.73	14.67	28.24

CALIB			
NASHYD (0021)	Area (ha)= 133.24	Curve Number (CN)= 61.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.31		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09

5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 3.885

PEAK FLOW (cms)= 2.377 (i)
TIME TO PEAK (hrs)= 13.583
RUNOFF VOLUME (mm)= 28.130
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.308

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0052)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0021):	133.24	2.377	13.58	28.13
+ ID2= 2 (0051):	126.24	1.731	14.67	28.24
ID = 3 (0052):	259.48	3.817	14.08	28.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0053)
IN= 2---> OUT= 1
SHIFT=106.6 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0052):	259.48	3.82	14.08	28.18
SHIFT ID= 1 (0053):	259.48	3.82	15.83	28.18

CALIB
NASHYD (0023) | ID= 1 DT= 5.0 min

Area (ha)= 111.92 Curve Number (CN)= 64.0
Ia (mm)= 8.70 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.81

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 2.362

PEAK FLOW (cms)= 1.684 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 30.200
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.331

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0055)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0023):	111.92	1.684	14.25	30.20
+ ID2= 2 (0053):	259.48	3.817	15.83	28.18
ID = 3 (0055):	371.40	5.091	15.58	28.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0055)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0055):	371.40	5.091	15.58	28.79
+ ID2= 2 (0054):	4208.09	25.164	24.83	24.41
ID = 1 (0055):	4579.49	25.887	24.83	24.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0065)

| IN= 2---> OUT= 1 |
| SHIFT= 80.8 min |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0055):	4579.49	25.89	24.83	24.76
SHIFT ID= 1 (0065):	4579.49	25.89	26.17	24.76

CALIB NASHYD (0057)	Area (ha)= 329.71	Curve Number (CN)= 64.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 2.00	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 6.297

PEAK FLOW (cms)= 4.672 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 30.679
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.336

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0064)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0057):	329.71	4.672	14.42	30.68
	+ ID2= 2 (0065):	4579.49	25.887	26.17	24.76
	ID = 3 (0064):	4909.20	26.317	26.17	25.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0063)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0064):	4909.20	26.32	26.17	25.16
SHIFT= 47.8 min	SHIFT ID= 1 (0063):	4909.20	26.32	26.92	25.16

CALIB NASHYD (0059)	Area (ha)= 158.28	Curve Number (CN)= 61.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.96	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09

2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 3.084

PEAK FLOW (cms)= 2.108 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 28.524
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.313

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0068)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0059):	158.28	2.108	14.42	28.52
+ ID2= 2 (0063):	4909.20	26.317	26.92	25.16
ID = 3 (0068):	5067.48	26.454	26.83	25.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0072)				
IN= 2---> OUT= 1				
SHIFT= 99.0 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0068):	5067.48	26.45	26.83	25.27
SHIFT ID= 1 (0072):	5067.48	26.45	28.42	25.27

CALIB				
NASHYD (0058)	Area (ha)= 138.00	Curve Number (CN)= 67.0		
ID= 1 DT= 5.0 min	Ia (mm)= 7.30	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.83			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 2.880

PEAK FLOW (cms)= 2.316 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 33.680
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.369

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0066)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 87.0 min	ID= 2 (0058):	138.00	2.32	14.25	33.68
	SHIFT ID= 1 (0066):	138.00	2.32	15.67	33.68

CALIB NASHYD (0060)	Area (ha)= 92.48	Curve Number (CN)= 67.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.30	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.85	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 1.909

PEAK FLOW (cms)= 1.539 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 33.680
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.369

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0067)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 22.8 min	ID= 2 (0060):	92.48	1.54	14.25	33.68
	SHIFT ID= 1 (0067):	92.48	1.54	14.58	33.68

CALIB NASHYD (0061)	Area (ha)= 134.36	Curve Number (CN)= 67.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.85	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09

3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 2.774

PEAK FLOW (cms)= 2.232 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 33.616
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.369

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0069)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0061):	134.36	2.232	14.25	33.62
+ ID2= 2 (0066):	138.00	2.316	15.67	33.68
ID = 3 (0069):	272.36	4.174	15.17	33.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0069)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0069):	272.36	4.174	15.17	33.65
+ ID2= 2 (0067):	92.48	1.539	14.58	33.68
ID = 1 (0069):	364.84	5.643	15.08	33.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0070)				
IN= 2---> OUT= 1				
SHIFT= 5.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0069):	364.84	5.64	15.08	33.66
SHIFT ID= 1 (0070):	364.84	5.64	15.17	33.66

CALIB				
NASHYD (0062)	Area (ha)= 134.36	Curve Number (CN)= 67.0		

ID= 1 DT= 5.0 min	Ia (mm)= 7.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.85

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.46	12.250	111.63	18.33	1.64
0.167	0.00	6.250	1.46	12.333	13.15	18.42	1.64
0.250	0.00	6.333	1.64	12.417	13.13	18.50	1.64
0.333	1.00	6.417	1.64	12.500	13.13	18.58	1.64
0.417	1.00	6.500	1.64	12.583	13.13	18.67	1.64
0.500	1.00	6.583	1.64	12.667	13.13	18.75	1.64
0.583	1.00	6.667	1.64	12.750	13.13	18.83	1.64
0.667	1.00	6.750	1.64	12.833	6.75	18.92	1.64
0.750	1.00	6.833	1.64	12.917	6.75	19.00	1.64
0.833	1.00	6.917	1.64	13.000	6.75	19.08	1.64
0.917	1.00	7.000	1.64	13.083	6.75	19.17	1.64
1.000	1.00	7.083	1.64	13.167	6.75	19.25	1.64
1.083	1.00	7.167	1.64	13.250	6.75	19.33	1.64
1.167	1.00	7.250	1.64	13.333	4.93	19.42	1.64
1.250	1.00	7.333	2.01	13.417	4.92	19.50	1.64
1.333	1.00	7.417	2.01	13.500	4.92	19.58	1.64
1.417	1.00	7.500	2.01	13.583	4.92	19.67	1.64
1.500	1.00	7.583	2.01	13.667	4.92	19.75	1.64
1.583	1.00	7.667	2.01	13.750	4.92	19.83	1.64
1.667	1.00	7.750	2.01	13.833	3.83	19.92	1.64
1.750	1.00	7.833	2.01	13.917	3.83	20.00	1.64
1.833	1.00	7.917	2.01	14.000	3.83	20.08	1.64
1.917	1.00	8.000	2.01	14.083	3.83	20.17	1.64
2.000	1.00	8.083	2.01	14.167	3.83	20.25	1.64
2.083	1.00	8.167	2.01	14.250	3.83	20.33	1.09
2.167	1.00	8.250	2.01	14.333	2.74	20.42	1.09
2.250	1.00	8.333	2.37	14.417	2.74	20.50	1.09
2.333	1.19	8.417	2.37	14.500	2.74	20.58	1.09
2.417	1.19	8.500	2.37	14.583	2.74	20.67	1.09
2.500	1.19	8.583	2.37	14.667	2.74	20.75	1.09
2.583	1.19	8.667	2.37	14.750	2.74	20.83	1.09
2.667	1.19	8.750	2.37	14.833	2.74	20.92	1.09
2.750	1.19	8.833	2.55	14.917	2.74	21.00	1.09
2.833	1.19	8.917	2.55	15.000	2.74	21.08	1.09
2.917	1.19	9.000	2.55	15.083	2.74	21.17	1.09
3.000	1.19	9.083	2.55	15.167	2.74	21.25	1.09
3.083	1.19	9.167	2.55	15.250	2.74	21.33	1.09
3.167	1.19	9.250	2.55	15.333	2.74	21.42	1.09
3.250	1.19	9.333	2.92	15.417	2.74	21.50	1.09
3.333	1.19	9.417	2.92	15.500	2.74	21.58	1.09
3.417	1.19	9.500	2.92	15.583	2.74	21.67	1.09
3.500	1.19	9.583	2.92	15.667	2.74	21.75	1.09
3.583	1.19	9.667	2.92	15.750	2.74	21.83	1.09
3.667	1.19	9.750	2.92	15.833	2.74	21.92	1.09
3.750	1.19	9.833	3.28	15.917	2.74	22.00	1.09
3.833	1.19	9.917	3.28	16.000	2.74	22.08	1.09
3.917	1.19	10.000	3.28	16.083	2.74	22.17	1.09
4.000	1.19	10.083	3.28	16.167	2.74	22.25	1.09
4.083	1.19	10.167	3.28	16.250	2.74	22.33	1.09
4.167	1.19	10.250	3.28	16.333	1.64	22.42	1.09
4.250	1.19	10.333	4.20	16.417	1.64	22.50	1.09
4.333	1.46	10.417	4.20	16.500	1.64	22.58	1.09
4.417	1.46	10.500	4.20	16.583	1.64	22.67	1.09
4.500	1.46	10.583	4.20	16.667	1.64	22.75	1.09
4.583	1.46	10.667	4.20	16.750	1.64	22.83	1.09
4.667	1.46	10.750	4.20	16.833	1.64	22.92	1.09
4.750	1.46	10.833	5.65	16.917	1.64	23.00	1.09
4.833	1.46	10.917	5.65	17.000	1.64	23.08	1.09
4.917	1.46	11.000	5.65	17.083	1.64	23.17	1.09
5.000	1.46	11.083	5.65	17.167	1.64	23.25	1.09
5.083	1.46	11.167	5.65	17.250	1.64	23.33	1.09
5.167	1.46	11.250	5.65	17.333	1.64	23.42	1.09
5.250	1.46	11.333	8.75	17.417	1.64	23.50	1.09
5.333	1.46	11.417	8.76	17.500	1.64	23.58	1.09
5.417	1.46	11.500	8.76	17.583	1.64	23.67	1.09
5.500	1.46	11.583	8.76	17.667	1.64	23.75	1.09
5.583	1.46	11.667	8.76	17.750	1.64	23.83	1.09
5.667	1.46	11.750	8.76	17.833	1.64	23.92	1.09
5.750	1.46	11.833	26.99	17.917	1.64	24.00	1.09
5.833	1.46	11.917	27.00	18.000	1.64	24.08	1.09
5.917	1.46	12.000	27.00	18.083	1.64	24.17	1.09
6.000	1.46	12.083	111.62	18.167	1.64	24.25	1.09
6.083	1.46	12.167	111.63	18.250	1.64		

Unit Hyd Qpeak (cms)= 2.774

```
     PEAK FLOW       (cms)=   2.232 (i)
     TIME TO PEAK    (hrs)=  14.250
     RUNOFF VOLUME    (mm)=  33.616
     TOTAL RAINFALL   (mm)=  91.200
     RUNOFF COEFFICIENT   =   0.369

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0071)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0062):   134.36   2.232    14.25    33.62
     + ID2= 2 (  0070):   364.84   5.643    15.17    33.66
       ================================================
       ID = 3 (  0071):   499.20   7.674    14.92    33.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0071)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0071):   499.20   7.674    14.92    33.65
     + ID2= 2 (  0072):  5067.48  26.454    28.42    25.27
       ================================================
       ID = 1 (  0071):  5566.68  26.706    28.42    26.02

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
================================================================================================================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M M M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\4e8352b5-cbef
  Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\4e8352b5-cbef


DATE: 09/27/2024                          TIME: 12:31:19

USER:


COMMENTS: _____________________________________________________

--------------------------------------------------------------------------------------------------------------------
  ************************************************
  ** SIMULATION : 25yr 24hr 15min SCS Type II_5 **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jkoen\AppD
|                  |              ata\Local\Temp\
|                  |              33a2935f-00c8-4f23-9a93-7abdd6141ba8\ccc6d512
| Ptotal=108.00 mm |    Comments: 25yr 24hr 15min SCS Type II_5E
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.00    0.00 |  6.25    1.94 | 12.50   15.55 | 18.75    1.94
               0.25    1.19 |  6.50    1.94 | 12.75    7.99 | 19.00    1.94
               0.50    1.19 |  6.75    1.94 | 13.00    7.99 | 19.25    1.94
               0.75    1.19 |  7.00    1.94 | 13.25    5.83 | 19.50    1.94
               1.00    1.19 |  7.25    2.38 | 13.50    5.83 | 19.75    1.94
               1.25    1.19 |  7.50    2.38 | 13.75    4.54 | 20.00    1.94
               1.50    1.19 |  7.75    2.38 | 14.00    4.54 | 20.25    1.30
               1.75    1.19 |  8.00    2.38 | 14.25    3.24 | 20.50    1.30
               2.00    1.19 |  8.25    2.81 | 14.50    3.24 | 20.75    1.30
               2.25    1.40 |  8.50    2.81 | 14.75    3.24 | 21.00    1.30
               2.50    1.40 |  8.75    3.02 | 15.00    3.24 | 21.25    1.30
               2.75    1.40 |  9.00    3.02 | 15.25    3.24 | 21.50    1.30
               3.00    1.40 |  9.25    3.46 | 15.50    3.24 | 21.75    1.30
               3.25    1.40 |  9.50    3.46 | 15.75    3.24 | 22.00    1.30
               3.50    1.40 |  9.75    3.89 | 16.00    3.24 | 22.25    1.30
               3.75    1.40 | 10.00    3.89 | 16.25    1.94 | 22.50    1.30
               4.00    1.40 | 10.25    4.97 | 16.50    1.94 | 22.75    1.30
               4.25    1.73 | 10.50    4.97 | 16.75    1.94 | 23.00    1.30
               4.50    1.73 | 10.75    6.70 | 17.00    1.94 | 23.25    1.30
               4.75    1.73 | 11.00    6.70 | 17.25    1.94 | 23.50    1.30
               5.00    1.73 | 11.25   10.37 | 17.50    1.94 | 23.75    1.30
               5.25    1.73 | 11.50   10.37 | 17.75    1.94 | 24.00    1.30
               5.50    1.73 | 11.75   31.97 | 18.00    1.94 |
               5.75    1.73 | 12.00  132.19 | 18.25    1.94 |
               6.00    1.73 | 12.25   15.55 | 18.50    1.94 |

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| CALIB            |
| NASHYD   (  0001)|   Area    (ha)= 351.84   Curve Number   (CN)= 59.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.60   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.25

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    0.00 | 6.167    1.73 |12.250  132.19 | 18.33    1.94
               0.167    0.00 | 6.250    1.73 |12.333   15.57 | 18.42    1.94
               0.250    0.00 | 6.333    1.94 |12.417   15.55 | 18.50    1.94
               0.333    1.19 | 6.417    1.94 |12.500   15.55 | 18.58    1.94
               0.417    1.19 | 6.500    1.94 |12.583   15.55 | 18.67    1.94
               0.500    1.19 | 6.583    1.94 |12.667   15.55 | 18.75    1.94
               0.583    1.19 | 6.667    1.94 |12.750   15.55 | 18.83    1.94
               0.667    1.19 | 6.750    1.94 |12.833    7.99 | 18.92    1.94
               0.750    1.19 | 6.833    1.94 |12.917    7.99 | 19.00    1.94
               0.833    1.19 | 6.917    1.94 |13.000    7.99 | 19.08    1.94
               0.917    1.19 | 7.000    1.94 |13.083    7.99 | 19.17    1.94
               1.000    1.19 | 7.083    1.94 |13.167    7.99 | 19.25    1.94
               1.083    1.19 | 7.167    1.94 |13.250    7.99 | 19.33    1.94
               1.167    1.19 | 7.250    1.94 |13.333    5.83 | 19.42    1.94
               1.250    1.19 | 7.333    2.38 |13.417    5.83 | 19.50    1.94
               1.333    1.19 | 7.417    2.38 |13.500    5.83 | 19.58    1.94
               1.417    1.19 | 7.500    2.38 |13.583    5.83 | 19.67    1.94
               1.500    1.19 | 7.583    2.38 |13.667    5.83 | 19.75    1.94
               1.583    1.19 | 7.667    2.38 |13.750    5.83 | 19.83    1.94
               1.667    1.19 | 7.750    2.38 |13.833    4.54 | 19.92    1.94
               1.750    1.19 | 7.833    2.38 |13.917    4.54 | 20.00    1.94
               1.833    1.19 | 7.917    2.38 |14.000    4.54 | 20.08    1.94
               1.917    1.19 | 8.000    2.38 |14.083    4.54 | 20.17    1.94
               2.000    1.19 | 8.083    2.38 |14.167    4.54 | 20.25    1.94
               2.083    1.19 | 8.167    2.38 |14.250    4.54 | 20.33    1.30
               2.167    1.19 | 8.250    2.38 |14.333    3.24 | 20.42    1.30
               2.250    1.19 | 8.333    2.81 |14.417    3.24 | 20.50    1.30
               2.333    1.40 | 8.417    2.81 |14.500    3.24 | 20.58    1.30
               2.417    1.40 | 8.500    2.81 |14.583    3.24 | 20.67    1.30
               2.500    1.40 | 8.583    2.81 |14.667    3.24 | 20.75    1.30
               2.583    1.40 | 8.667    2.81 |14.750    3.24 | 20.83    1.30
               2.667    1.40 | 8.750    2.81 |14.833    3.24 | 20.92    1.30
               2.750    1.40 | 8.833    3.02 |14.917    3.24 | 21.00    1.30
               2.833    1.40 | 8.917    3.02 |15.000    3.24 | 21.08    1.30
               2.917    1.40 | 9.000    3.02 |15.083    3.24 | 21.17    1.30
               3.000    1.40 | 9.083    3.02 |15.167    3.24 | 21.25    1.30
               3.083    1.40 | 9.167    3.02 |15.250    3.24 | 21.33    1.30
               3.167    1.40 | 9.250    3.02 |15.333    3.24 | 21.42    1.30
               3.250    1.40 | 9.333    3.46 |15.417    3.24 | 21.50    1.30
               3.333    1.40 | 9.417    3.46 |15.500    3.24 | 21.58    1.30
               3.417    1.40 | 9.500    3.46 |15.583    3.24 | 21.67    1.30
               3.500    1.40 | 9.583    3.46 |15.667    3.24 | 21.75    1.30
               3.583    1.40 | 9.667    3.46 |15.750    3.24 | 21.83    1.30
               3.667    1.40 | 9.750    3.46 |15.833    3.24 | 21.92    1.30
               3.750    1.40 | 9.833    3.89 |15.917    3.24 | 22.00    1.30
               3.833    1.40 | 9.917    3.89 |16.000    3.24 | 22.08    1.30
```

3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 5.973

PEAK FLOW (cms)= 5.399 (i)
TIME TO PEAK (hrs)= 14.750
RUNOFF VOLUME (mm)= 36.403
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.337

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0024) / IN= 2---> OUT= 1 / SHIFT= 80.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0001):	351.84	5.40	14.75	36.40
SHIFT ID= 1 (0024):	351.84	5.40	16.08	36.40

CALIB / NASHYD (0002) / ID= 1 DT= 5.0 min				
	Area (ha)= 415.84	Curve Number (CN)= 57.0		
	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.65			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 5.994

PEAK FLOW (cms)= 5.250 (i)
TIME TO PEAK (hrs)= 15.250
RUNOFF VOLUME (mm)= 34.178
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.316

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0025) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	415.84	5.250	15.25	34.18
+ ID2= 2 (0024):	351.84	5.399	16.08	36.40
ID = 3 (0025):	767.68	10.460	15.83	35.20

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0031) / IN= 2---> OUT= 1 / SHIFT=129.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0025):	767.68	10.46	15.83	35.20
SHIFT ID= 1 (0031):	767.68	10.46	17.92	35.20

CALIB

| NASHYD (0011)| Area (ha)= 241.80 Curve Number (CN)= 53.0
|ID= 1 DT= 5.0 min | Ia (mm)= 8.30 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.81

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 5.103

PEAK FLOW (cms)= 3.647 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 30.590
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.283

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0032)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0011):	241.80	3.647	14.25	30.59
	+ ID2= 2 (0031):	767.68	10.460	17.92	35.20
	ID = 3 (0032):	1009.48	11.868	17.67	34.09

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0041)| IN= 2---> OUT= 1	SHIFT=155.8 min		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID= 2 (0032):	1009.48	11.87	17.67	34.09
	SHIFT ID= 1 (0041):	1009.48	11.87	20.25	34.09

CALIB	NASHYD (0003)	ID= 1 DT= 5.0 min	Area (ha)= 161.56 Curve Number (CN)= 51.0
	Ia (mm)= 8.10 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.77

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30

3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 3.486

PEAK FLOW (cms)= 2.343 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 29.017
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.269

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026) / IN= 2---> OUT= 1 / SHIFT=115.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0003):	161.56	2.34	14.17	29.02
SHIFT ID= 1 (0026):	161.56	2.34	16.08	29.02

CALIB / NASHYD (0004) / ID= 1 DT= 5.0 min | Area (ha)= 84.72 Curve Number (CN)= 55.0 | Ia (mm)= 8.00 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.50

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 2.157

PEAK FLOW (cms)= 1.572 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 32.487
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.301

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027) / IN= 2---> OUT= 1 / SHIFT=101.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0004):	84.72	1.57	13.83	32.49
SHIFT ID= 1 (0027):	84.72	1.57	15.50	32.49

CALIB / NASHYD (0005) / ID= 1 DT= 5.0 min | Area (ha)= 290.88 Curve Number (CN)= 51.0 | Ia (mm)= 8.30 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 2.09

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 5.316

PEAK FLOW (cms)= 3.701 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 28.918
TOTAL RAINFALL (mm)= 108.000

RUNOFF COEFFICIENT = 0.268

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0005):	290.88	3.70	14.58	28.92
SHIFT=144.1 min	SHIFT ID= 1 (0029):	290.88	3.70	16.92	28.92

CALIB NASHYD (0006)	Area (ha)= 391.92	Curve Number (CN)= 57.0
ID= 1 DT= 5.0 min	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 2.20	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30

4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 6.804

PEAK FLOW (cms)= 5.702 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 34.065
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.315

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0007)	Area (ha)= 81.24	Curve Number (CN)= 49.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.70	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.53		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 2.028

PEAK FLOW (cms)= 1.225 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 27.114
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.251

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0030)				
IN= 2---> OUT= 1				
SHIFT=147.5 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0007):	81.24	1.23	13.92	27.11
SHIFT ID= 1 (0030):	81.24	1.23	16.33	27.11

ADD HYD (0028)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0026):	161.56	2.343	16.08	29.02
+ ID2= 2 (0027):	84.72	1.572	15.50	32.49
ID = 3 (0028):	246.28	3.840	15.83	30.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	246.28	3.840	15.83	30.21
+ ID2= 2 (0029):	290.88	3.701	16.92	28.92
ID = 1 (0028):	537.16	7.187	16.42	29.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0028):	537.16	7.187	16.42	29.51
+ ID2= 2 (0030):	81.24	1.225	16.33	27.11
ID = 3 (0028):	618.40	8.409	16.42	29.20

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0028)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0028):   618.40   8.409    16.42    29.20
     + ID2= 2 (  0006):   391.92   5.702    14.67    34.06
       ================================================
       ID = 1 (  0028):  1010.32  13.016    16.08    31.08

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------
| SHIFT HYD(  0033)|
| IN= 2---> OUT= 1 |
| SHIFT=106.7 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0028): 1010.32     13.02     16.08     31.08
    SHIFT ID= 1 (  0033): 1010.32     13.02     17.83     31.08

--------------------
| CALIB            |
| NASHYD   (  0010)|   Area    (ha)= 145.33   Curve Number   (CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.70   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.25

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    0.00 | 6.167    1.73 |12.250  132.19 | 18.33    1.94
0.167    0.00 | 6.250    1.73 |12.333   15.57 | 18.42    1.94
0.250    0.00 | 6.333    1.94 |12.417   15.55 | 18.50    1.94
0.333    1.19 | 6.417    1.94 |12.500   15.55 | 18.58    1.94
0.417    1.19 | 6.500    1.94 |12.583   15.55 | 18.67    1.94
0.500    1.19 | 6.583    1.94 |12.667   15.55 | 18.75    1.94
0.583    1.19 | 6.667    1.94 |12.750   15.55 | 18.83    1.94
0.667    1.19 | 6.750    1.94 |12.833    7.99 | 18.92    1.94
0.750    1.19 | 6.833    1.94 |12.917    7.99 | 19.00    1.94
0.833    1.19 | 6.917    1.94 |13.000    7.99 | 19.08    1.94
0.917    1.19 | 7.000    1.94 |13.083    7.99 | 19.17    1.94
1.000    1.19 | 7.083    1.94 |13.167    7.99 | 19.25    1.94
1.083    1.19 | 7.167    1.94 |13.250    7.99 | 19.33    1.94
1.167    1.19 | 7.250    1.94 |13.333    5.83 | 19.42    1.94
1.250    1.19 | 7.333    2.38 |13.417    5.83 | 19.50    1.94
1.333    1.19 | 7.417    2.38 |13.500    5.83 | 19.58    1.94
1.417    1.19 | 7.500    2.38 |13.583    5.83 | 19.67    1.94
1.500    1.19 | 7.583    2.38 |13.667    5.83 | 19.75    1.94
1.583    1.19 | 7.667    2.38 |13.750    5.83 | 19.83    1.94
1.667    1.19 | 7.750    2.38 |13.833    4.54 | 19.92    1.94
1.750    1.19 | 7.833    2.38 |13.917    4.54 | 20.00    1.94
1.833    1.19 | 7.917    2.38 |14.000    4.54 | 20.08    1.94
1.917    1.19 | 8.000    2.38 |14.083    4.54 | 20.17    1.94
2.000    1.19 | 8.083    2.38 |14.167    4.54 | 20.25    1.94
2.083    1.19 | 8.167    2.38 |14.250    4.54 | 20.33    1.30
2.167    1.19 | 8.250    2.38 |14.333    3.24 | 20.42    1.30
2.250    1.19 | 8.333    2.81 |14.417    3.24 | 20.50    1.30
2.333    1.40 | 8.417    2.81 |14.500    3.24 | 20.58    1.30
2.417    1.40 | 8.500    2.81 |14.583    3.24 | 20.67    1.30
2.500    1.40 | 8.583    2.81 |14.667    3.24 | 20.75    1.30
2.583    1.40 | 8.667    2.81 |14.750    3.24 | 20.83    1.30
2.667    1.40 | 8.750    2.81 |14.833    3.24 | 20.92    1.30
2.750    1.40 | 8.833    3.02 |14.917    3.24 | 21.00    1.30
2.833    1.40 | 8.917    3.02 |15.000    3.24 | 21.08    1.30
2.917    1.40 | 9.000    3.02 |15.083    3.24 | 21.17    1.30
3.000    1.40 | 9.083    3.02 |15.167    3.24 | 21.25    1.30
3.083    1.40 | 9.167    3.02 |15.250    3.24 | 21.33    1.30
3.167    1.40 | 9.250    3.02 |15.333    3.24 | 21.42    1.30
3.250    1.40 | 9.333    3.46 |15.417    3.24 | 21.50    1.30
3.333    1.40 | 9.417    3.46 |15.500    3.24 | 21.58    1.30
3.417    1.40 | 9.500    3.46 |15.583    3.24 | 21.67    1.30
3.500    1.40 | 9.583    3.46 |15.667    3.24 | 21.75    1.30
3.583    1.40 | 9.667    3.46 |15.750    3.24 | 21.83    1.30
3.667    1.40 | 9.750    3.46 |15.833    3.24 | 21.92    1.30
3.750    1.40 | 9.833    3.89 |15.917    3.24 | 22.00    1.30
3.833    1.40 | 9.917    3.89 |16.000    3.24 | 22.08    1.30
3.917    1.40 |10.000    3.89 |16.083    3.24 | 22.17    1.30
4.000    1.40 |10.083    3.89 |16.167    3.24 | 22.25    1.30
4.083    1.40 |10.167    3.89 |16.250    3.24 | 22.33    1.30
4.167    1.40 |10.250    3.89 |16.333    1.94 | 22.42    1.30
4.250    1.40 |10.333    4.97 |16.417    1.94 | 22.50    1.30
4.333    1.73 |10.417    4.97 |16.500    1.94 | 22.58    1.30
4.417    1.73 |10.500    4.97 |16.583    1.94 | 22.67    1.30
4.500    1.73 |10.583    4.97 |16.667    1.94 | 22.75    1.30
4.583    1.73 |10.667    4.97 |16.750    1.94 | 22.83    1.30
4.667    1.73 |10.750    4.97 |16.833    1.94 | 22.92    1.30
4.750    1.73 |10.833    6.70 |16.917    1.94 | 23.00    1.30
4.833    1.73 |10.917    6.70 |17.000    1.94 | 23.08    1.30
4.917    1.73 |11.000    6.70 |17.083    1.94 | 23.17    1.30
5.000    1.73 |11.083    6.70 |17.167    1.94 | 23.25    1.30
5.083    1.73 |11.167    6.70 |17.250    1.94 | 23.33    1.30
5.167    1.73 |11.250    6.70 |17.333    1.94 | 23.42    1.30
5.250    1.73 |11.333   10.37 |17.417    1.94 | 23.50    1.30
5.333    1.73 |11.417   10.37 |17.500    1.94 | 23.58    1.30
5.417    1.73 |11.500   10.37 |17.583    1.94 | 23.67    1.30
5.500    1.73 |11.583   10.37 |17.667    1.94 | 23.75    1.30
5.583    1.73 |11.667   10.37 |17.750    1.94 | 23.83    1.30
5.667    1.73 |11.750   10.37 |17.833    1.94 | 23.92    1.30
5.750    1.73 |11.833   31.97 |17.917    1.94 | 24.00    1.30
5.833    1.73 |11.917   31.97 |18.000    1.94 | 24.08    1.30
5.917    1.73 |12.000   31.97 |18.083    1.94 | 24.17    1.30
6.000    1.73 |12.083  132.18 |18.167    1.94 | 24.25    1.30
6.083    1.73 |12.167  132.19 |18.250    1.94 |

     Unit Hyd Qpeak  (cms)=   2.467

     PEAK FLOW       (cms)=   2.629 (i)
     TIME TO PEAK    (hrs)=  14.750
     RUNOFF VOLUME    (mm)=  42.435
     TOTAL RAINFALL   (mm)= 108.000
     RUNOFF COEFFICIENT   =   0.393

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------
| ADD HYD  (  0034)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0010):   145.33   2.629    14.75    42.44
     + ID2= 2 (  0033):  1010.32  13.016    17.83    31.08
       ================================================
       ID = 3 (  0034):  1155.65  14.446    17.75    32.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------
| SHIFT HYD(  0040)|
| IN= 2---> OUT= 1 |
| SHIFT=232.1 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0034): 1155.65     14.45     17.75     32.51
    SHIFT ID= 1 (  0040): 1155.65     14.45     21.58     32.51

--------------------
| CALIB            |
| NASHYD   (  0008)|   Area    (ha)= 338.84   Curve Number   (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.20   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.34

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    0.00 | 6.167    1.73 |12.250  132.19 | 18.33    1.94
0.167    0.00 | 6.250    1.73 |12.333   15.57 | 18.42    1.94
0.250    0.00 | 6.333    1.94 |12.417   15.55 | 18.50    1.94
0.333    1.19 | 6.417    1.94 |12.500   15.55 | 18.58    1.94
0.417    1.19 | 6.500    1.94 |12.583   15.55 | 18.67    1.94
0.500    1.19 | 6.583    1.94 |12.667   15.55 | 18.75    1.94
0.583    1.19 | 6.667    1.94 |12.750   15.55 | 18.83    1.94
0.667    1.19 | 6.750    1.94 |12.833    7.99 | 18.92    1.94
0.750    1.19 | 6.833    1.94 |12.917    7.99 | 19.00    1.94
0.833    1.19 | 6.917    1.94 |13.000    7.99 | 19.08    1.94
0.917    1.19 | 7.000    1.94 |13.083    7.99 | 19.17    1.94
1.000    1.19 | 7.083    1.94 |13.167    7.99 | 19.25    1.94
1.083    1.19 | 7.167    1.94 |13.250    7.99 | 19.33    1.94
1.167    1.19 | 7.250    1.94 |13.333    5.83 | 19.42    1.94
1.250    1.19 | 7.333    2.38 |13.417    5.83 | 19.50    1.94
1.333    1.19 | 7.417    2.38 |13.500    5.83 | 19.58    1.94
```

1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 5.531

PEAK FLOW (cms)= 3.957 (i)
TIME TO PEAK (hrs)= 14.833
RUNOFF VOLUME (mm)= 28.967
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.268

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0035)				
IN= 2---> OUT= 1				
SHIFT= 63.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0008):	338.84	3.96	14.83	28.97
SHIFT ID= 1 (0035):	338.84	3.96	15.83	28.97

CALIB				
NASHYD (0014)	Area (ha)= 99.92	Curve Number (CN)= 63.0		
ID= 1 DT= 5.0 min	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.66			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 2.299

PEAK FLOW (cms)= 2.140 (i)
TIME TO PEAK (hrs)= 14.000

```
     RUNOFF VOLUME    (mm)=  39.876
     TOTAL RAINFALL   (mm)= 108.000
     RUNOFF COEFFICIENT   =   0.369

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

ADD HYD (0036)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0014):	99.92	2.140	14.00	39.88
	+ ID2= 2 (0035):	338.84	3.957	15.83	28.97
	ID = 3 (0036):	438.76	5.438	15.33	31.45

```
     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

SHIFT HYD(0037)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT= 83.8 min	ID= 2 (0036):	438.76	5.44	15.33	31.45
	SHIFT ID= 1 (0037):	438.76	5.44	16.67	31.45

CALIB					
NASHYD (0013)	Area (ha)= 73.84	Curve Number (CN)= 66.0			
ID= 1 DT= 5.0 min	Ia (mm)= 8.80	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 1.73				

```
        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

```
     Unit Hyd Qpeak  (cms)=   1.630

     PEAK FLOW       (cms)=   1.654 (i)
     TIME TO PEAK    (hrs)=  14.083
     RUNOFF VOLUME    (mm)=  42.776
     TOTAL RAINFALL   (mm)= 108.000
     RUNOFF COEFFICIENT   =   0.396

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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ADD HYD (0038)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0013):	73.84	1.654	14.08	42.78
	+ ID2= 2 (0037):	438.76	5.438	16.67	31.45
	ID = 3 (0038):	512.60	6.292	16.50	33.08

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     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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CALIB					
NASHYD (0009)	Area (ha)= 249.68	Curve Number (CN)= 58.0			
ID= 1 DT= 5.0 min	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 2.41				

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        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94

1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 3.957

PEAK FLOW (cms)= 3.481 (i)
TIME TO PEAK (hrs)= 14.917
RUNOFF VOLUME (mm)= 34.988
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.324

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0039)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0009):	249.68	3.48	14.92	34.99
SHIFT=208.2 min	SHIFT ID= 1 (0039):	249.68	3.48	18.33	34.99

CALIB NASHYD (0012)			
ID= 1 DT= 5.0 min	Area (ha)= 383.04	Curve Number (CN)= 55.0	
	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 3.18		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 4.601

PEAK FLOW (cms)= 3.954 (i)
TIME TO PEAK (hrs)= 15.917
RUNOFF VOLUME (mm)= 32.324
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.299

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0015)	Area	(ha)= 159.16	Curve Number	(CN)= 63.0
ID= 1 DT= 5.0 min	Ia	(mm)= 7.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.50			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 4.053

PEAK FLOW (cms)= 3.764 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 40.711
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.377

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0042)				
IN= 2---> OUT= 1				
SHIFT= 55.3 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0015):	159.16	3.76	13.83	40.71
SHIFT ID= 1 (0042):	159.16	3.76	14.75	40.71

ADD HYD (0043)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	383.04	3.954	15.92	32.32
+ ID2= 2 (0038):	512.60	6.292	16.50	33.08
ID = 3 (0043):	895.64	10.195	16.33	32.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	895.64	10.195	16.33	32.76
+ ID2= 2 (0039):	249.68	3.481	18.33	34.99
ID = 1 (0043):	1145.32	12.478	17.25	33.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0043):	1145.32	12.478	17.25	33.24
+ ID2= 2 (0040):	1155.65	14.446	21.58	32.51
ID = 3 (0043):	2300.97	20.643	21.25	32.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	2300.97	20.643	21.25	32.88
+ ID2= 2 (0041):	1009.48	11.868	20.25	34.09
ID = 1 (0043):	3310.45	31.823	21.00	33.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0043):	3310.45	31.823	21.00	33.25
+ ID2= 2 (0042):	159.16	3.764	14.75	40.71
ID = 3 (0043):	3469.61	32.411	21.00	33.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0016) ID= 1 DT= 5.0 min	Area (ha)= 147.08	Curve Number (CN)= 63.0
	Ia (mm)= 7.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.42	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 3.956

PEAK FLOW (cms)= 3.609 (i)
TIME TO PEAK (hrs)= 13.750
RUNOFF VOLUME (mm)= 40.518
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.375

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0044) IN= 2---> OUT= 1 SHIFT= 20.5 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0016):	147.08	3.61	13.75	40.52
SHIFT ID= 1 (0044):	147.08	3.61	14.08	40.52

CALIB NASHYD (0017) ID= 1 DT= 5.0 min	Area (ha)= 147.40	Curve Number (CN)= 44.0
	Ia (mm)= 8.60	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.43	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30

4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 3.937

PEAK FLOW (cms)= 2.000 (i)
TIME TO PEAK (hrs)= 13.750
RUNOFF VOLUME (mm)= 23.376
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.216

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0045)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0017):	147.40	2.000	13.75	23.38
+ ID2= 2 (0043):	3469.61	32.411	21.00	33.59
ID = 3 (0045):	3617.01	32.723	20.92	33.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0045):	3617.01	32.723	20.92	33.17
+ ID2= 2 (0044):	147.08	3.609	14.08	40.52
ID = 1 (0045):	3764.09	33.236	20.92	33.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0047)
IN= 2---> OUT= 1
SHIFT=107.5 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0045):	3764.09	33.24	20.92	33.46
SHIFT ID= 1 (0047):	3764.09	33.24	22.67	33.46

CALIB
NASHYD (0018) | Area (ha)= 126.36 Curve Number (CN)= 54.0
ID= 1 DT= 5.0 min | Ia (mm)= 8.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.08

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 2.320

PEAK FLOW (cms)= 1.760 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 31.396
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.291

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| SHIFT HYD(0046)|
| IN= 2---> OUT= 1 |
| SHIFT= 63.7 min |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0018):	126.36	1.76	14.58	31.40
SHIFT ID= 1 (0046):	126.36	1.76	15.58	31.40

CALIB				
NASHYD (0019)	Area (ha)= 198.16	Curve Number (CN)= 54.0		
ID= 1 DT= 5.0 min	Ia (mm)= 8.60	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.67			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 4.532

PEAK FLOW (cms)= 3.255 (i)
TIME TO PEAK (hrs)= 14.083
RUNOFF VOLUME (mm)= 31.290
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.290

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0048)					
1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0019):	198.16	3.255	14.08	31.29
	+ ID2= 2 (0046):	126.36	1.760	15.58	31.40
	ID = 3 (0048):	324.52	4.549	14.67	31.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0048)					
3 + 2 = 1		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 3 (0048):	324.52	4.549	14.67	31.33
	+ ID2= 2 (0047):	3764.09	33.236	22.67	33.46
	ID = 1 (0048):	4088.61	34.064	22.67	33.29

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0049)
IN= 2---> OUT= 1
SHIFT= 81.0 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0048):	4088.61	34.06	22.67	33.29
SHIFT ID= 1 (0049):	4088.61	34.06	24.00	33.29

CALIB				
NASHYD (0022)	Area (ha)= 119.48	Curve Number (CN)= 55.0		
ID= 1 DT= 5.0 min	Ia (mm)= 8.10	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.78			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94

1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 2.564

PEAK FLOW (cms)= 1.942 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 32.432
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.300

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0022):	119.48	1.942	14.17	32.43
+ ID2= 2 (0049):	4088.61	34.064	24.00	33.29
ID = 3 (0050):	4208.09	34.318	24.00	33.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0054)
IN= 2---> OUT= 1
SHIFT= 52.5 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0050):	4208.09	34.32	24.00	33.27
SHIFT ID= 1 (0054):	4208.09	34.32	24.83	33.27

CALIB
NASHYD (0020)
ID= 1 DT= 5.0 min

Area (ha)= 126.24 Curve Number (CN)= 61.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.86

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30

5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 2.592

PEAK FLOW (cms)= 2.363 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 38.172
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.353

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0051)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT= 26.3 min				
ID= 2 (0020):	126.24	2.36	14.25	38.17
SHIFT ID= 1 (0051):	126.24	2.36	14.67	38.17

CALIB			
NASHYD (0021)	Area (ha)= 133.24	Curve Number (CN)= 61.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.31		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 3.885

PEAK FLOW (cms)= 3.250 (i)
TIME TO PEAK (hrs)= 13.583
RUNOFF VOLUME (mm)= 38.049
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.352

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0052)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0021):	133.24	3.250	13.58	38.05
+ ID2= 2 (0051):	126.24	2.363	14.67	38.17
ID = 3 (0052):	259.48	5.213	14.00	38.11

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0053)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT=106.6 min				
ID= 2 (0052):	259.48	5.21	14.00	38.11
SHIFT ID= 1 (0053):	259.48	5.21	15.75	38.11

CALIB			
NASHYD (0023)	Area (ha)= 111.92	Curve Number (CN)= 64.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.70	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.81		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94

1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 2.362

PEAK FLOW (cms)= 2.294 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 40.716
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.377

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0055)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0023):		111.92	2.294	14.17	40.72
+ ID2= 2 (0053):		259.48	5.213	15.75	38.11
ID = 3 (0055):		371.40	6.939	15.58	38.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0055)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0055):		371.40	6.939	15.58	38.89
+ ID2= 2 (0054):		4208.09	34.318	24.83	33.27
ID = 1 (0055):		4579.49	35.257	24.83	33.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0065)
IN= 2---> OUT= 1
SHIFT= 80.8 min

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID= 2 (0055):	4579.49	35.26	24.83	33.72
SHIFT ID= 1 (0065):	4579.49	35.26	26.17	33.72

CALIB
NASHYD (0057) | ID= 1 DT= 5.0 min

Area (ha)= 329.71 Curve Number (CN)= 64.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.00

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30

4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 6.297

PEAK FLOW (cms)= 6.341 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 41.239
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.382

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0064)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0057):	329.71	6.341	14.42	41.24
	+ ID2= 2 (0065):	4579.49	35.257	26.17	33.72
	ID = 3 (0064):	4909.20	35.817	26.08	34.23

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0063)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 47.8 min	ID= 2 (0064):	4909.20	35.82	26.08	34.23
	SHIFT ID= 1 (0063):	4909.20	35.82	26.83	34.23

CALIB					
NASHYD (0059)	Area	(ha)= 158.28	Curve Number	(CN)= 61.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.96				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 3.084

PEAK FLOW (cms)= 2.869 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 38.481
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.356

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0068)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0059):	158.28	2.869	14.42	38.48
	+ ID2= 2 (0063):	4909.20	35.817	26.83	34.23
	ID = 3 (0068):	5067.48	35.998	26.83	34.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0072)
IN= 2---> OUT= 1

SHIFT= 99.0 min		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID= 2 (0068):	5067.48	36.00	26.83	34.36
SHIFT	ID= 1 (0072):	5067.48	36.00	28.42	34.36

CALIB NASHYD (0058) | ID= 1 DT= 5.0 min	Area (ha)= 138.00	Curve Number (CN)= 67.0
	Ia (mm)= 7.30	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.83	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 2.880

PEAK FLOW (cms)= 3.115 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 44.908
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.416

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0066) | IN= 2---> OUT= 1 | SHIFT= 87.0 min		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID= 2 (0058):	138.00	3.12	14.25	44.91
	SHIFT ID= 1 (0066):	138.00	3.12	15.67	44.91

CALIB NASHYD (0060) | ID= 1 DT= 5.0 min	Area (ha)= 92.48	Curve Number (CN)= 67.0
	Ia (mm)= 7.30	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.85	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30

3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 1.909

PEAK FLOW (cms)= 2.071 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 44.908
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.416

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0067)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT= 22.8 min				
ID= 2 (0060):	92.48	2.07	14.25	44.91
SHIFT ID= 1 (0067):	92.48	2.07	14.58	44.91

CALIB NASHYD (0061) | ID= 1 DT= 5.0 min | Area (ha)= 134.36 Curve Number (CN)= 67.0 | Ia (mm)= 7.40 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.85

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 2.774

PEAK FLOW (cms)= 3.004 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 44.839
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.415

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0069)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0061):	134.36	3.004	14.25	44.84
+ ID2= 2 (0066):	138.00	3.115	15.67	44.91
ID = 3 (0069):	272.36	5.612	15.17	44.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0069)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1				
ID1= 3 (0069):	272.36	5.612	15.17	44.87
+ ID2= 2 (0067):	92.48	2.071	14.58	44.91
ID = 1 (0069):	364.84	7.584	15.00	44.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0070)|	AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 5.6 min	ID= 2 (0069):	364.84	7.58	15.00	44.88
	SHIFT ID= 1 (0070):	364.84	7.58	15.08	44.88

CALIB					
NASHYD (0062)	Area	(ha)= 134.36	Curve Number	(CN)= 67.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.85				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.73	12.250	132.19	18.33	1.94
0.167	0.00	6.250	1.73	12.333	15.57	18.42	1.94
0.250	0.00	6.333	1.94	12.417	15.55	18.50	1.94
0.333	1.19	6.417	1.94	12.500	15.55	18.58	1.94
0.417	1.19	6.500	1.94	12.583	15.55	18.67	1.94
0.500	1.19	6.583	1.94	12.667	15.55	18.75	1.94
0.583	1.19	6.667	1.94	12.750	15.55	18.83	1.94
0.667	1.19	6.750	1.94	12.833	7.99	18.92	1.94
0.750	1.19	6.833	1.94	12.917	7.99	19.00	1.94
0.833	1.19	6.917	1.94	13.000	7.99	19.08	1.94
0.917	1.19	7.000	1.94	13.083	7.99	19.17	1.94
1.000	1.19	7.083	1.94	13.167	7.99	19.25	1.94
1.083	1.19	7.167	1.94	13.250	7.99	19.33	1.94
1.167	1.19	7.250	1.94	13.333	5.83	19.42	1.94
1.250	1.19	7.333	2.38	13.417	5.83	19.50	1.94
1.333	1.19	7.417	2.38	13.500	5.83	19.58	1.94
1.417	1.19	7.500	2.38	13.583	5.83	19.67	1.94
1.500	1.19	7.583	2.38	13.667	5.83	19.75	1.94
1.583	1.19	7.667	2.38	13.750	5.83	19.83	1.94
1.667	1.19	7.750	2.38	13.833	4.54	19.92	1.94
1.750	1.19	7.833	2.38	13.917	4.54	20.00	1.94
1.833	1.19	7.917	2.38	14.000	4.54	20.08	1.94
1.917	1.19	8.000	2.38	14.083	4.54	20.17	1.94
2.000	1.19	8.083	2.38	14.167	4.54	20.25	1.94
2.083	1.19	8.167	2.38	14.250	4.54	20.33	1.30
2.167	1.19	8.250	2.38	14.333	3.24	20.42	1.30
2.250	1.19	8.333	2.81	14.417	3.24	20.50	1.30
2.333	1.40	8.417	2.81	14.500	3.24	20.58	1.30
2.417	1.40	8.500	2.81	14.583	3.24	20.67	1.30
2.500	1.40	8.583	2.81	14.667	3.24	20.75	1.30
2.583	1.40	8.667	2.81	14.750	3.24	20.83	1.30
2.667	1.40	8.750	2.81	14.833	3.24	20.92	1.30
2.750	1.40	8.833	3.02	14.917	3.24	21.00	1.30
2.833	1.40	8.917	3.02	15.000	3.24	21.08	1.30
2.917	1.40	9.000	3.02	15.083	3.24	21.17	1.30
3.000	1.40	9.083	3.02	15.167	3.24	21.25	1.30
3.083	1.40	9.167	3.02	15.250	3.24	21.33	1.30
3.167	1.40	9.250	3.02	15.333	3.24	21.42	1.30
3.250	1.40	9.333	3.46	15.417	3.24	21.50	1.30
3.333	1.40	9.417	3.46	15.500	3.24	21.58	1.30
3.417	1.40	9.500	3.46	15.583	3.24	21.67	1.30
3.500	1.40	9.583	3.46	15.667	3.24	21.75	1.30
3.583	1.40	9.667	3.46	15.750	3.24	21.83	1.30
3.667	1.40	9.750	3.46	15.833	3.24	21.92	1.30
3.750	1.40	9.833	3.89	15.917	3.24	22.00	1.30
3.833	1.40	9.917	3.89	16.000	3.24	22.08	1.30
3.917	1.40	10.000	3.89	16.083	3.24	22.17	1.30
4.000	1.40	10.083	3.89	16.167	3.24	22.25	1.30
4.083	1.40	10.167	3.89	16.250	3.24	22.33	1.30
4.167	1.40	10.250	3.89	16.333	1.94	22.42	1.30
4.250	1.40	10.333	4.97	16.417	1.94	22.50	1.30
4.333	1.73	10.417	4.97	16.500	1.94	22.58	1.30
4.417	1.73	10.500	4.97	16.583	1.94	22.67	1.30
4.500	1.73	10.583	4.97	16.667	1.94	22.75	1.30
4.583	1.73	10.667	4.97	16.750	1.94	22.83	1.30
4.667	1.73	10.750	4.97	16.833	1.94	22.92	1.30
4.750	1.73	10.833	6.70	16.917	1.94	23.00	1.30
4.833	1.73	10.917	6.70	17.000	1.94	23.08	1.30
4.917	1.73	11.000	6.70	17.083	1.94	23.17	1.30
5.000	1.73	11.083	6.70	17.167	1.94	23.25	1.30
5.083	1.73	11.167	6.70	17.250	1.94	23.33	1.30
5.167	1.73	11.250	6.70	17.333	1.94	23.42	1.30
5.250	1.73	11.333	10.37	17.417	1.94	23.50	1.30
5.333	1.73	11.417	10.37	17.500	1.94	23.58	1.30
5.417	1.73	11.500	10.37	17.583	1.94	23.67	1.30
5.500	1.73	11.583	10.37	17.667	1.94	23.75	1.30
5.583	1.73	11.667	10.37	17.750	1.94	23.83	1.30
5.667	1.73	11.750	10.37	17.833	1.94	23.92	1.30
5.750	1.73	11.833	31.97	17.917	1.94	24.00	1.30
5.833	1.73	11.917	31.97	18.000	1.94	24.08	1.30
5.917	1.73	12.000	31.97	18.083	1.94	24.17	1.30
6.000	1.73	12.083	132.18	18.167	1.94	24.25	1.30
6.083	1.73	12.167	132.19	18.250	1.94		

Unit Hyd Qpeak (cms)= 2.774

PEAK FLOW (cms)= 3.004 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 44.839
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.415

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0071)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0062):	134.36	3.004	14.25	44.84
	+ ID2= 2 (0070):	364.84	7.584	15.08	44.88
	ID = 3 (0071):	499.20	10.318	14.92	44.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0071)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0071):	499.20	10.318	14.92	44.87
	+ ID2= 2 (0072):	5067.48	35.998	28.42	34.36
	ID = 1 (0071):	5566.68	36.320	28.42	35.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
Output filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\53deb5fe-e612
Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\53deb5fe-e612

DATE: 09/27/2024 TIME: 12:31:17

USER:

COMMENTS: _____

```
  ************************************************
  ** SIMULATION : 2yr 24hr 15min SCS Type II_5E **
  ************************************************


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|    READ STORM    |    Filename: C:\Users\jkoen\AppD
|                  |              ata\Local\Temp\
|                  |              33a2935f-00c8-4f23-9a93-7abdd6141ba8\fbafd217
| Ptotal= 60.00 mm |    Comments: 2yr 24hr 15min SCS Type II_5E
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```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	1.08	12.50	8.64	18.75	1.08
0.25	0.66	6.50	1.08	12.75	4.44	19.00	1.08
0.50	0.66	6.75	1.08	13.00	4.44	19.25	1.08
0.75	0.66	7.00	1.08	13.25	3.24	19.50	1.08
1.00	0.66	7.25	1.32	13.50	3.24	19.75	1.08
1.25	0.66	7.50	1.32	13.75	2.52	20.00	1.08
1.50	0.66	7.75	1.32	14.00	2.52	20.25	0.72
1.75	0.66	8.00	1.32	14.25	1.80	20.50	0.72
2.00	0.66	8.25	1.56	14.50	1.80	20.75	0.72
2.25	0.78	8.50	1.56	14.75	1.80	21.00	0.72
2.50	0.78	8.75	1.68	15.00	1.80	21.25	0.72
2.75	0.78	9.00	1.68	15.25	1.80	21.50	0.72
3.00	0.78	9.25	1.92	15.50	1.80	21.75	0.72
3.25	0.78	9.50	1.92	15.75	1.80	22.00	0.72
3.50	0.78	9.75	2.16	16.00	1.80	22.25	0.72
3.75	0.78	10.00	2.16	16.25	1.08	22.50	0.72
4.00	0.78	10.25	2.76	16.50	1.08	22.75	0.72
4.25	0.96	10.50	2.76	16.75	1.08	23.00	0.72
4.50	0.96	10.75	3.72	17.00	1.08	23.25	0.72
4.75	0.96	11.00	3.72	17.25	1.08	23.50	0.72
5.00	0.96	11.25	5.76	17.50	1.08	23.75	0.72
5.25	0.96	11.50	5.76	17.75	1.08	24.00	0.72
5.50	0.96	11.75	17.76	18.00	1.08		
5.75	0.96	12.00	73.44	18.25	1.08		
6.00	0.96	12.25	8.64	18.50	1.08		

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| CALIB            |
| NASHYD  (  0001) |   Area    (ha)= 351.84   Curve Number   (CN)= 59.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.60   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.25

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

```
     Unit Hyd Qpeak  (cms)=   5.973

     PEAK FLOW       (cms)=   1.715 (i)
     TIME TO PEAK    (hrs)=  14.833
     RUNOFF VOLUME    (mm)=  11.995
     TOTAL RAINFALL   (mm)=  60.000
     RUNOFF COEFFICIENT   =   0.200

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| SHIFT HYD(  0024)|
| IN= 2---> OUT= 1 |
| SHIFT= 80.8 min  |       AREA     QPEAK     TPEAK      R.V.
--------------------       (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0001):  351.84     1.71     14.83     12.00
    SHIFT ID= 1 (  0024):  351.84     1.71     16.17     12.00

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--------------------
| CALIB            |
| NASHYD  (  0002) |   Area    (ha)= 415.84   Curve Number   (CN)= 57.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.20   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.65

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08

0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 5.994

PEAK FLOW (cms)= 1.630 (i)
TIME TO PEAK (hrs)= 15.333
RUNOFF VOLUME (mm)= 11.023
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.184

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0025)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	415.84	1.630	15.33	11.02
+ ID2= 2 (0024):	351.84	1.715	16.17	12.00
ID = 3 (0025):	767.68	3.294	15.92	11.47

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0031)
IN= 2---> OUT= 1
SHIFT=129.8 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0025):	767.68	3.29	15.92	11.47
SHIFT ID= 1 (0031):	767.68	3.29	18.00	11.47

CALIB
NASHYD (0011)
ID= 1 DT= 5.0 min

Area (ha)= 241.80 Curve Number (CN)= 53.0
Ia (mm)= 8.30 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.81

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72

5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 5.103

PEAK FLOW (cms)= 1.105 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 9.651
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.161

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0032)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0011):	241.80	1.105	14.33	9.65
	+ ID2= 2 (0031):	767.68	3.294	18.00	11.47
	ID = 3 (0032):	1009.48	3.744	17.83	11.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0041)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=155.8 min	ID= 2 (0032):	1009.48	3.74	17.83	11.03
	SHIFT ID= 1 (0041):	1009.48	3.74	20.42	11.03

CALIB					
NASHYD (0003)	Area	(ha)= 161.56	Curve Number	(CN)= 51.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.10	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.77				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 3.486

PEAK FLOW (cms)= 0.707 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 9.102
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.152

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=115.6 min	ID= 2 (0003):	161.56	0.71	14.25	9.10
	SHIFT ID= 1 (0026):	161.56	0.71	16.17	9.10

CALIB					
NASHYD (0004)	Area	(ha)= 84.72	Curve Number	(CN)= 55.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.00	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.50				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08

0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 2.157

PEAK FLOW (cms)= 0.484 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 10.407
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.173

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| SHIFT HYD(0027)|

| IN= 2---> OUT= 1 |
| SHIFT=101.8 min |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0004):	84.72	0.48	13.92	10.41
SHIFT ID= 1 (0027):	84.72	0.48	15.58	10.41

CALIB NASHYD (0005)	Area (ha)= 290.88	Curve Number (CN)= 51.0
ID= 1 DT= 5.0 min	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 2.09	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72

5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 5.316

PEAK FLOW (cms)= 1.113 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 9.038
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.151

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0005):	290.88	1.11	14.67	9.04
SHIFT ID= 1 (0029):	290.88	1.11	17.00	9.04

CALIB NASHYD (0006) ID= 1 DT= 5.0 min | Area (ha)= 391.92 Curve Number (CN)= 57.0 | Ia (mm)= 8.40 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 2.20

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 6.804

PEAK FLOW (cms)= 1.759 (i)
TIME TO PEAK (hrs)= 14.833
RUNOFF VOLUME (mm)= 10.947
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.182

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0007) ID= 1 DT= 5.0 min | Area (ha)= 81.24 Curve Number (CN)= 49.0 | Ia (mm)= 8.70 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.53

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72

2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 2.028

PEAK FLOW (cms)= 0.361 (i)
TIME TO PEAK (hrs)= 14.000
RUNOFF VOLUME (mm)= 8.337
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.139

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0030)				
IN= 2---> OUT= 1				
SHIFT=147.5 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0007):	81.24	0.36	14.00	8.34
SHIFT ID= 1 (0030):	81.24	0.36	16.42	8.34

ADD HYD (0028)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0026):	161.56	0.707	16.17	9.10
+ ID2= 2 (0027):	84.72	0.484	15.58	10.41
ID = 3 (0028):	246.28	1.168	15.92	9.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	246.28	1.168	15.92	9.55
+ ID2= 2 (0029):	290.88	1.113	17.00	9.04
ID = 1 (0028):	537.16	2.174	16.50	9.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0028):	537.16	2.174	16.50	9.27
+ ID2= 2 (0030):	81.24	0.361	16.42	8.34
ID = 3 (0028):	618.40	2.534	16.50	9.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	618.40	2.534	16.50	9.15
+ ID2= 2 (0006):	391.92	1.759	14.83	10.95
ID = 1 (0028):	1010.32	3.985	16.17	9.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0033)				
IN= 2---> OUT= 1				
SHIFT=106.7 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0028):	1010.32	3.98	16.17	9.85
SHIFT ID= 1 (0033):	1010.32	3.98	17.92	9.85

CALIB			
NASHYD (0010)	Area (ha)= 145.33	Curve Number (CN)= 65.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.70	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.25		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72

3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 2.467

PEAK FLOW (cms)= 0.862 (i)
TIME TO PEAK (hrs)= 14.833
RUNOFF VOLUME (mm)= 14.467
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.241

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0034)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0010):	145.33	0.862	14.83	14.47
+ ID2= 2 (0033):	1010.32	3.985	17.92	9.85
ID = 3 (0034):	1155.65	4.478	17.83	10.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0040)
IN= 2---> OUT= 1
SHIFT=232.1 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0034):	1155.65	4.48	17.83	10.43
SHIFT ID= 1 (0040):	1155.65	4.48	21.67	10.43

CALIB
NASHYD (0008) | ID= 1 DT= 5.0 min

Area (ha)= 338.84 Curve Number (CN)= 51.0
Ia (mm)= 8.20 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.34

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 5.531

PEAK FLOW (cms)= 1.194 (i)
TIME TO PEAK (hrs)= 15.000
RUNOFF VOLUME (mm)= 9.070
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.151

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0035) IN= 2---> OUT= 1 SHIFT= 63.2 min		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID= 2 (0008):	338.84	1.19	15.00	9.07
	SHIFT ID= 1 (0035):	338.84	1.19	16.00	9.07

CALIB NASHYD (0014) ID= 1 DT= 5.0 min	Area (ha)= 99.92	Curve Number (CN)= 63.0
	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.66	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 2.299

PEAK FLOW (cms)= 0.681 (i)
TIME TO PEAK (hrs)= 14.083
RUNOFF VOLUME (mm)= 13.261
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.221

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0036) 1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0014):	99.92	0.681	14.08	13.26
	+ ID2= 2 (0035):	338.84	1.194	16.00	9.07
	ID = 3 (0036):	438.76	1.674	15.50	10.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0037) IN= 2---> OUT= 1 SHIFT= 83.8 min		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID= 2 (0036):	438.76	1.67	15.50	10.02
	SHIFT ID= 1 (0037):	438.76	1.67	16.83	10.02

CALIB NASHYD (0013) ID= 1 DT= 5.0 min	Area (ha)= 73.84	Curve Number (CN)= 66.0
	Ia (mm)= 8.80	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.73	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72

2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 1.630

PEAK FLOW (cms)= 0.531 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 14.400
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.240

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0038)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0013):		73.84	0.531	14.17	14.40
+ ID2= 2 (0037):		438.76	1.674	16.83	10.02
ID = 3 (0038):		512.60	1.964	16.58	10.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0009)	Area	(ha)= 249.68	Curve Number	(CN)= 58.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.41				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 3.957

PEAK FLOW (cms)= 1.080 (i)
TIME TO PEAK (hrs)= 15.083
RUNOFF VOLUME (mm)= 11.305
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.188

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0039)
IN= 2---> OUT= 1

SHIFT=208.2 min		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID= 2 (0009):	249.68	1.08	15.08	11.30
SHIFT	ID= 1 (0039):	249.68	1.08	18.50	11.30

CALIB NASHYD (0012) ID= 1 DT= 5.0 min	Area (ha)= 383.04	Curve Number (CN)= 55.0
	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 3.18	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 4.601

PEAK FLOW (cms)= 1.217 (i)
TIME TO PEAK (hrs)= 16.083
RUNOFF VOLUME (mm)= 10.299
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.172

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0015) ID= 1 DT= 5.0 min	Area (ha)= 159.16	Curve Number (CN)= 63.0
	Ia (mm)= 7.10	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.50	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72

4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 4.053

PEAK FLOW (cms)= 1.233 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 13.848
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.231

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0042)				
IN= 2---> OUT= 1				
SHIFT= 55.3 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0015):	159.16	1.23	13.92	13.85
SHIFT ID= 1 (0042):	159.16	1.23	14.83	13.85

ADD HYD (0043)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0012):	383.04	1.217	16.08	10.30	
+ ID2= 2 (0038):	512.60	1.964	16.58	10.65	
ID = 3 (0043):	895.64	3.171	16.42	10.50	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)					
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 3 (0043):	895.64	3.171	16.42	10.50	
+ ID2= 2 (0039):	249.68	1.080	18.50	11.30	
ID = 1 (0043):	1145.32	3.889	17.33	10.68	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0043):	1145.32	3.889	17.33	10.68	
+ ID2= 2 (0040):	1155.65	4.478	21.67	10.43	
ID = 3 (0043):	2300.97	6.544	21.33	10.55	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)					
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 3 (0043):	2300.97	6.544	21.33	10.55	
+ ID2= 2 (0041):	1009.48	3.744	20.42	11.03	
ID = 1 (0043):	3310.45	10.107	21.08	10.70	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0043):	3310.45	10.107	21.08	10.70	
+ ID2= 2 (0042):	159.16	1.233	14.83	13.85	
ID = 3 (0043):	3469.61	10.330	21.08	10.84	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0016)	Area (ha)= 147.08	Curve Number (CN)= 63.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.40	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.42		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72

4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 3.956

PEAK FLOW (cms)= 1.174 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 13.712
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.229

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0044)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT= 20.5 min				
ID= 2 (0016):	147.08	1.17	13.83	13.71
SHIFT ID= 1 (0044):	147.08	1.17	14.17	13.71

CALIB NASHYD (0017)			
ID= 1 DT= 5.0 min	Area (ha)= 147.40	Curve Number (CN)= 44.0	
	Ia (mm)= 8.60	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.43		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 3.937

PEAK FLOW (cms)= 0.580 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 7.051
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.118

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0045)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0017):	147.40	0.580	13.83	7.05
+ ID2= 2 (0043):	3469.61	10.330	21.08	10.84
ID = 3 (0045):	3617.01	10.434	21.00	10.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1				
ID1= 3 (0045):	3617.01	10.434	21.00	10.69
+ ID2= 2 (0044):	147.08	1.174	14.17	13.71
ID = 1 (0045):	3764.09	10.629	21.00	10.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0047)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT=107.5 min				
ID= 2 (0045):	3764.09	10.63	21.00	10.81
SHIFT ID= 1 (0047):	3764.09	10.63	22.75	10.81

CALIB NASHYD (0018) ID= 1 DT= 5.0 min	Area (ha)= 126.36 Curve Number (CN)= 54.0 Ia (mm)= 8.40 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 2.08

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 2.320

PEAK FLOW (cms)= 0.535 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 9.936
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.166

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0046) IN= 2---> OUT= 1 SHIFT= 63.7 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0018):	126.36	0.54	14.67	9.94
SHIFT ID= 1 (0046):	126.36	0.54	15.67	9.94

CALIB NASHYD (0019) ID= 1 DT= 5.0 min	Area (ha)= 198.16 Curve Number (CN)= 54.0 Ia (mm)= 8.60 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 1.67

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72

4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 4.532

PEAK FLOW (cms)= 0.983 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 9.867
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.164

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0048)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0019):	198.16	0.983	14.17	9.87
+ ID2= 2 (0046):	126.36	0.535	15.67	9.94
ID = 3 (0048):	324.52	1.380	14.75	9.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0048)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0048):	324.52	1.380	14.75	9.89
+ ID2= 2 (0047):	3764.09	10.629	22.75	10.81
ID = 1 (0048):	4088.61	10.921	22.75	10.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0049)				
IN= 2---> OUT= 1				
SHIFT= 81.0 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0048):	4088.61	10.92	22.75	10.73
SHIFT ID= 1 (0049):	4088.61	10.92	24.08	10.73

CALIB
NASHYD (0022) | Area (ha)= 119.48 Curve Number (CN)= 55.0
ID= 1 DT= 5.0 min | Ia (mm)= 8.10 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.78

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 2.564

PEAK FLOW (cms)= 0.597 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 10.371
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.173

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0022):	119.48	0.597	14.25	10.37	
+ ID2= 2 (0049):	4088.61	10.921	24.08	10.73	
ID = 3 (0050):	4208.09	11.013	24.08	10.72	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0054)				
IN= 2---> OUT= 1 | SHIFT= 52.5 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0050):	4208.09	11.01	24.08	10.72
SHIFT ID= 1 (0054):	4208.09	11.01	24.92	10.72

CALIB NASHYD (0020)| ID= 1 DT= 5.0 min				
	Area	(ha)= 126.24	Curve Number	(CN)= 61.0
	Ia	(mm)= 7.90	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.86			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 2.592

PEAK FLOW (cms)= 0.752 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 12.655
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.211

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0051)				
IN= 2---> OUT= 1 | SHIFT= 26.3 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0020):	126.24	0.75	14.33	12.66
SHIFT ID= 1 (0051):	126.24	0.75	14.75	12.66

CALIB NASHYD (0021)| ID= 1 DT= 5.0 min				
	Area	(ha)= 133.24	Curve Number	(CN)= 61.0
	Ia	(mm)= 8.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.31			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72

2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 3.885

PEAK FLOW (cms)= 1.028 (i)
TIME TO PEAK (hrs)= 13.667
RUNOFF VOLUME (mm)= 12.570
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.209

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0052)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0021):	133.24	1.028	13.67	12.57
	+ ID2= 2 (0051):	126.24	0.752	14.75	12.66
	ID = 3 (0052):	259.48	1.653	14.08	12.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0053)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=106.6 min	ID= 2 (0052):	259.48	1.65	14.08	12.61
	SHIFT ID= 1 (0053):	259.48	1.65	15.83	12.61

CALIB				
NASHYD (0023)	Area (ha)= 111.92	Curve Number (CN)= 64.0		
ID= 1 DT= 5.0 min	Ia (mm)= 8.70	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.81			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 2.362

PEAK FLOW (cms)= 0.730 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 13.553
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.226

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0055)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0023):		111.92	0.730	14.33	13.55
+ ID2= 2 (0053):		259.48	1.653	15.83	12.61
ID = 3 (0055):		371.40	2.215	15.67	12.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0055)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0055):		371.40	2.215	15.67	12.90
+ ID2= 2 (0054):		4208.09	11.013	24.92	10.72
ID = 1 (0055):		4579.49	11.367	24.92	10.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0065)	AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1				
SHIFT= 80.8 min	(ha)	(cms)	(hrs)	(mm)
ID= 2 (0055):	4579.49	11.37	24.92	10.90
SHIFT ID= 1 (0065):	4579.49	11.37	26.25	10.90

CALIB					
NASHYD (0057)	Area	(ha)= 329.71	Curve Number	(CN)= 64.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.90	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.00				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 6.297

PEAK FLOW (cms)= 2.056 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 13.922
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.232

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0064)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0057):		329.71	2.056	14.50	13.92
+ ID2= 2 (0065):		4579.49	11.367	26.25	10.90
ID = 3 (0064):		4909.20	11.581	26.17	11.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0063)	AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1				
SHIFT= 47.8 min	(ha)	(cms)	(hrs)	(mm)
ID= 2 (0064):	4909.20	11.58	26.17	11.10
SHIFT ID= 1 (0063):	4909.20	11.58	26.92	11.10

CALIB					
NASHYD (0059)	Area	(ha)= 158.28	Curve Number	(CN)= 61.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.96				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08

0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 3.084

PEAK FLOW (cms)= 0.924 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 12.869
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.214

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0068)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0059):		158.28	0.924	14.50	12.87
+ ID2= 2 (0063):		4909.20	11.581	26.92	11.10
ID = 3 (0068):		5067.48	11.647	26.92	11.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0072)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 99.0 min	ID= 2 (0068):	5067.48	11.65	26.92	11.16
	SHIFT ID= 1 (0072):	5067.48	11.65	28.50	11.16

CALIB				
NASHYD (0058)	Area (ha)= 138.00	Curve Number (CN)= 67.0		
ID= 1 DT= 5.0 min	Ia (mm)= 7.30	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.83			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72

4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 2.880

PEAK FLOW (cms)= 1.043 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 15.620
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.260

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0066)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 87.0 min	ID= 2 (0058):	138.00	1.04	14.33	15.62
	SHIFT ID= 1 (0066):	138.00	1.04	15.75	15.62

CALIB NASHYD (0060)				
ID= 1 DT= 5.0 min	Area (ha)= 92.48	Curve Number (CN)= 67.0		
	Ia (mm)= 7.30	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.85			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 1.909

PEAK FLOW (cms)= 0.694 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 15.620
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.260

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0067)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 22.8 min	ID= 2 (0060):	92.48	0.69	14.33	15.62
	SHIFT ID= 1 (0067):	92.48	0.69	14.67	15.62

CALIB NASHYD (0061)				
ID= 1 DT= 5.0 min	Area (ha)= 134.36	Curve Number (CN)= 67.0		
	Ia (mm)= 7.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.85			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08

0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72
3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 2.774

PEAK FLOW (cms)= 1.004 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 15.570
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.259

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0069)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0061):	134.36	1.004	14.33	15.57
+ ID2= 2 (0066):	138.00	1.043	15.75	15.62
ID = 3 (0069):	272.36	1.885	15.25	15.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0069)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0069):	272.36	1.885	15.25	15.60
+ ID2= 2 (0067):	92.48	0.694	14.67	15.62
ID = 1 (0069):	364.84	2.547	15.17	15.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0070)				
IN= 2---> OUT= 1				
SHIFT= 5.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0069):	364.84	2.55	15.17	15.60
SHIFT ID= 1 (0070):	364.84	2.55	15.25	15.60

CALIB
NASHYD (0062) | ID= 1 DT= 5.0 min

Area (ha)= 134.36 Curve Number (CN)= 67.0
Ia (mm)= 7.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.85

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.96	12.250	73.44	18.33	1.08
0.167	0.00	6.250	0.96	12.333	8.65	18.42	1.08
0.250	0.00	6.333	1.08	12.417	8.64	18.50	1.08
0.333	0.66	6.417	1.08	12.500	8.64	18.58	1.08
0.417	0.66	6.500	1.08	12.583	8.64	18.67	1.08
0.500	0.66	6.583	1.08	12.667	8.64	18.75	1.08
0.583	0.66	6.667	1.08	12.750	8.64	18.83	1.08
0.667	0.66	6.750	1.08	12.833	4.44	18.92	1.08
0.750	0.66	6.833	1.08	12.917	4.44	19.00	1.08
0.833	0.66	6.917	1.08	13.000	4.44	19.08	1.08
0.917	0.66	7.000	1.08	13.083	4.44	19.17	1.08
1.000	0.66	7.083	1.08	13.167	4.44	19.25	1.08
1.083	0.66	7.167	1.08	13.250	4.44	19.33	1.08
1.167	0.66	7.250	1.08	13.333	3.24	19.42	1.08
1.250	0.66	7.333	1.32	13.417	3.24	19.50	1.08
1.333	0.66	7.417	1.32	13.500	3.24	19.58	1.08
1.417	0.66	7.500	1.32	13.583	3.24	19.67	1.08
1.500	0.66	7.583	1.32	13.667	3.24	19.75	1.08
1.583	0.66	7.667	1.32	13.750	3.24	19.83	1.08
1.667	0.66	7.750	1.32	13.833	2.52	19.92	1.08
1.750	0.66	7.833	1.32	13.917	2.52	20.00	1.08
1.833	0.66	7.917	1.32	14.000	2.52	20.08	1.08
1.917	0.66	8.000	1.32	14.083	2.52	20.17	1.08
2.000	0.66	8.083	1.32	14.167	2.52	20.25	1.08
2.083	0.66	8.167	1.32	14.250	2.52	20.33	0.72
2.167	0.66	8.250	1.32	14.333	1.80	20.42	0.72
2.250	0.66	8.333	1.56	14.417	1.80	20.50	0.72
2.333	0.78	8.417	1.56	14.500	1.80	20.58	0.72
2.417	0.78	8.500	1.56	14.583	1.80	20.67	0.72
2.500	0.78	8.583	1.56	14.667	1.80	20.75	0.72
2.583	0.78	8.667	1.56	14.750	1.80	20.83	0.72
2.667	0.78	8.750	1.56	14.833	1.80	20.92	0.72
2.750	0.78	8.833	1.68	14.917	1.80	21.00	0.72
2.833	0.78	8.917	1.68	15.000	1.80	21.08	0.72
2.917	0.78	9.000	1.68	15.083	1.80	21.17	0.72
3.000	0.78	9.083	1.68	15.167	1.80	21.25	0.72
3.083	0.78	9.167	1.68	15.250	1.80	21.33	0.72
3.167	0.78	9.250	1.68	15.333	1.80	21.42	0.72
3.250	0.78	9.333	1.92	15.417	1.80	21.50	0.72
3.333	0.78	9.417	1.92	15.500	1.80	21.58	0.72
3.417	0.78	9.500	1.92	15.583	1.80	21.67	0.72
3.500	0.78	9.583	1.92	15.667	1.80	21.75	0.72
3.583	0.78	9.667	1.92	15.750	1.80	21.83	0.72
3.667	0.78	9.750	1.92	15.833	1.80	21.92	0.72
3.750	0.78	9.833	2.16	15.917	1.80	22.00	0.72

3.833	0.78	9.917	2.16	16.000	1.80	22.08	0.72
3.917	0.78	10.000	2.16	16.083	1.80	22.17	0.72
4.000	0.78	10.083	2.16	16.167	1.80	22.25	0.72
4.083	0.78	10.167	2.16	16.250	1.80	22.33	0.72
4.167	0.78	10.250	2.16	16.333	1.08	22.42	0.72
4.250	0.78	10.333	2.76	16.417	1.08	22.50	0.72
4.333	0.96	10.417	2.76	16.500	1.08	22.58	0.72
4.417	0.96	10.500	2.76	16.583	1.08	22.67	0.72
4.500	0.96	10.583	2.76	16.667	1.08	22.75	0.72
4.583	0.96	10.667	2.76	16.750	1.08	22.83	0.72
4.667	0.96	10.750	2.76	16.833	1.08	22.92	0.72
4.750	0.96	10.833	3.72	16.917	1.08	23.00	0.72
4.833	0.96	10.917	3.72	17.000	1.08	23.08	0.72
4.917	0.96	11.000	3.72	17.083	1.08	23.17	0.72
5.000	0.96	11.083	3.72	17.167	1.08	23.25	0.72
5.083	0.96	11.167	3.72	17.250	1.08	23.33	0.72
5.167	0.96	11.250	3.72	17.333	1.08	23.42	0.72
5.250	0.96	11.333	5.76	17.417	1.08	23.50	0.72
5.333	0.96	11.417	5.76	17.500	1.08	23.58	0.72
5.417	0.96	11.500	5.76	17.583	1.08	23.67	0.72
5.500	0.96	11.583	5.76	17.667	1.08	23.75	0.72
5.583	0.96	11.667	5.76	17.750	1.08	23.83	0.72
5.667	0.96	11.750	5.76	17.833	1.08	23.92	0.72
5.750	0.96	11.833	17.76	17.917	1.08	24.00	0.72
5.833	0.96	11.917	17.76	18.000	1.08	24.08	0.72
5.917	0.96	12.000	17.76	18.083	1.08	24.17	0.72
6.000	0.96	12.083	73.43	18.167	1.08	24.25	0.72
6.083	0.96	12.167	73.44	18.250	1.08		

Unit Hyd Qpeak (cms)= 2.774

PEAK FLOW (cms)= 1.004 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 15.570
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.259

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0071)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0062):		134.36	1.004	14.33	15.57
+ ID2= 2 (0070):		364.84	2.547	15.25	15.60
ID = 3 (0071):		499.20	3.465	15.00	15.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0071)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0071):		499.20	3.465	15.00	15.59
+ ID2= 2 (0072):		5067.48	11.647	28.50	11.16
ID = 1 (0071):		5566.68	11.772	28.42	11.56

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
Output filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\2d55caec-a4c6
Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\2d55caec-a4c6

DATE: 09/27/2024 TIME: 12:31:19

USER:

COMMENTS: _____

****
** SIMULATION : 50yr 24hr 15min SCS Type II_5 **
****

READ STORM	Filename: C:\Users\jkoen\AppD ata\Local\Temp\ 33a2935f-00c8-4f23-9a93-7abdd6141ba8\c1b93af5
Ptotal=120.00 mm	Comments: 50yr 24hr 15min SCS Type II_5E

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	2.16	12.50	17.28	18.75	2.16
0.25	1.32	6.50	2.16	12.75	8.88	19.00	2.16
0.50	1.32	6.75	2.16	13.00	8.88	19.25	2.16
0.75	1.32	7.00	2.16	13.25	6.48	19.50	2.16
1.00	1.32	7.25	2.64	13.50	6.48	19.75	2.16
1.25	1.32	7.50	2.64	13.75	5.04	20.00	2.16
1.50	1.32	7.75	2.64	14.00	5.04	20.25	1.44
1.75	1.32	8.00	2.64	14.25	3.60	20.50	1.44
2.00	1.32	8.25	3.12	14.50	3.60	20.75	1.44
2.25	1.56	8.50	3.12	14.75	3.60	21.00	1.44
2.50	1.56	8.75	3.36	15.00	3.60	21.25	1.44
2.75	1.56	9.00	3.36	15.25	3.60	21.50	1.44
3.00	1.56	9.25	3.84	15.50	3.60	21.75	1.44
3.25	1.56	9.50	3.84	15.75	3.60	22.00	1.44
3.50	1.56	9.75	4.32	16.00	3.60	22.25	1.44
3.75	1.56	10.00	4.32	16.25	2.16	22.50	1.44
4.00	1.56	10.25	5.52	16.50	2.16	22.75	1.44
4.25	1.92	10.50	5.52	16.75	2.16	23.00	1.44
4.50	1.92	10.75	7.44	17.00	2.16	23.25	1.44
4.75	1.92	11.00	7.44	17.25	2.16	23.50	1.44
5.00	1.92	11.25	11.52	17.50	2.16	23.75	1.44
5.25	1.92	11.50	11.52	17.75	2.16	24.00	1.44
5.50	1.92	11.75	35.52	18.00	2.16		
5.75	1.92	12.00	146.88	18.25	2.16		
6.00	1.92	12.25	17.28	18.50	2.16		

CALIB NASHYD (0001)	Area (ha)= 351.84	Curve Number (CN)= 59.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.60	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 2.25	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16

1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 5.973

PEAK FLOW (cms)= 6.519 (i)
TIME TO PEAK (hrs)= 14.750
RUNOFF VOLUME (mm)= 43.730
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.364

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0024)				
IN= 2---> OUT= 1				
SHIFT= 80.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0001):	351.84	6.52	14.75	43.73
SHIFT ID= 1 (0024):	351.84	6.52	16.08	43.73

CALIB				
NASHYD (0002)	Area (ha)= 415.84	Curve Number (CN)= 57.0		
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.65			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 5.994

PEAK FLOW (cms)= 6.360 (i)
TIME TO PEAK (hrs)= 15.167

RUNOFF VOLUME (mm)= 41.196
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.343

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0025)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0002):		415.84	6.360	15.17	41.20
+ ID2= 2 (0024):		351.84	6.519	16.08	43.73
ID = 3 (0025):		767.68	12.648	15.75	42.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0031)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=129.8 min	ID= 2 (0025):	767.68	12.65	15.75	42.36
	SHIFT ID= 1 (0031):	767.68	12.65	17.83	42.36

CALIB					
NASHYD (0011)	Area	(ha)= 241.80	Curve Number	(CN)= 53.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.30	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.81				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 5.103

PEAK FLOW (cms)= 4.438 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 37.030
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.309

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0032)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0011):		241.80	4.438	14.25	37.03
+ ID2= 2 (0031):		767.68	12.648	17.83	42.36
ID = 3 (0032):		1009.48	14.347	17.67	41.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0041)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=155.8 min	ID= 2 (0032):	1009.48	14.35	17.67	41.08
	SHIFT ID= 1 (0041):	1009.48	14.35	20.25	41.08

CALIB					
NASHYD (0003)	Area	(ha)= 161.56	Curve Number	(CN)= 51.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.10	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.77				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16

0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 3.486

PEAK FLOW (cms)= 2.857 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 35.179
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.293

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026) / IN= 2---> OUT= 1 / SHIFT=115.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0003):	161.56	2.86	14.17	35.18
SHIFT ID= 1 (0026):	161.56	2.86	16.08	35.18

CALIB / NASHYD (0004) / ID= 1 DT= 5.0 min			
	Area (ha)= 84.72	Curve Number (CN)= 55.0	
	Ia (mm)= 8.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.50		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44

6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 2.157

PEAK FLOW (cms)= 1.909 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 39.222
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.327

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027) / IN= 2---> OUT= 1 / SHIFT=101.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0004):	84.72	1.91	13.83	39.22
SHIFT ID= 1 (0027):	84.72	1.91	15.50	39.22

CALIB NASHYD (0005) / ID= 1 DT= 5.0 min				
	Area	(ha)= 290.88	Curve Number	(CN)= 51.0
	Ia	(mm)= 8.30	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	2.09		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 5.316

PEAK FLOW (cms)= 4.513 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 35.073
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.292

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029) / IN= 2---> OUT= 1 / SHIFT=144.1 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0005):	290.88	4.51	14.58	35.07
SHIFT ID= 1 (0029):	290.88	4.51	16.92	35.07

CALIB NASHYD (0006) / ID= 1 DT= 5.0 min				
	Area	(ha)= 391.92	Curve Number	(CN)= 57.0
	Ia	(mm)= 8.40	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	2.20		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44

2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 6.804

PEAK FLOW (cms)= 6.914 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 41.075
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.342

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0007)	Area (ha)= 81.24	Curve Number (CN)= 49.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.70	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.53		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 2.028

PEAK FLOW (cms)= 1.498 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 32.975
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.275

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0030)				
IN= 2---> OUT= 1				
SHIFT=147.5 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0007):	81.24	1.50	13.92	32.98
SHIFT ID= 1 (0030):	81.24	1.50	16.33	32.98

ADD HYD (0028)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

```
       ID1= 1 (  0026):   161.56   2.857    16.08    35.18
     + ID2= 2 (  0027):    84.72   1.909    15.50    39.22
       ================================================
       ID = 3 (  0028):   246.28   4.674    15.83    36.57

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0028)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0028):   246.28   4.674    15.83    36.57
     + ID2= 2 (  0029):   290.88   4.513    16.92    35.07
       ================================================
       ID = 1 (  0028):   537.16   8.753    16.42    35.76

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0028)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0028):   537.16   8.753    16.42    35.76
     + ID2= 2 (  0030):    81.24   1.498    16.33    32.98
       ================================================
       ID = 3 (  0028):   618.40  10.249    16.33    35.39

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0028)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0028):   618.40  10.249    16.33    35.39
     + ID2= 2 (  0006):   391.92   6.914    14.67    41.08
       ================================================
       ID = 1 (  0028):  1010.32  15.817    16.08    37.60

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| SHIFT HYD(  0033)|
| IN= 2---> OUT= 1 |
| SHIFT=106.7 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
        ID= 2 (  0028): 1010.32     15.82     16.08     37.60
   SHIFT ID= 1 (  0033): 1010.32     15.82     17.83     37.60

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| CALIB            |
| NASHYD   (  0010)|   Area    (ha)= 145.33   Curve Number   (CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.70   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.25

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
  TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
   hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
 0.083     0.00 | 6.167     1.92 |12.250   146.88 | 18.33     2.16
 0.167     0.00 | 6.250     1.92 |12.333    17.30 | 18.42     2.16
 0.250     0.00 | 6.333     2.16 |12.417    17.28 | 18.50     2.16
 0.333     1.32 | 6.417     2.16 |12.500    17.28 | 18.58     2.16
 0.417     1.32 | 6.500     2.16 |12.583    17.28 | 18.67     2.16
 0.500     1.32 | 6.583     2.16 |12.667    17.28 | 18.75     2.16
 0.583     1.32 | 6.667     2.16 |12.750    17.28 | 18.83     2.16
 0.667     1.32 | 6.750     2.16 |12.833     8.88 | 18.92     2.16
 0.750     1.32 | 6.833     2.16 |12.917     8.88 | 19.00     2.16
 0.833     1.32 | 6.917     2.16 |13.000     8.88 | 19.08     2.16
 0.917     1.32 | 7.000     2.16 |13.083     8.88 | 19.17     2.16
 1.000     1.32 | 7.083     2.16 |13.167     8.88 | 19.25     2.16
 1.083     1.32 | 7.167     2.16 |13.250     8.88 | 19.33     2.16
 1.167     1.32 | 7.250     2.16 |13.333     6.48 | 19.42     2.16
 1.250     1.32 | 7.333     2.64 |13.417     6.48 | 19.50     2.16
 1.333     1.32 | 7.417     2.64 |13.500     6.48 | 19.58     2.16
 1.417     1.32 | 7.500     2.64 |13.583     6.48 | 19.67     2.16
 1.500     1.32 | 7.583     2.64 |13.667     6.48 | 19.75     2.16
 1.583     1.32 | 7.667     2.64 |13.750     6.48 | 19.83     2.16
 1.667     1.32 | 7.750     2.64 |13.833     5.04 | 19.92     2.16
 1.750     1.32 | 7.833     2.64 |13.917     5.04 | 20.00     2.16
 1.833     1.32 | 7.917     2.64 |14.000     5.04 | 20.08     2.16
 1.917     1.32 | 8.000     2.64 |14.083     5.04 | 20.17     2.16
 2.000     1.32 | 8.083     2.64 |14.167     5.04 | 20.25     2.16
 2.083     1.32 | 8.167     2.64 |14.250     5.04 | 20.33     1.44
 2.167     1.32 | 8.250     2.64 |14.333     3.60 | 20.42     1.44
 2.250     1.32 | 8.333     3.12 |14.417     3.60 | 20.50     1.44
 2.333     1.56 | 8.417     3.12 |14.500     3.60 | 20.58     1.44
 2.417     1.56 | 8.500     3.12 |14.583     3.60 | 20.67     1.44
 2.500     1.56 | 8.583     3.12 |14.667     3.60 | 20.75     1.44
 2.583     1.56 | 8.667     3.12 |14.750     3.60 | 20.83     1.44
 2.667     1.56 | 8.750     3.12 |14.833     3.60 | 20.92     1.44
 2.750     1.56 | 8.833     3.36 |14.917     3.60 | 21.00     1.44
 2.833     1.56 | 8.917     3.36 |15.000     3.60 | 21.08     1.44
 2.917     1.56 | 9.000     3.36 |15.083     3.60 | 21.17     1.44
 3.000     1.56 | 9.083     3.36 |15.167     3.60 | 21.25     1.44
 3.083     1.56 | 9.167     3.36 |15.250     3.60 | 21.33     1.44
 3.167     1.56 | 9.250     3.36 |15.333     3.60 | 21.42     1.44
 3.250     1.56 | 9.333     3.84 |15.417     3.60 | 21.50     1.44
 3.333     1.56 | 9.417     3.84 |15.500     3.60 | 21.58     1.44
 3.417     1.56 | 9.500     3.84 |15.583     3.60 | 21.67     1.44
 3.500     1.56 | 9.583     3.84 |15.667     3.60 | 21.75     1.44
 3.583     1.56 | 9.667     3.84 |15.750     3.60 | 21.83     1.44
 3.667     1.56 | 9.750     3.84 |15.833     3.60 | 21.92     1.44
 3.750     1.56 | 9.833     4.32 |15.917     3.60 | 22.00     1.44
 3.833     1.56 | 9.917     4.32 |16.000     3.60 | 22.08     1.44
 3.917     1.56 |10.000     4.32 |16.083     3.60 | 22.17     1.44
 4.000     1.56 |10.083     4.32 |16.167     3.60 | 22.25     1.44
 4.083     1.56 |10.167     4.32 |16.250     3.60 | 22.33     1.44
 4.167     1.56 |10.250     4.32 |16.333     2.16 | 22.42     1.44
 4.250     1.56 |10.333     5.52 |16.417     2.16 | 22.50     1.44
 4.333     1.92 |10.417     5.52 |16.500     2.16 | 22.58     1.44
 4.417     1.92 |10.500     5.52 |16.583     2.16 | 22.67     1.44
 4.500     1.92 |10.583     5.52 |16.667     2.16 | 22.75     1.44
 4.583     1.92 |10.667     5.52 |16.750     2.16 | 22.83     1.44
 4.667     1.92 |10.750     5.52 |16.833     2.16 | 22.92     1.44
 4.750     1.92 |10.833     7.44 |16.917     2.16 | 23.00     1.44
 4.833     1.92 |10.917     7.44 |17.000     2.16 | 23.08     1.44
 4.917     1.92 |11.000     7.44 |17.083     2.16 | 23.17     1.44
 5.000     1.92 |11.083     7.44 |17.167     2.16 | 23.25     1.44
 5.083     1.92 |11.167     7.44 |17.250     2.16 | 23.33     1.44
 5.167     1.92 |11.250     7.44 |17.333     2.16 | 23.42     1.44
 5.250     1.92 |11.333    11.52 |17.417     2.16 | 23.50     1.44
 5.333     1.92 |11.417    11.52 |17.500     2.16 | 23.58     1.44
 5.417     1.92 |11.500    11.52 |17.583     2.16 | 23.67     1.44
 5.500     1.92 |11.583    11.52 |17.667     2.16 | 23.75     1.44
 5.583     1.92 |11.667    11.52 |17.750     2.16 | 23.83     1.44
 5.667     1.92 |11.750    11.52 |17.833     2.16 | 23.92     1.44
 5.750     1.92 |11.833    35.52 |17.917     2.16 | 24.00     1.44
 5.833     1.92 |11.917    35.52 |18.000     2.16 | 24.08     1.44
 5.917     1.92 |12.000    35.52 |18.083     2.16 | 24.17     1.44
 6.000     1.92 |12.083   146.87 |18.167     2.16 | 24.25     1.44
 6.083     1.92 |12.167   146.88 |18.250     2.16 |

    Unit Hyd Qpeak  (cms)=   2.467

    PEAK FLOW       (cms)=   3.153 (i)
    TIME TO PEAK    (hrs)=  14.667
    RUNOFF VOLUME    (mm)=  50.634
    TOTAL RAINFALL   (mm)= 120.000
    RUNOFF COEFFICIENT   =   0.422

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0034)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0010):   145.33   3.153    14.67    50.63
     + ID2= 2 (  0033):  1010.32  15.817    17.83    37.60
       ================================================
       ID = 3 (  0034):  1155.65  17.516    17.75    39.24

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0040)|
| IN= 2---> OUT= 1 |
| SHIFT=232.1 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
        ID= 2 (  0034): 1155.65     17.52     17.75     39.24
   SHIFT ID= 1 (  0040): 1155.65     17.52     21.58     39.24
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CALIB											
NASHYD (0008)	Area	(ha)= 338.84	Curve Number	(CN)= 51.0							
ID= 1 DT= 5.0 min	Ia	(mm)= 8.20	# of Linear Res.(N)= 3.00								
	U.H. Tp(hrs)= 2.34										

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 5.531

PEAK FLOW (cms)= 4.823 (i)
TIME TO PEAK (hrs)= 14.833
RUNOFF VOLUME (mm)= 35.126
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.293

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0035)				
IN= 2---> OUT= 1				
SHIFT= 63.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0008):	338.84	4.82	14.83	35.13
SHIFT ID= 1 (0035):	338.84	4.82	15.83	35.13

CALIB											
NASHYD (0014)	Area	(ha)= 99.92	Curve Number	(CN)= 63.0							
ID= 1 DT= 5.0 min	Ia	(mm)= 8.40	# of Linear Res.(N)= 3.00								
	U.H. Tp(hrs)= 1.66										

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44

4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 2.299

PEAK FLOW (cms)= 2.578 (i)
TIME TO PEAK (hrs)= 14.000
RUNOFF VOLUME (mm)= 47.760
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.398

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0036)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0014):	99.92	2.578	14.00	47.76
+ ID2= 2 (0035):	338.84	4.823	15.83	35.13
ID = 3 (0036):	438.76	6.602	15.33	38.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0037)
IN= 2---> OUT= 1
SHIFT= 83.8 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0036):	438.76	6.60	15.33	38.00
SHIFT ID= 1 (0037):	438.76	6.60	16.67	38.00

CALIB
NASHYD (0013) ID= 1 DT= 5.0 min

Area (ha)= 73.84 Curve Number (CN)= 66.0
Ia (mm)= 8.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.73

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 1.630

PEAK FLOW (cms)= 1.987 (i)
TIME TO PEAK (hrs)= 14.083
RUNOFF VOLUME (mm)= 51.087
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.426

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0038)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0013):	73.84	1.987	14.08	51.09
+ ID2= 2 (0037):	438.76	6.602	16.67	38.00
ID = 3 (0038):	512.60	7.618	16.50	39.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0009)	Area	(ha)= 249.68	Curve Number	(CN)= 58.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.41				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 3.957

PEAK FLOW (cms)= 4.216 (i)
TIME TO PEAK (hrs)= 14.917
RUNOFF VOLUME (mm)= 42.143
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.351

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0039)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=208.2 min	ID= 2 (0009):	249.68	4.22	14.92	42.14
	SHIFT ID= 1 (0039):	249.68	4.22	18.33	42.14

CALIB					
NASHYD (0012)	Area	(ha)= 383.04	Curve Number	(CN)= 55.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.30	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 3.18				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44

4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 4.601

PEAK FLOW (cms)= 4.799 (i)
TIME TO PEAK (hrs)= 15.917
RUNOFF VOLUME (mm)= 39.049
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.325

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0015)	Area (ha)= 159.16	Curve Number (CN)= 63.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.50		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 4.053

PEAK FLOW (cms)= 4.520 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 48.637
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.405

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0042)				
IN= 2---> OUT= 1				
SHIFT= 55.3 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0015):	159.16	4.52	13.83	48.64
SHIFT ID= 1 (0042):	159.16	4.52	14.75	48.64

ADD HYD (0043)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	383.04	4.799	15.92	39.05
+ ID2= 2 (0038):	512.60	7.618	16.50	39.89
ID = 3 (0043):	895.64	12.352	16.33	39.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	895.64	12.352	16.33	39.53
+ ID2= 2 (0039):	249.68	4.216	18.33	42.14
ID = 1 (0043):	1145.32	15.112	17.25	40.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.

	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0043):	1145.32	15.112	17.25	40.10
+ ID2= 2 (0040):	1155.65	17.516	21.58	39.24
ID = 3 (0043):	2300.97	24.943	21.25	39.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	2300.97	24.943	21.25	39.67
+ ID2= 2 (0041):	1009.48	14.347	20.25	41.08
ID = 1 (0043):	3310.45	38.431	21.00	40.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0043):	3310.45	38.431	21.00	40.10
+ ID2= 2 (0042):	159.16	4.520	14.75	48.64
ID = 3 (0043):	3469.61	39.123	20.92	40.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0016) | ID= 1 DT= 5.0 min

Area (ha)= 147.08 Curve Number (CN)= 63.0
Ia (mm)= 7.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.42

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 3.956

PEAK FLOW (cms)= 4.337 (i)
TIME TO PEAK (hrs)= 13.750
RUNOFF VOLUME (mm)= 48.434
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.404

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0044)
IN= 2---> OUT= 1
SHIFT= 20.5 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0016):	147.08	4.34	13.75	48.43
SHIFT ID= 1 (0044):	147.08	4.34	14.08	48.43

CALIB
NASHYD (0017) | ID= 1 DT= 5.0 min

Area (ha)= 147.40 Curve Number (CN)= 44.0
Ia (mm)= 8.60 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.43

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16

1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 3.937

PEAK FLOW (cms)= 2.456 (i)
TIME TO PEAK (hrs)= 13.750
RUNOFF VOLUME (mm)= 28.550
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.238

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0045) | 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0017):	147.40	2.456	13.75	28.55
+ ID2= 2 (0043):	3469.61	39.123	20.92	40.49
ID = 3 (0045):	3617.01	39.501	20.92	40.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045) | 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0045):	3617.01	39.501	20.92	40.00
+ ID2= 2 (0044):	147.08	4.337	14.08	48.43
ID = 1 (0045):	3764.09	40.101	20.92	40.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0047) | IN= 2---> OUT= 1 | SHIFT=107.5 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0045):	3764.09	40.10	20.92	40.33
SHIFT ID= 1 (0047):	3764.09	40.10	22.67	40.33

CALIB NASHYD (0018) | ID= 1 DT= 5.0 min				
	Area	(ha)= 126.36	Curve Number	(CN)= 54.0
	Ia	(mm)= 8.40	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	2.08		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44

4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 2.320

PEAK FLOW (cms)= 2.141 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 37.975
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.316

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0046)
IN= 2---> OUT= 1
SHIFT= 63.7 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0018):	126.36	2.14	14.50	37.97
SHIFT ID= 1 (0046):	126.36	2.14	15.50	37.97

CALIB
NASHYD (0019)
ID= 1 DT= 5.0 min

Area (ha)= 198.16 Curve Number (CN)= 54.0
Ia (mm)= 8.60 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.67

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 4.532

PEAK FLOW (cms)= 3.961 (i)
TIME TO PEAK (hrs)= 14.083
RUNOFF VOLUME (mm)= 37.862
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.316

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0048)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0019):	198.16	3.961	14.08	37.86
+ ID2= 2 (0046):	126.36	2.141	15.50	37.97
ID = 3 (0048):	324.52	5.532	14.67	37.91

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0048)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0048):	324.52	5.532	14.67	37.91
+ ID2= 2 (0047):	3764.09	40.101	22.67	40.33
ID = 1 (0048):	4088.61	41.084	22.67	40.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0049)
IN= 2---> OUT= 1
SHIFT= 81.0 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0048):	4088.61	41.08	22.67	40.14
SHIFT ID= 1 (0049):	4088.61	41.08	24.00	40.14

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| CALIB            |
| NASHYD   (  0022)|   Area    (ha)= 119.48   Curve Number   (CN)= 55.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.10   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.78

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

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     Unit Hyd Qpeak  (cms)=   2.564

     PEAK FLOW       (cms)=   2.359 (i)
     TIME TO PEAK    (hrs)=  14.167
     RUNOFF VOLUME    (mm)=  39.165
     TOTAL RAINFALL   (mm)= 120.000
     RUNOFF COEFFICIENT   =   0.326

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD  (  0050)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
        ID1= 1 (  0022):   119.48    2.359    14.17     39.16
      + ID2= 2 (  0049):  4088.61   41.084    24.00     40.14
        ==========================================================
        ID = 3 (  0050):  4208.09   41.384    24.00     40.11

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0054)|
| IN= 2---> OUT= 1 |
| SHIFT= 52.5 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0050): 4208.09    41.38     24.00     40.11
    SHIFT ID= 1 (  0054): 4208.09    41.38     24.83     40.11

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--------------------
| CALIB            |
| NASHYD   (  0020)|   Area    (ha)= 126.24   Curve Number   (CN)= 61.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.86

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44

3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 2.592

PEAK FLOW (cms)= 2.849 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 45.781
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.382

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0051)
IN= 2---> OUT= 1
SHIFT= 26.3 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0020):	126.24	2.85	14.25	45.78
SHIFT ID= 1 (0051):	126.24	2.85	14.67	45.78

CALIB
NASHYD (0021)
ID= 1 DT= 5.0 min

Area (ha)= 133.24 Curve Number (CN)= 61.0
Ia (mm)= 8.10 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.31

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 3.885

PEAK FLOW (cms)= 3.922 (i)
TIME TO PEAK (hrs)= 13.583
RUNOFF VOLUME (mm)= 45.651
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.380

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0052)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0021):	133.24	3.922	13.58	45.65
+ ID2= 2 (0051):	126.24	2.849	14.67	45.78
ID = 3 (0052):	259.48	6.290	14.00	45.71

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0053)
IN= 2---> OUT= 1

SHIFT=106.6 min		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID= 2 (0052):	259.48	6.29	14.00	45.71
SHIFT	ID= 1 (0053):	259.48	6.29	15.75	45.71

CALIB NASHYD (0023) ID= 1 DT= 5.0 min	Area (ha)= 111.92	Curve Number (CN)= 64.0
	Ia (mm)= 8.70	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.81	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 2.362

PEAK FLOW (cms)= 2.762 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 48.737
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.406

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0055) 1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0023):	111.92	2.762	14.17	48.74
+	ID2= 2 (0053):	259.48	6.290	15.75	45.71
	ID = 3 (0055):	371.40	8.360	15.58	46.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0055) 3 + 2 = 1		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 3 (0055):	371.40	8.360	15.58	46.62
+	ID2= 2 (0054):	4208.09	41.384	24.83	40.11
	ID = 1 (0055):	4579.49	42.484	24.83	40.64

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0065) IN= 2---> OUT= 1		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
SHIFT= 80.8 min	ID= 2 (0055):	4579.49	42.48	24.83	40.64
SHIFT	ID= 1 (0065):	4579.49	42.48	26.17	40.64

CALIB NASHYD (0057) ID= 1 DT= 5.0 min	Area (ha)= 329.71	Curve Number (CN)= 64.0
	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 2.00	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16

1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 6.297

PEAK FLOW (cms)= 7.619 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 49.285
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.411

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0064)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0057):	329.71	7.619	14.42	49.29
+ ID2= 2 (0065):	4579.49	42.484	26.17	40.64
ID = 3 (0064):	4909.20	43.141	26.08	41.22

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0063)
IN= 2---> OUT= 1
SHIFT= 47.8 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0064):	4909.20	43.14	26.08	41.22
SHIFT ID= 1 (0063):	4909.20	43.14	26.83	41.22

CALIB
NASHYD (0059)
ID= 1 DT= 5.0 min

Area (ha)= 158.28 Curve Number (CN)= 61.0
Ia (mm)= 7.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.96

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44

5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 3.084

PEAK FLOW (cms)= 3.454 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 46.106
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.384

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0068)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0059):	158.28	3.454	14.33	46.11
+ ID2= 2 (0063):	4909.20	43.141	26.83	41.22
ID = 3 (0068):	5067.48	43.353	26.83	41.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0072) IN= 2---> OUT= 1 SHIFT= 99.0 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0068):	5067.48	43.35	26.83	41.37
SHIFT ID= 1 (0072):	5067.48	43.35	28.42	41.37

CALIB
NASHYD (0058) ID= 1 DT= 5.0 min | Area (ha)= 138.00 Curve Number (CN)= 67.0
Ia (mm)= 7.30 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.83

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 2.880

PEAK FLOW (cms)= 3.724 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 53.411
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.445

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0066) IN= 2---> OUT= 1 SHIFT= 87.0 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0058):	138.00	3.72	14.17	53.41
SHIFT ID= 1 (0066):	138.00	3.72	15.58	53.41

CALIB
NASHYD (0060) ID= 1 DT= 5.0 min | Area (ha)= 92.48 Curve Number (CN)= 67.0
Ia (mm)= 7.30 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.85

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16

1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 1.909

PEAK FLOW (cms)= 2.475 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 53.411
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.445

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0067)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 22.8 min	ID= 2 (0060):	92.48	2.47	14.25	53.41
	SHIFT ID= 1 (0067):	92.48	2.47	14.58	53.41

CALIB					
NASHYD (0061)	Area	(ha)= 134.36	Curve Number	(CN)= 67.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.40	# of Linear Res.(N)= 3.00		

U.H. Tp(hrs)= 1.85

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	146.88	18.33	2.16
0.167	0.00	6.250	1.92	12.333	17.30	18.42	2.16
0.250	0.00	6.333	2.16	12.417	17.28	18.50	2.16
0.333	1.32	6.417	2.16	12.500	17.28	18.58	2.16
0.417	1.32	6.500	2.16	12.583	17.28	18.67	2.16
0.500	1.32	6.583	2.16	12.667	17.28	18.75	2.16
0.583	1.32	6.667	2.16	12.750	17.28	18.83	2.16
0.667	1.32	6.750	2.16	12.833	8.88	18.92	2.16
0.750	1.32	6.833	2.16	12.917	8.88	19.00	2.16
0.833	1.32	6.917	2.16	13.000	8.88	19.08	2.16
0.917	1.32	7.000	2.16	13.083	8.88	19.17	2.16
1.000	1.32	7.083	2.16	13.167	8.88	19.25	2.16
1.083	1.32	7.167	2.16	13.250	8.88	19.33	2.16
1.167	1.32	7.250	2.16	13.333	6.48	19.42	2.16
1.250	1.32	7.333	2.64	13.417	6.48	19.50	2.16
1.333	1.32	7.417	2.64	13.500	6.48	19.58	2.16
1.417	1.32	7.500	2.64	13.583	6.48	19.67	2.16
1.500	1.32	7.583	2.64	13.667	6.48	19.75	2.16
1.583	1.32	7.667	2.64	13.750	6.48	19.83	2.16
1.667	1.32	7.750	2.64	13.833	5.04	19.92	2.16
1.750	1.32	7.833	2.64	13.917	5.04	20.00	2.16
1.833	1.32	7.917	2.64	14.000	5.04	20.08	2.16
1.917	1.32	8.000	2.64	14.083	5.04	20.17	2.16
2.000	1.32	8.083	2.64	14.167	5.04	20.25	2.16
2.083	1.32	8.167	2.64	14.250	5.04	20.33	1.44
2.167	1.32	8.250	2.64	14.333	3.60	20.42	1.44
2.250	1.32	8.333	3.12	14.417	3.60	20.50	1.44
2.333	1.56	8.417	3.12	14.500	3.60	20.58	1.44
2.417	1.56	8.500	3.12	14.583	3.60	20.67	1.44
2.500	1.56	8.583	3.12	14.667	3.60	20.75	1.44
2.583	1.56	8.667	3.12	14.750	3.60	20.83	1.44
2.667	1.56	8.750	3.12	14.833	3.60	20.92	1.44
2.750	1.56	8.833	3.36	14.917	3.60	21.00	1.44
2.833	1.56	8.917	3.36	15.000	3.60	21.08	1.44
2.917	1.56	9.000	3.36	15.083	3.60	21.17	1.44
3.000	1.56	9.083	3.36	15.167	3.60	21.25	1.44
3.083	1.56	9.167	3.36	15.250	3.60	21.33	1.44
3.167	1.56	9.250	3.36	15.333	3.60	21.42	1.44
3.250	1.56	9.333	3.84	15.417	3.60	21.50	1.44
3.333	1.56	9.417	3.84	15.500	3.60	21.58	1.44
3.417	1.56	9.500	3.84	15.583	3.60	21.67	1.44
3.500	1.56	9.583	3.84	15.667	3.60	21.75	1.44
3.583	1.56	9.667	3.84	15.750	3.60	21.83	1.44
3.667	1.56	9.750	3.84	15.833	3.60	21.92	1.44
3.750	1.56	9.833	4.32	15.917	3.60	22.00	1.44
3.833	1.56	9.917	4.32	16.000	3.60	22.08	1.44
3.917	1.56	10.000	4.32	16.083	3.60	22.17	1.44
4.000	1.56	10.083	4.32	16.167	3.60	22.25	1.44
4.083	1.56	10.167	4.32	16.250	3.60	22.33	1.44
4.167	1.56	10.250	4.32	16.333	2.16	22.42	1.44
4.250	1.56	10.333	5.52	16.417	2.16	22.50	1.44
4.333	1.92	10.417	5.52	16.500	2.16	22.58	1.44
4.417	1.92	10.500	5.52	16.583	2.16	22.67	1.44
4.500	1.92	10.583	5.52	16.667	2.16	22.75	1.44
4.583	1.92	10.667	5.52	16.750	2.16	22.83	1.44
4.667	1.92	10.750	5.52	16.833	2.16	22.92	1.44
4.750	1.92	10.833	7.44	16.917	2.16	23.00	1.44
4.833	1.92	10.917	7.44	17.000	2.16	23.08	1.44
4.917	1.92	11.000	7.44	17.083	2.16	23.17	1.44
5.000	1.92	11.083	7.44	17.167	2.16	23.25	1.44
5.083	1.92	11.167	7.44	17.250	2.16	23.33	1.44
5.167	1.92	11.250	7.44	17.333	2.16	23.42	1.44
5.250	1.92	11.333	11.52	17.417	2.16	23.50	1.44
5.333	1.92	11.417	11.52	17.500	2.16	23.58	1.44
5.417	1.92	11.500	11.52	17.583	2.16	23.67	1.44
5.500	1.92	11.583	11.52	17.667	2.16	23.75	1.44
5.583	1.92	11.667	11.52	17.750	2.16	23.83	1.44
5.667	1.92	11.750	11.52	17.833	2.16	23.92	1.44
5.750	1.92	11.833	35.52	17.917	2.16	24.00	1.44
5.833	1.92	11.917	35.52	18.000	2.16	24.08	1.44
5.917	1.92	12.000	35.52	18.083	2.16	24.17	1.44
6.000	1.92	12.083	146.87	18.167	2.16	24.25	1.44
6.083	1.92	12.167	146.88	18.250	2.16		

Unit Hyd Qpeak (cms)= 2.774

```
     PEAK FLOW       (cms)=   3.591 (i)
     TIME TO PEAK    (hrs)=  14.250
     RUNOFF VOLUME    (mm)=  53.339
     TOTAL RAINFALL   (mm)= 120.000
     RUNOFF COEFFICIENT   =   0.444

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0069)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0061):   134.36   3.591    14.25    53.34
     + ID2= 2 (  0066):   138.00   3.724    15.58    53.41
       ================================================
       ID = 3 (  0069):   272.36   6.704    15.17    53.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0069)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0069):   272.36   6.704    15.17    53.38
     + ID2= 2 (  0067):    92.48   2.475    14.58    53.41
       ================================================
       ID = 1 (  0069):   364.84   9.062    15.00    53.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
--------------------
| SHIFT HYD(  0070)|
| IN= 2---> OUT= 1 |
| SHIFT=  5.6 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0069):  364.84     9.06     15.00     53.38
    SHIFT ID= 1 (  0070):  364.84     9.06     15.08     53.38

-------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0062)|   Area    (ha)= 134.36   Curve Number   (CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.85

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.92 |12.250  146.88 | 18.33    2.16
 0.167    0.00 | 6.250    1.92 |12.333   17.30 | 18.42    2.16
 0.250    0.00 | 6.333    2.16 |12.417   17.28 | 18.50    2.16
 0.333    1.32 | 6.417    2.16 |12.500   17.28 | 18.58    2.16
 0.417    1.32 | 6.500    2.16 |12.583   17.28 | 18.67    2.16
 0.500    1.32 | 6.583    2.16 |12.667   17.28 | 18.75    2.16
 0.583    1.32 | 6.667    2.16 |12.750   17.28 | 18.83    2.16
 0.667    1.32 | 6.750    2.16 |12.833    8.88 | 18.92    2.16
 0.750    1.32 | 6.833    2.16 |12.917    8.88 | 19.00    2.16
 0.833    1.32 | 6.917    2.16 |13.000    8.88 | 19.08    2.16
 0.917    1.32 | 7.000    2.16 |13.083    8.88 | 19.17    2.16
 1.000    1.32 | 7.083    2.16 |13.167    8.88 | 19.25    2.16
 1.083    1.32 | 7.167    2.16 |13.250    8.88 | 19.33    2.16
 1.167    1.32 | 7.250    2.16 |13.333    6.48 | 19.42    2.16
 1.250    1.32 | 7.333    2.64 |13.417    6.48 | 19.50    2.16
 1.333    1.32 | 7.417    2.64 |13.500    6.48 | 19.58    2.16
 1.417    1.32 | 7.500    2.64 |13.583    6.48 | 19.67    2.16
 1.500    1.32 | 7.583    2.64 |13.667    6.48 | 19.75    2.16
 1.583    1.32 | 7.667    2.64 |13.750    6.48 | 19.83    2.16
 1.667    1.32 | 7.750    2.64 |13.833    5.04 | 19.92    2.16
 1.750    1.32 | 7.833    2.64 |13.917    5.04 | 20.00    2.16
 1.833    1.32 | 7.917    2.64 |14.000    5.04 | 20.08    2.16
 1.917    1.32 | 8.000    2.64 |14.083    5.04 | 20.17    2.16
 2.000    1.32 | 8.083    2.64 |14.167    5.04 | 20.25    2.16
 2.083    1.32 | 8.167    2.64 |14.250    5.04 | 20.33    1.44
 2.167    1.32 | 8.250    2.64 |14.333    3.60 | 20.42    1.44
 2.250    1.32 | 8.333    3.12 |14.417    3.60 | 20.50    1.44
 2.333    1.56 | 8.417    3.12 |14.500    3.60 | 20.58    1.44
 2.417    1.56 | 8.500    3.12 |14.583    3.60 | 20.67    1.44
 2.500    1.56 | 8.583    3.12 |14.667    3.60 | 20.75    1.44
 2.583    1.56 | 8.667    3.12 |14.750    3.60 | 20.83    1.44
 2.667    1.56 | 8.750    3.12 |14.833    3.60 | 20.92    1.44
 2.750    1.56 | 8.833    3.36 |14.917    3.60 | 21.00    1.44
 2.833    1.56 | 8.917    3.36 |15.000    3.60 | 21.08    1.44
 2.917    1.56 | 9.000    3.36 |15.083    3.60 | 21.17    1.44
 3.000    1.56 | 9.083    3.36 |15.167    3.60 | 21.25    1.44
 3.083    1.56 | 9.167    3.36 |15.250    3.60 | 21.33    1.44
 3.167    1.56 | 9.250    3.36 |15.333    3.60 | 21.42    1.44
 3.250    1.56 | 9.333    3.84 |15.417    3.60 | 21.50    1.44
 3.333    1.56 | 9.417    3.84 |15.500    3.60 | 21.58    1.44
 3.417    1.56 | 9.500    3.84 |15.583    3.60 | 21.67    1.44
 3.500    1.56 | 9.583    3.84 |15.667    3.60 | 21.75    1.44
 3.583    1.56 | 9.667    3.84 |15.750    3.60 | 21.83    1.44
 3.667    1.56 | 9.750    3.84 |15.833    3.60 | 21.92    1.44
 3.750    1.56 | 9.833    4.32 |15.917    3.60 | 22.00    1.44
 3.833    1.56 | 9.917    4.32 |16.000    3.60 | 22.08    1.44
 3.917    1.56 |10.000    4.32 |16.083    3.60 | 22.17    1.44
 4.000    1.56 |10.083    4.32 |16.167    3.60 | 22.25    1.44
 4.083    1.56 |10.167    4.32 |16.250    3.60 | 22.33    1.44
 4.167    1.56 |10.250    4.32 |16.333    2.16 | 22.42    1.44
 4.250    1.56 |10.333    5.52 |16.417    2.16 | 22.50    1.44
 4.333    1.92 |10.417    5.52 |16.500    2.16 | 22.58    1.44
 4.417    1.92 |10.500    5.52 |16.583    2.16 | 22.67    1.44
 4.500    1.92 |10.583    5.52 |16.667    2.16 | 22.75    1.44
 4.583    1.92 |10.667    5.52 |16.750    2.16 | 22.83    1.44
 4.667    1.92 |10.750    5.52 |16.833    2.16 | 22.92    1.44
 4.750    1.92 |10.833    7.44 |16.917    2.16 | 23.00    1.44
 4.833    1.92 |10.917    7.44 |17.000    2.16 | 23.08    1.44
 4.917    1.92 |11.000    7.44 |17.083    2.16 | 23.17    1.44
 5.000    1.92 |11.083    7.44 |17.167    2.16 | 23.25    1.44
 5.083    1.92 |11.167    7.44 |17.250    2.16 | 23.33    1.44
 5.167    1.92 |11.250    7.44 |17.333    2.16 | 23.42    1.44
 5.250    1.92 |11.333   11.52 |17.417    2.16 | 23.50    1.44
 5.333    1.92 |11.417   11.52 |17.500    2.16 | 23.58    1.44
 5.417    1.92 |11.500   11.52 |17.583    2.16 | 23.67    1.44
 5.500    1.92 |11.583   11.52 |17.667    2.16 | 23.75    1.44
 5.583    1.92 |11.667   11.52 |17.750    2.16 | 23.83    1.44
 5.667    1.92 |11.750   11.52 |17.833    2.16 | 23.92    1.44
 5.750    1.92 |11.833   35.52 |17.917    2.16 | 24.00    1.44
 5.833    1.92 |11.917   35.52 |18.000    2.16 | 24.08    1.44
 5.917    1.92 |12.000   35.52 |18.083    2.16 | 24.17    1.44
 6.000    1.92 |12.083  146.87 |18.167    2.16 | 24.25    1.44
 6.083    1.92 |12.167  146.88 |18.250    2.16 |

     Unit Hyd Qpeak  (cms)=   2.774

     PEAK FLOW       (cms)=   3.591 (i)
     TIME TO PEAK    (hrs)=  14.250
     RUNOFF VOLUME    (mm)=  53.339
     TOTAL RAINFALL   (mm)= 120.000
     RUNOFF COEFFICIENT   =   0.444

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0071)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0062):   134.36   3.591    14.25    53.34
     + ID2= 2 (  0070):   364.84   9.062    15.08    53.38
       ================================================
       ID = 3 (  0071):   499.20  12.326    14.92    53.37

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0071)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0071):   499.20  12.326    14.92    53.37
     + ID2= 2 (  0072):  5067.48  43.353    28.42    41.37
       ================================================
       ID = 1 (  0071):  5566.68  43.727    28.42    42.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
===============================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
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        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\13b08c33-ed0b
  Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\13b08c33-ed0b


DATE: 09/27/2024                          TIME: 12:31:17

USER:


COMMENTS: _____________________________________________________________


---------------------------------------------------------------------------------------------------------------------
  ***********************************************
  ** SIMULATION : 5yr 24hr 15min SCS Type II_5E **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jkoen\AppD
|                  |              ata\Local\Temp\
|                  |              33a2935f-00c8-4f23-9a93-7abdd6141ba8\2d38421a
| Ptotal= 79.20 mm |    Comments: 5yr 24hr 15min SCS Type II_5E
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  6.25    1.43 | 12.50   11.40 | 18.75    1.43
                0.25    0.87 |  6.50    1.43 | 12.75    5.86 | 19.00    1.43
                0.50    0.87 |  6.75    1.43 | 13.00    5.86 | 19.25    1.43
                0.75    0.87 |  7.00    1.43 | 13.25    4.28 | 19.50    1.43
                1.00    0.87 |  7.25    1.74 | 13.50    4.28 | 19.75    1.43
                1.25    0.87 |  7.50    1.74 | 13.75    3.33 | 20.00    1.43
                1.50    0.87 |  7.75    1.74 | 14.00    3.33 | 20.25    0.95
                1.75    0.87 |  8.00    1.74 | 14.25    2.38 | 20.50    0.95
                2.00    0.87 |  8.25    2.06 | 14.50    2.38 | 20.75    0.95
                2.25    1.03 |  8.50    2.06 | 14.75    2.38 | 21.00    0.95
                2.50    1.03 |  8.75    2.22 | 15.00    2.38 | 21.25    0.95
                2.75    1.03 |  9.00    2.22 | 15.25    2.38 | 21.50    0.95
                3.00    1.03 |  9.25    2.53 | 15.50    2.38 | 21.75    0.95
                3.25    1.03 |  9.50    2.53 | 15.75    2.38 | 22.00    0.95
                3.50    1.03 |  9.75    2.85 | 16.00    2.38 | 22.25    0.95
                3.75    1.03 | 10.00    2.85 | 16.25    1.43 | 22.50    0.95
                4.00    1.03 | 10.25    3.64 | 16.50    1.43 | 22.75    0.95
                4.25    1.27 | 10.50    3.64 | 16.75    1.43 | 23.00    0.95
                4.50    1.27 | 10.75    4.91 | 17.00    1.43 | 23.25    0.95
                4.75    1.27 | 11.00    4.91 | 17.25    1.43 | 23.50    0.95
                5.00    1.27 | 11.25    7.60 | 17.50    1.43 | 23.75    0.95
                5.25    1.27 | 11.50    7.60 | 17.75    1.43 | 24.00    0.95
                5.50    1.27 | 11.75   23.44 | 18.00    1.43 |
                5.75    1.27 | 12.00   96.94 | 18.25    1.43 |
                6.00    1.27 | 12.25   11.40 | 18.50    1.43 |

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--------------------
| CALIB            |
| NASHYD   (  0001)|   Area    (ha)= 351.84   Curve Number   (CN)= 59.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.60   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.25

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    0.00 | 6.167    1.27 |12.250   96.94 | 18.33    1.43
               0.167    0.00 | 6.250    1.27 |12.333   11.42 | 18.42    1.43
               0.250    0.00 | 6.333    1.43 |12.417   11.40 | 18.50    1.43
               0.333    0.87 | 6.417    1.43 |12.500   11.40 | 18.58    1.43
               0.417    0.87 | 6.500    1.43 |12.583   11.40 | 18.67    1.43
               0.500    0.87 | 6.583    1.43 |12.667   11.40 | 18.75    1.43
               0.583    0.87 | 6.667    1.43 |12.750   11.40 | 18.83    1.43
               0.667    0.87 | 6.750    1.43 |12.833    5.86 | 18.92    1.43
               0.750    0.87 | 6.833    1.43 |12.917    5.86 | 19.00    1.43
               0.833    0.87 | 6.917    1.43 |13.000    5.86 | 19.08    1.43
               0.917    0.87 | 7.000    1.43 |13.083    5.86 | 19.17    1.43
               1.000    0.87 | 7.083    1.43 |13.167    5.86 | 19.25    1.43
               1.083    0.87 | 7.167    1.43 |13.250    5.86 | 19.33    1.43
               1.167    0.87 | 7.250    1.43 |13.333    4.28 | 19.42    1.43
               1.250    0.87 | 7.333    1.74 |13.417    4.28 | 19.50    1.43
               1.333    0.87 | 7.417    1.74 |13.500    4.28 | 19.58    1.43
               1.417    0.87 | 7.500    1.74 |13.583    4.28 | 19.67    1.43
               1.500    0.87 | 7.583    1.74 |13.667    4.28 | 19.75    1.43
               1.583    0.87 | 7.667    1.74 |13.750    4.28 | 19.83    1.43
               1.667    0.87 | 7.750    1.74 |13.833    3.33 | 19.92    1.43
               1.750    0.87 | 7.833    1.74 |13.917    3.33 | 20.00    1.43
               1.833    0.87 | 7.917    1.74 |14.000    3.33 | 20.08    1.43
               1.917    0.87 | 8.000    1.74 |14.083    3.33 | 20.17    1.43
               2.000    0.87 | 8.083    1.74 |14.167    3.33 | 20.25    1.43
               2.083    0.87 | 8.167    1.74 |14.250    3.33 | 20.33    0.95
               2.167    0.87 | 8.250    1.74 |14.333    2.38 | 20.42    0.95
               2.250    0.87 | 8.333    2.06 |14.417    2.38 | 20.50    0.95
               2.333    1.03 | 8.417    2.06 |14.500    2.38 | 20.58    0.95
               2.417    1.03 | 8.500    2.06 |14.583    2.38 | 20.67    0.95
               2.500    1.03 | 8.583    2.06 |14.667    2.38 | 20.75    0.95
               2.583    1.03 | 8.667    2.06 |14.750    2.38 | 20.83    0.95
               2.667    1.03 | 8.750    2.06 |14.833    2.38 | 20.92    0.95
               2.750    1.03 | 8.833    2.22 |14.917    2.38 | 21.00    0.95
               2.833    1.03 | 8.917    2.22 |15.000    2.38 | 21.08    0.95
               2.917    1.03 | 9.000    2.22 |15.083    2.38 | 21.17    0.95
               3.000    1.03 | 9.083    2.22 |15.167    2.38 | 21.25    0.95
               3.083    1.03 | 9.167    2.22 |15.250    2.38 | 21.33    0.95
               3.167    1.03 | 9.250    2.22 |15.333    2.38 | 21.42    0.95
               3.250    1.03 | 9.333    2.53 |15.417    2.38 | 21.50    0.95
               3.333    1.03 | 9.417    2.53 |15.500    2.38 | 21.58    0.95
               3.417    1.03 | 9.500    2.53 |15.583    2.38 | 21.67    0.95
               3.500    1.03 | 9.583    2.53 |15.667    2.38 | 21.75    0.95
               3.583    1.03 | 9.667    2.53 |15.750    2.38 | 21.83    0.95
               3.667    1.03 | 9.750    2.53 |15.833    2.38 | 21.92    0.95
               3.750    1.03 | 9.833    2.85 |15.917    2.38 | 22.00    0.95
               3.833    1.03 | 9.917    2.85 |16.000    2.38 | 22.08    0.95
               3.917    1.03 |10.000    2.85 |16.083    2.38 | 22.17    0.95
               4.000    1.03 |10.083    2.85 |16.167    2.38 | 22.25    0.95
               4.083    1.03 |10.167    2.85 |16.250    2.38 | 22.33    0.95
               4.167    1.03 |10.250    2.85 |16.333    1.43 | 22.42    0.95
               4.250    1.03 |10.333    3.64 |16.417    1.43 | 22.50    0.95
               4.333    1.27 |10.417    3.64 |16.500    1.43 | 22.58    0.95
               4.417    1.27 |10.500    3.64 |16.583    1.43 | 22.67    0.95
               4.500    1.27 |10.583    3.64 |16.667    1.43 | 22.75    0.95
               4.583    1.27 |10.667    3.64 |16.750    1.43 | 22.83    0.95
               4.667    1.27 |10.750    3.64 |16.833    1.43 | 22.92    0.95
               4.750    1.27 |10.833    4.91 |16.917    1.43 | 23.00    0.95
               4.833    1.27 |10.917    4.91 |17.000    1.43 | 23.08    0.95
               4.917    1.27 |11.000    4.91 |17.083    1.43 | 23.17    0.95
               5.000    1.27 |11.083    4.91 |17.167    1.43 | 23.25    0.95
               5.083    1.27 |11.167    4.91 |17.250    1.43 | 23.33    0.95
               5.167    1.27 |11.250    4.91 |17.333    1.43 | 23.42    0.95
               5.250    1.27 |11.333    7.60 |17.417    1.43 | 23.50    0.95
               5.333    1.27 |11.417    7.60 |17.500    1.43 | 23.58    0.95
               5.417    1.27 |11.500    7.60 |17.583    1.43 | 23.67    0.95
               5.500    1.27 |11.583    7.60 |17.667    1.43 | 23.75    0.95
               5.583    1.27 |11.667    7.60 |17.750    1.43 | 23.83    0.95
               5.667    1.27 |11.750    7.60 |17.833    1.43 | 23.92    0.95
               5.750    1.27 |11.833   23.44 |17.917    1.43 | 24.00    0.95
               5.833    1.27 |11.917   23.44 |18.000    1.43 | 24.08    0.95
               5.917    1.27 |12.000   23.44 |18.083    1.43 | 24.17    0.95
               6.000    1.27 |12.083   96.93 |18.167    1.43 | 24.25    0.95
               6.083    1.27 |12.167   96.94 |18.250    1.43 |

     Unit Hyd Qpeak  (cms)=   5.973

     PEAK FLOW       (cms)=   3.012 (i)
     TIME TO PEAK    (hrs)=  14.750
     RUNOFF VOLUME    (mm)=  20.663
     TOTAL RAINFALL   (mm)=  79.200
     RUNOFF COEFFICIENT   =   0.261

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| SHIFT HYD(  0024)|
| IN= 2---> OUT= 1 |
| SHIFT= 80.8 min  |       AREA     QPEAK     TPEAK      R.V.
--------------------       (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0001):  351.84     3.01     14.75     20.66
    SHIFT ID= 1 (  0024):  351.84     3.01     16.08     20.66

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--------------------
| CALIB            |
| NASHYD   (  0002)|   Area    (ha)= 415.84   Curve Number   (CN)= 57.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.20   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.65

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    0.00 | 6.167    1.27 |12.250   96.94 | 18.33    1.43
0.167    0.00 | 6.250    1.27 |12.333   11.42 | 18.42    1.43
0.250    0.00 | 6.333    1.43 |12.417   11.40 | 18.50    1.43
0.333    0.87 | 6.417    1.43 |12.500   11.40 | 18.58    1.43
0.417    0.87 | 6.500    1.43 |12.583   11.40 | 18.67    1.43
0.500    0.87 | 6.583    1.43 |12.667   11.40 | 18.75    1.43
0.583    0.87 | 6.667    1.43 |12.750   11.40 | 18.83    1.43
0.667    0.87 | 6.750    1.43 |12.833    5.86 | 18.92    1.43
0.750    0.87 | 6.833    1.43 |12.917    5.86 | 19.00    1.43
0.833    0.87 | 6.917    1.43 |13.000    5.86 | 19.08    1.43
0.917    0.87 | 7.000    1.43 |13.083    5.86 | 19.17    1.43
1.000    0.87 | 7.083    1.43 |13.167    5.86 | 19.25    1.43
1.083    0.87 | 7.167    1.43 |13.250    5.86 | 19.33    1.43
1.167    0.87 | 7.250    1.43 |13.333    4.28 | 19.42    1.43
1.250    0.87 | 7.333    1.74 |13.417    4.28 | 19.50    1.43
1.333    0.87 | 7.417    1.74 |13.500    4.28 | 19.58    1.43
1.417    0.87 | 7.500    1.74 |13.583    4.28 | 19.67    1.43
1.500    0.87 | 7.583    1.74 |13.667    4.28 | 19.75    1.43
1.583    0.87 | 7.667    1.74 |13.750    4.28 | 19.83    1.43
1.667    0.87 | 7.750    1.74 |13.833    3.33 | 19.92    1.43
1.750    0.87 | 7.833    1.74 |13.917    3.33 | 20.00    1.43
1.833    0.87 | 7.917    1.74 |14.000    3.33 | 20.08    1.43
1.917    0.87 | 8.000    1.74 |14.083    3.33 | 20.17    1.43
2.000    0.87 | 8.083    1.74 |14.167    3.33 | 20.25    1.43
2.083    0.87 | 8.167    1.74 |14.250    3.33 | 20.33    0.95
2.167    0.87 | 8.250    1.74 |14.333    2.38 | 20.42    0.95
2.250    0.87 | 8.333    2.06 |14.417    2.38 | 20.50    0.95
2.333    1.03 | 8.417    2.06 |14.500    2.38 | 20.58    0.95
2.417    1.03 | 8.500    2.06 |14.583    2.38 | 20.67    0.95
2.500    1.03 | 8.583    2.06 |14.667    2.38 | 20.75    0.95
2.583    1.03 | 8.667    2.06 |14.750    2.38 | 20.83    0.95
2.667    1.03 | 8.750    2.06 |14.833    2.38 | 20.92    0.95
2.750    1.03 | 8.833    2.22 |14.917    2.38 | 21.00    0.95
2.833    1.03 | 8.917    2.22 |15.000    2.38 | 21.08    0.95
2.917    1.03 | 9.000    2.22 |15.083    2.38 | 21.17    0.95
3.000    1.03 | 9.083    2.22 |15.167    2.38 | 21.25    0.95
3.083    1.03 | 9.167    2.22 |15.250    2.38 | 21.33    0.95
3.167    1.03 | 9.250    2.22 |15.333    2.38 | 21.42    0.95
3.250    1.03 | 9.333    2.53 |15.417    2.38 | 21.50    0.95
3.333    1.03 | 9.417    2.53 |15.500    2.38 | 21.58    0.95
3.417    1.03 | 9.500    2.53 |15.583    2.38 | 21.67    0.95
3.500    1.03 | 9.583    2.53 |15.667    2.38 | 21.75    0.95
3.583    1.03 | 9.667    2.53 |15.750    2.38 | 21.83    0.95
3.667    1.03 | 9.750    2.53 |15.833    2.38 | 21.92    0.95
3.750    1.03 | 9.833    2.85 |15.917    2.38 | 22.00    0.95
3.833    1.03 | 9.917    2.85 |16.000    2.38 | 22.08    0.95
3.917    1.03 |10.000    2.85 |16.083    2.38 | 22.17    0.95
4.000    1.03 |10.083    2.85 |16.167    2.38 | 22.25    0.95
4.083    1.03 |10.167    2.85 |16.250    2.38 | 22.33    0.95
4.167    1.03 |10.250    2.85 |16.333    1.43 | 22.42    0.95
4.250    1.03 |10.333    3.64 |16.417    1.43 | 22.50    0.95
4.333    1.27 |10.417    3.64 |16.500    1.43 | 22.58    0.95
4.417    1.27 |10.500    3.64 |16.583    1.43 | 22.67    0.95
4.500    1.27 |10.583    3.64 |16.667    1.43 | 22.75    0.95
4.583    1.27 |10.667    3.64 |16.750    1.43 | 22.83    0.95
4.667    1.27 |10.750    3.64 |16.833    1.43 | 22.92    0.95
4.750    1.27 |10.833    4.91 |16.917    1.43 | 23.00    0.95
4.833    1.27 |10.917    4.91 |17.000    1.43 | 23.08    0.95
4.917    1.27 |11.000    4.91 |17.083    1.43 | 23.17    0.95
5.000    1.27 |11.083    4.91 |17.167    1.43 | 23.25    0.95
5.083    1.27 |11.167    4.91 |17.250    1.43 | 23.33    0.95
5.167    1.27 |11.250    4.91 |17.333    1.43 | 23.42    0.95
5.250    1.27 |11.333    7.60 |17.417    1.43 | 23.50    0.95
5.333    1.27 |11.417    7.60 |17.500    1.43 | 23.58    0.95
5.417    1.27 |11.500    7.60 |17.583    1.43 | 23.67    0.95
5.500    1.27 |11.583    7.60 |17.667    1.43 | 23.75    0.95
5.583    1.27 |11.667    7.60 |17.750    1.43 | 23.83    0.95
5.667    1.27 |11.750    7.60 |17.833    1.43 | 23.92    0.95
5.750    1.27 |11.833   23.44 |17.917    1.43 | 24.00    0.95
5.833    1.27 |11.917   23.44 |18.000    1.43 | 24.08    0.95
5.917    1.27 |12.000   23.44 |18.083    1.43 | 24.17    0.95
6.000    1.27 |12.083   96.93 |18.167    1.43 | 24.25    0.95
6.083    1.27 |12.167   96.94 |18.250    1.43 |

     Unit Hyd Qpeak  (cms)=   5.994

     PEAK FLOW       (cms)=   2.897 (i)
     TIME TO PEAK    (hrs)=  15.250
     RUNOFF VOLUME    (mm)=  19.195
     TOTAL RAINFALL   (mm)=  79.200
     RUNOFF COEFFICIENT   =   0.242

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0025)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0002):   415.84   2.897    15.25    19.20
     + ID2= 2 (  0024):   351.84   3.012    16.08    20.66
       ================================================
       ID = 3 (  0025):   767.68   5.812    15.83    19.87

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0031)|
| IN= 2---> OUT= 1 |
| SHIFT=129.8 min  |       AREA     QPEAK     TPEAK      R.V.
--------------------       (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0025):  767.68     5.81     15.83     19.87
    SHIFT ID= 1 (  0031):  767.68     5.81     17.92     19.87

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--------------------
| CALIB            |
| NASHYD   (  0011)|   Area    (ha)= 241.80   Curve Number   (CN)= 53.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.30   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.81

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    0.00 | 6.167    1.27 |12.250   96.94 | 18.33    1.43
0.167    0.00 | 6.250    1.27 |12.333   11.42 | 18.42    1.43
0.250    0.00 | 6.333    1.43 |12.417   11.40 | 18.50    1.43
0.333    0.87 | 6.417    1.43 |12.500   11.40 | 18.58    1.43
0.417    0.87 | 6.500    1.43 |12.583   11.40 | 18.67    1.43
0.500    0.87 | 6.583    1.43 |12.667   11.40 | 18.75    1.43
0.583    0.87 | 6.667    1.43 |12.750   11.40 | 18.83    1.43
0.667    0.87 | 6.750    1.43 |12.833    5.86 | 18.92    1.43
0.750    0.87 | 6.833    1.43 |12.917    5.86 | 19.00    1.43
0.833    0.87 | 6.917    1.43 |13.000    5.86 | 19.08    1.43
0.917    0.87 | 7.000    1.43 |13.083    5.86 | 19.17    1.43
1.000    0.87 | 7.083    1.43 |13.167    5.86 | 19.25    1.43
1.083    0.87 | 7.167    1.43 |13.250    5.86 | 19.33    1.43
1.167    0.87 | 7.250    1.43 |13.333    4.28 | 19.42    1.43
1.250    0.87 | 7.333    1.74 |13.417    4.28 | 19.50    1.43
1.333    0.87 | 7.417    1.74 |13.500    4.28 | 19.58    1.43
1.417    0.87 | 7.500    1.74 |13.583    4.28 | 19.67    1.43
1.500    0.87 | 7.583    1.74 |13.667    4.28 | 19.75    1.43
1.583    0.87 | 7.667    1.74 |13.750    4.28 | 19.83    1.43
1.667    0.87 | 7.750    1.74 |13.833    3.33 | 19.92    1.43
1.750    0.87 | 7.833    1.74 |13.917    3.33 | 20.00    1.43
1.833    0.87 | 7.917    1.74 |14.000    3.33 | 20.08    1.43
1.917    0.87 | 8.000    1.74 |14.083    3.33 | 20.17    1.43
2.000    0.87 | 8.083    1.74 |14.167    3.33 | 20.25    1.43
2.083    0.87 | 8.167    1.74 |14.250    3.33 | 20.33    0.95
2.167    0.87 | 8.250    1.74 |14.333    2.38 | 20.42    0.95
2.250    0.87 | 8.333    2.06 |14.417    2.38 | 20.50    0.95
2.333    1.03 | 8.417    2.06 |14.500    2.38 | 20.58    0.95
2.417    1.03 | 8.500    2.06 |14.583    2.38 | 20.67    0.95
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2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 5.103

PEAK FLOW (cms)= 1.986 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 16.974
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.214

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0032)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0011):	241.80	1.986	14.25	16.97
+ ID2= 2 (0031):	767.68	5.812	17.92	19.87
ID = 3 (0032):	1009.48	6.599	17.75	19.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0041)				
IN= 2---> OUT= 1 / SHIFT=155.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0032):	1009.48	6.60	17.75	19.17
SHIFT ID= 1 (0041):	1009.48	6.60	20.33	19.17

CALIB NASHYD (0003) / ID= 1 DT= 5.0 min				
Area	(ha)=	161.56	Curve Number (CN)=	51.0
Ia	(mm)=	8.10	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=		1.77		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 3.486

PEAK FLOW (cms)= 1.273 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 16.041

TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.203

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
SHIFT HYD(0026) IN= 2---> OUT= 1 SHIFT=115.6 min				
ID= 2 (0003):	161.56	1.27	14.25	16.04
SHIFT ID= 1 (0026):	161.56	1.27	16.17	16.04

CALIB NASHYD (0004) ID= 1 DT= 5.0 min | Area (ha)= 84.72 Curve Number (CN)= 55.0 | Ia (mm)= 8.00 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.50

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 2.157

PEAK FLOW (cms)= 0.863 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 18.169
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.229

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
SHIFT HYD(0027) IN= 2---> OUT= 1 SHIFT=101.8 min				
ID= 2 (0004):	84.72	0.86	13.92	18.17
SHIFT ID= 1 (0027):	84.72	0.86	15.58	18.17

CALIB NASHYD (0005) ID= 1 DT= 5.0 min | Area (ha)= 290.88 Curve Number (CN)= 51.0 | Ia (mm)= 8.30 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 2.09

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95

3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 5.316

PEAK FLOW (cms)= 2.007 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 15.961
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.202

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT=144.1 min				
ID= 2 (0005):	290.88	2.01	14.58	15.96
SHIFT ID= 1 (0029):	290.88	2.01	16.92	15.96

CALIB				
NASHYD (0006)	Area (ha)= 391.92	Curve Number (CN)= 57.0		
ID= 1 DT= 5.0 min	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.20			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 6.804

PEAK FLOW (cms)= 3.138 (i)
TIME TO PEAK (hrs)= 14.750
RUNOFF VOLUME (mm)= 19.102
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.241

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0007)	Area (ha)= 81.24	Curve Number (CN)= 49.0		
ID= 1 DT= 5.0 min	Ia (mm)= 8.70	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.53			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr

0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 2.028

PEAK FLOW (cms)= 0.658 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 14.842
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.187

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0030)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0007):	81.24	0.66	13.92	14.84
SHIFT ID= 1 (0030):	81.24	0.66	16.33	14.84

ADD HYD (0028) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0026):	161.56	1.273	16.17	16.04
+ ID2= 2 (0027):	84.72	0.863	15.58	18.17
ID = 3 (0028):	246.28	2.095	15.92	16.77

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	246.28	2.095	15.92	16.77
+ ID2= 2 (0029):	290.88	2.007	16.92	15.96
ID = 1 (0028):	537.16	3.908	16.42	16.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0028):	537.16	3.908	16.42	16.33
+ ID2= 2 (0030):	81.24	0.658	16.33	14.84
ID = 3 (0028):	618.40	4.566	16.42	16.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	618.40	4.566	16.42	16.14
+ ID2= 2 (0006):	391.92	3.138	14.75	19.10
ID = 1 (0028):	1010.32	7.124	16.08	17.29

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0033)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0028):	1010.32	7.12	16.08	17.29
SHIFT ID= 1 (0033):	1010.32	7.12	17.83	17.29

CALIB NASHYD (0010) ID= 1 DT= 5.0 min

Area (ha)= 145.33 Curve Number (CN)= 65.0
Ia (mm)= 7.70 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.25

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43

0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 2.467

PEAK FLOW (cms)= 1.494 (i)
TIME TO PEAK (hrs)= 14.750
RUNOFF VOLUME (mm)= 24.546
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.310

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0034)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	ID1= 1 (0010):	145.33	1.494	14.75	24.55
	+ ID2= 2 (0033):	1010.32	7.124	17.83	17.29
	ID = 3 (0034):	1155.65	7.960	17.75	18.20

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0040)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=232.1 min	ID= 2 (0034):	1155.65	7.96	17.75	18.20
	SHIFT ID= 1 (0040):	1155.65	7.96	21.58	18.20

CALIB					
NASHYD (0008)	Area (ha)= 338.84	Curve Number (CN)= 51.0			
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 2.34				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95

4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 5.531

PEAK FLOW (cms)= 2.149 (i)
TIME TO PEAK (hrs)= 14.917
RUNOFF VOLUME (mm)= 16.001
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.202

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0035) / IN= 2---> OUT= 1 / SHIFT= 63.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0008):	338.84	2.15	14.92	16.00
SHIFT ID= 1 (0035):	338.84	2.15	15.92	16.00

CALIB NASHYD (0014) ID= 1 DT= 5.0 min | Area (ha)= 99.92 Curve Number (CN)= 63.0 | Ia (mm)= 8.40 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.66

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 2.299

PEAK FLOW (cms)= 1.199 (i)
TIME TO PEAK (hrs)= 14.083
RUNOFF VOLUME (mm)= 22.787
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.288

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0036) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0014):	99.92	1.199	14.08	22.79
+ ID2= 2 (0035):	338.84	2.149	15.92	16.00
ID = 3 (0036):	438.76	2.986	15.42	17.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0037) / IN= 2---> OUT= 1 / SHIFT= 83.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0036):	438.76	2.99	15.42	17.55
SHIFT ID= 1 (0037):	438.76	2.99	16.75	17.55

CALIB NASHYD (0013) ID= 1 DT= 5.0 min | Area (ha)= 73.84 Curve Number (CN)= 66.0 | Ia (mm)= 8.80 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.73

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN

hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 1.630

PEAK FLOW (cms)= 0.933 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 24.627
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.311

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0038)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0013):	73.84	0.933	14.17	24.63
	+ ID2= 2 (0037):	438.76	2.986	16.75	17.55
	ID = 3 (0038):	512.60	3.481	16.50	18.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0009)	Area (ha)= 249.68	Curve Number (CN)= 58.0
ID= 1 DT= 5.0 min	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 2.41	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95

4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 3.957

PEAK FLOW (cms)= 1.922 (i)
TIME TO PEAK (hrs)= 15.000
RUNOFF VOLUME (mm)= 19.678
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.248

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0039) / IN= 2---> OUT= 1 / SHIFT=208.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0009):	249.68	1.92	15.00	19.68
SHIFT ID= 1 (0039):	249.68	1.92	18.42	19.68

CALIB / NASHYD (0012) / ID= 1 DT= 5.0 min					
	Area	(ha)= 383.04	Curve Number	(CN)= 55.0	
	Ia	(mm)= 8.30	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 3.18				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 4.601

PEAK FLOW (cms)= 2.170 (i)
TIME TO PEAK (hrs)= 16.000
RUNOFF VOLUME (mm)= 18.035
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.228

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB / NASHYD (0015) / ID= 1 DT= 5.0 min					
	Area	(ha)= 159.16	Curve Number	(CN)= 63.0	
	Ia	(mm)= 7.10	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.50				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43

2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 4.053

PEAK FLOW (cms)= 2.134 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 23.493
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.297

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0042) / IN= 2---> OUT= 1 / SHIFT= 55.3 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0015):	159.16	2.13	13.83	23.49
SHIFT ID= 1 (0042):	159.16	2.13	14.75	23.49

ADD HYD (0043) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	383.04	2.170	16.00	18.04
+ ID2= 2 (0038):	512.60	3.481	16.50	18.57
ID = 3 (0043):	895.64	5.629	16.42	18.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043) / 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	895.64	5.629	16.42	18.34
+ ID2= 2 (0039):	249.68	1.922	18.42	19.68
ID = 1 (0043):	1145.32	6.896	17.25	18.63

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0043):	1145.32	6.896	17.25	18.63
+ ID2= 2 (0040):	1155.65	7.960	21.58	18.20
ID = 3 (0043):	2300.97	11.499	21.25	18.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043) / 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	2300.97	11.499	21.25	18.41
+ ID2= 2 (0041):	1009.48	6.599	20.33	19.17
ID = 1 (0043):	3310.45	17.751	21.00	18.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0043):	3310.45	17.751	21.00	18.65
+ ID2= 2 (0042):	159.16	2.134	14.75	23.49
ID = 3 (0043):	3469.61	18.111	21.00	18.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB / NASHYD (0016) / ID= 1 DT= 5.0 min | Area (ha)= 147.08 | Curve Number (CN)= 63.0 | Ia (mm)= 7.40 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.42

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95

2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 3.956

PEAK FLOW (cms)= 2.041 (i)
TIME TO PEAK (hrs)= 13.750
RUNOFF VOLUME (mm)= 23.330
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.295

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0044) / IN= 2---> OUT= 1 / SHIFT= 20.5 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0016):	147.08	2.04	13.75	23.33
SHIFT ID= 1 (0044):	147.08	2.04	14.08	23.33

CALIB NASHYD (0017) / ID= 1 DT= 5.0 min | Area (ha)= 147.40 Curve Number (CN)= 44.0 | Ia (mm)= 8.60 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.43

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 3.937

PEAK FLOW (cms)= 1.063 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 12.655
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.160

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (0045)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0017):	147.40	1.063	13.83	12.65
+ ID2= 2 (0043):	3469.61	18.111	21.00	18.87
ID = 3 (0045):	3617.01	18.289	21.00	18.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0045)|
| 3 + 2 = 1 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0045):	3617.01	18.289	21.00	18.62
+ ID2= 2 (0044):	147.08	2.041	14.08	23.33
ID = 1 (0045):	3764.09	18.601	21.00	18.80

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| SHIFT HYD(0047)|
| IN= 2---> OUT= 1 |
| SHIFT=107.5 min |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0045):	3764.09	18.60	21.00	18.80
SHIFT ID= 1 (0047):	3764.09	18.60	22.75	18.80

| CALIB |
| NASHYD (0018)| |
|ID= 1 DT= 5.0 min | |

Area (ha)= 126.36 Curve Number (CN)= 54.0
Ia (mm)= 8.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.08

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 2.320

PEAK FLOW (cms)= 0.961 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 17.455
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.220

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| SHIFT HYD(0046)|
| IN= 2---> OUT= 1 |
| SHIFT= 63.7 min |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0018):	126.36	0.96	14.58	17.46
SHIFT ID= 1 (0046):	126.36	0.96	15.58	17.46

| CALIB |
| NASHYD (0019)| |
|ID= 1 DT= 5.0 min | |

Area (ha)= 198.16 Curve Number (CN)= 54.0
Ia (mm)= 8.60 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.67

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43

1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 4.532

PEAK FLOW (cms)= 1.772 (i)
TIME TO PEAK (hrs)= 14.083
RUNOFF VOLUME (mm)= 17.369
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.219

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0048)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0019):		198.16	1.772	14.08	17.37
+ ID2= 2 (0046):		126.36	0.961	15.58	17.46
ID = 3 (0048):		324.52	2.480	14.67	17.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0048)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0048):		324.52	2.480	14.67	17.40
+ ID2= 2 (0047):		3764.09	18.601	22.75	18.80
ID = 1 (0048):		4088.61	19.084	22.75	18.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0049)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 81.0 min	ID= 2 (0048):	4088.61	19.08	22.75	18.69
	SHIFT ID= 1 (0049):	4088.61	19.08	24.08	18.69

CALIB				
NASHYD (0022)	Area	(ha)= 119.48	Curve Number	(CN)= 55.0
ID= 1 DT= 5.0 min	Ia	(mm)= 8.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)=	1.78		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95

4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 2.564

PEAK FLOW (cms)= 1.066 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 18.124
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.229

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0022):	119.48	1.066	14.25	18.12
+ ID2= 2 (0049):	4088.61	19.084	24.08	18.69
ID = 3 (0050):	4208.09	19.235	24.08	18.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0054)
IN= 2---> OUT= 1
SHIFT= 52.5 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0050):	4208.09	19.24	24.08	18.67
SHIFT ID= 1 (0054):	4208.09	19.24	24.92	18.67

CALIB
NASHYD (0020) ID= 1 DT= 5.0 min

Area (ha)= 126.24 Curve Number (CN)= 61.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.86

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 2.592

PEAK FLOW (cms)= 1.322 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 21.754
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.275

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0051)
IN= 2---> OUT= 1
SHIFT= 26.3 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0020):	126.24	1.32	14.33	21.75
SHIFT ID= 1 (0051):	126.24	1.32	14.75	21.75

CALIB
NASHYD (0021) ID= 1 DT= 5.0 min

Area (ha)= 133.24 Curve Number (CN)= 61.0
Ia (mm)= 8.10 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.31

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43

0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 3.885

PEAK FLOW (cms)= 1.813 (i)
TIME TO PEAK (hrs)= 13.667
RUNOFF VOLUME (mm)= 21.650
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.273

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0052)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0021):		133.24	1.813	13.67	21.65
+ ID2= 2 (0051):		126.24	1.322	14.75	21.75
ID = 3 (0052):		259.48	2.912	14.08	21.70

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0053)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=106.6 min	ID= 2 (0052):	259.48	2.91	14.08	21.70
	SHIFT ID= 1 (0053):	259.48	2.91	15.83	21.70

CALIB			
NASHYD (0023)	Area (ha)= 111.92	Curve Number (CN)= 64.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.70	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.81		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95

4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 2.362

PEAK FLOW (cms)= 1.286 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 23.293
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.294

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0055)					
1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0023):		111.92	1.286	14.25	23.29
+ ID2= 2 (0053):		259.48	2.912	15.83	21.70
ID = 3 (0055):		371.40	3.888	15.58	22.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0055)					
3 + 2 = 1		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0055):		371.40	3.888	15.58	22.18
+ ID2= 2 (0054):		4208.09	19.235	24.92	18.67
ID = 1 (0055):		4579.49	19.809	24.83	18.96

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0065)				
IN= 2---> OUT= 1				
SHIFT= 80.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0055):	4579.49	19.81	24.83	18.96
SHIFT ID= 1 (0065):	4579.49	19.81	26.17	18.96

CALIB			
NASHYD (0057)	Area	(ha)= 329.71	Curve Number (CN)= 64.0
ID= 1 DT= 5.0 min	Ia	(mm)= 7.90	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	2.00	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 6.297

PEAK FLOW (cms)= 3.583 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 23.736
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.300

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0064)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.

	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0057):	329.71	3.583	14.50	23.74
+ ID2= 2 (0065):	4579.49	19.809	26.17	18.96
ID = 3 (0064):	4909.20	20.154	26.17	19.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0063)
IN= 2---> OUT= 1
SHIFT= 47.8 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0064):	4909.20	20.15	26.17	19.28
SHIFT ID= 1 (0063):	4909.20	20.15	26.92	19.28

CALIB
NASHYD (0059)
ID= 1 DT= 5.0 min

Area (ha)= 158.28 Curve Number (CN)= 61.0
Ia (mm)= 7.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.96

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 3.084

PEAK FLOW (cms)= 1.613 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 22.013
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.278

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0068)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0059):	158.28	1.613	14.42	22.01
+ ID2= 2 (0063):	4909.20	20.154	26.92	19.28
ID = 3 (0068):	5067.48	20.260	26.92	19.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0072)
IN= 2---> OUT= 1
SHIFT= 99.0 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0068):	5067.48	20.26	26.92	19.36
SHIFT ID= 1 (0072):	5067.48	20.26	28.50	19.36

CALIB
NASHYD (0058)
ID= 1 DT= 5.0 min

Area (ha)= 138.00 Curve Number (CN)= 67.0
Ia (mm)= 7.30 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.83

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43

1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 2.880

PEAK FLOW (cms)= 1.790 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 26.241
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.331

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0058):	138.00	1.79	14.25	26.24
SHIFT ID= 1 (0066):	138.00	1.79	15.67	26.24

SHIFT HYD(0066)
IN= 2---> OUT= 1
SHIFT= 87.0 min

CALIB
NASHYD (0060)
ID= 1 DT= 5.0 min

Area (ha)= 92.48 Curve Number (CN)= 67.0
Ia (mm)= 7.30 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.85

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME (hrs)	RAIN (mm/hr)	TIME (hrs)	RAIN (mm/hr)	TIME (hrs)	RAIN (mm/hr)	TIME (hrs)	RAIN (mm/hr)
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 1.909

PEAK FLOW (cms)= 1.189 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 26.241
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.331

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0067)				
IN= 2---> OUT= 1				
SHIFT= 22.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0060):	92.48	1.19	14.25	26.24
SHIFT ID= 1 (0067):	92.48	1.19	14.58	26.24

CALIB NASHYD (0061)	Area (ha)= 134.36	Curve Number (CN)= 67.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.85	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43
1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 2.774

PEAK FLOW (cms)= 1.723 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 26.181
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.331

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0069)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0061):	134.36	1.723	14.25	26.18
+ ID2= 2 (0066):	138.00	1.790	15.67	26.24
ID = 3 (0069):	272.36	3.228	15.25	26.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0069)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0069):	272.36	3.228	15.25	26.21
+ ID2= 2 (0067):	92.48	1.189	14.58	26.24
ID = 1 (0069):	364.84	4.363	15.08	26.22

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0070)				
IN= 2---> OUT= 1				
SHIFT= 5.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0069):	364.84	4.36	15.08	26.22
SHIFT ID= 1 (0070):	364.84	4.36	15.17	26.22

CALIB NASHYD (0062)	Area (ha)= 134.36	Curve Number (CN)= 67.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.85	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.27	12.250	96.94	18.33	1.43
0.167	0.00	6.250	1.27	12.333	11.42	18.42	1.43
0.250	0.00	6.333	1.43	12.417	11.40	18.50	1.43
0.333	0.87	6.417	1.43	12.500	11.40	18.58	1.43
0.417	0.87	6.500	1.43	12.583	11.40	18.67	1.43
0.500	0.87	6.583	1.43	12.667	11.40	18.75	1.43
0.583	0.87	6.667	1.43	12.750	11.40	18.83	1.43
0.667	0.87	6.750	1.43	12.833	5.86	18.92	1.43
0.750	0.87	6.833	1.43	12.917	5.86	19.00	1.43
0.833	0.87	6.917	1.43	13.000	5.86	19.08	1.43
0.917	0.87	7.000	1.43	13.083	5.86	19.17	1.43
1.000	0.87	7.083	1.43	13.167	5.86	19.25	1.43
1.083	0.87	7.167	1.43	13.250	5.86	19.33	1.43
1.167	0.87	7.250	1.43	13.333	4.28	19.42	1.43
1.250	0.87	7.333	1.74	13.417	4.28	19.50	1.43

1.333	0.87	7.417	1.74	13.500	4.28	19.58	1.43
1.417	0.87	7.500	1.74	13.583	4.28	19.67	1.43
1.500	0.87	7.583	1.74	13.667	4.28	19.75	1.43
1.583	0.87	7.667	1.74	13.750	4.28	19.83	1.43
1.667	0.87	7.750	1.74	13.833	3.33	19.92	1.43
1.750	0.87	7.833	1.74	13.917	3.33	20.00	1.43
1.833	0.87	7.917	1.74	14.000	3.33	20.08	1.43
1.917	0.87	8.000	1.74	14.083	3.33	20.17	1.43
2.000	0.87	8.083	1.74	14.167	3.33	20.25	1.43
2.083	0.87	8.167	1.74	14.250	3.33	20.33	0.95
2.167	0.87	8.250	1.74	14.333	2.38	20.42	0.95
2.250	0.87	8.333	2.06	14.417	2.38	20.50	0.95
2.333	1.03	8.417	2.06	14.500	2.38	20.58	0.95
2.417	1.03	8.500	2.06	14.583	2.38	20.67	0.95
2.500	1.03	8.583	2.06	14.667	2.38	20.75	0.95
2.583	1.03	8.667	2.06	14.750	2.38	20.83	0.95
2.667	1.03	8.750	2.06	14.833	2.38	20.92	0.95
2.750	1.03	8.833	2.22	14.917	2.38	21.00	0.95
2.833	1.03	8.917	2.22	15.000	2.38	21.08	0.95
2.917	1.03	9.000	2.22	15.083	2.38	21.17	0.95
3.000	1.03	9.083	2.22	15.167	2.38	21.25	0.95
3.083	1.03	9.167	2.22	15.250	2.38	21.33	0.95
3.167	1.03	9.250	2.22	15.333	2.38	21.42	0.95
3.250	1.03	9.333	2.53	15.417	2.38	21.50	0.95
3.333	1.03	9.417	2.53	15.500	2.38	21.58	0.95
3.417	1.03	9.500	2.53	15.583	2.38	21.67	0.95
3.500	1.03	9.583	2.53	15.667	2.38	21.75	0.95
3.583	1.03	9.667	2.53	15.750	2.38	21.83	0.95
3.667	1.03	9.750	2.53	15.833	2.38	21.92	0.95
3.750	1.03	9.833	2.85	15.917	2.38	22.00	0.95
3.833	1.03	9.917	2.85	16.000	2.38	22.08	0.95
3.917	1.03	10.000	2.85	16.083	2.38	22.17	0.95
4.000	1.03	10.083	2.85	16.167	2.38	22.25	0.95
4.083	1.03	10.167	2.85	16.250	2.38	22.33	0.95
4.167	1.03	10.250	2.85	16.333	1.43	22.42	0.95
4.250	1.03	10.333	3.64	16.417	1.43	22.50	0.95
4.333	1.27	10.417	3.64	16.500	1.43	22.58	0.95
4.417	1.27	10.500	3.64	16.583	1.43	22.67	0.95
4.500	1.27	10.583	3.64	16.667	1.43	22.75	0.95
4.583	1.27	10.667	3.64	16.750	1.43	22.83	0.95
4.667	1.27	10.750	3.64	16.833	1.43	22.92	0.95
4.750	1.27	10.833	4.91	16.917	1.43	23.00	0.95
4.833	1.27	10.917	4.91	17.000	1.43	23.08	0.95
4.917	1.27	11.000	4.91	17.083	1.43	23.17	0.95
5.000	1.27	11.083	4.91	17.167	1.43	23.25	0.95
5.083	1.27	11.167	4.91	17.250	1.43	23.33	0.95
5.167	1.27	11.250	4.91	17.333	1.43	23.42	0.95
5.250	1.27	11.333	7.60	17.417	1.43	23.50	0.95
5.333	1.27	11.417	7.60	17.500	1.43	23.58	0.95
5.417	1.27	11.500	7.60	17.583	1.43	23.67	0.95
5.500	1.27	11.583	7.60	17.667	1.43	23.75	0.95
5.583	1.27	11.667	7.60	17.750	1.43	23.83	0.95
5.667	1.27	11.750	7.60	17.833	1.43	23.92	0.95
5.750	1.27	11.833	23.44	17.917	1.43	24.00	0.95
5.833	1.27	11.917	23.44	18.000	1.43	24.08	0.95
5.917	1.27	12.000	23.44	18.083	1.43	24.17	0.95
6.000	1.27	12.083	96.93	18.167	1.43	24.25	0.95
6.083	1.27	12.167	96.94	18.250	1.43		

Unit Hyd Qpeak (cms)= 2.774

PEAK FLOW (cms)= 1.723 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 26.181
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.331

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0071)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0062):	134.36	1.723	14.25	26.18
+ ID2= 2 (0070):	364.84	4.363	15.17	26.22
ID = 3 (0071):	499.20	5.933	15.00	26.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0071)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0071):	499.20	5.933	15.00	26.21
+ ID2= 2 (0072):	5067.48	20.260	28.50	19.36
ID = 1 (0071):	5566.68	20.463	28.42	19.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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================================================================================================================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
         V  V   I       SS  U   U  A   A  L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M  M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\a0f2cbdd-7338
  Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\74936446-45c5-45f6-b15b-73543a8020bc\a0f2cbdd-7338


DATE: 09/27/2024                          TIME: 12:31:27

USER:


COMMENTS: _____________________________________________________

----------------------------------------------------------------------------------------------------------------
  ***********************************************
  ** SIMULATION : Hzl12h15                     **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jkoen\AppD
|                  |              ata\Local\Temp\
|                  |              f9c91628-218a-45d2-88da-5c30b01a72df\3e126d9e
| Ptotal=212.00 mm |    Comments: Hzl12h15
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.00    6.00 |  3.00   13.00 |  6.00   23.00 |  9.00   53.00
               0.25    6.00 |  3.25   13.00 |  6.25   23.00 |  9.25   53.00
               0.50    6.00 |  3.50   13.00 |  6.50   23.00 |  9.50   53.00
               0.75    6.00 |  3.75   13.00 |  6.75   23.00 |  9.75   53.00
               1.00    4.00 |  4.00   17.00 |  7.00   13.00 | 10.00   38.00
               1.25    4.00 |  4.25   17.00 |  7.25   13.00 | 10.25   38.00
               1.50    4.00 |  4.50   17.00 |  7.50   13.00 | 10.50   38.00
               1.75    4.00 |  4.75   17.00 |  7.75   13.00 | 10.75   38.00
               2.00    6.00 |  5.00   13.00 |  8.00   13.00 | 11.00   13.00
               2.25    6.00 |  5.25   13.00 |  8.25   13.00 | 11.25   13.00
               2.50    6.00 |  5.50   13.00 |  8.50   13.00 | 11.50   13.00
               2.75    6.00 |  5.75   13.00 |  8.75   13.00 | 11.75   13.00

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| CALIB            |
| NASHYD   (  0001)|   Area    (ha)= 351.84   Curve Number   (CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.60   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.25

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
               0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
               0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
               0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
               0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
               0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
               0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
               0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
               0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
               0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
               0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
               1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
               1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
               1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
               1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
               1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
               1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
               1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
               1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
               1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
               1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
               1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
               1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
               2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
               2.083    6.00 | 5.083   13.00 | 8.083   13.00 | 11.08   13.00
               2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
               2.250    6.00 | 5.250   13.00 | 8.250   13.00 | 11.25   13.00
               2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
               2.417    6.00 | 5.417   13.00 | 8.417   13.00 | 11.42   13.00
               2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
               2.583    6.00 | 5.583   13.00 | 8.583   13.00 | 11.58   13.00
               2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
               2.750    6.00 | 5.750   13.00 | 8.750   13.00 | 11.75   13.00
               2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
               2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
               3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

     Unit Hyd Qpeak  (cms)=   5.973

     PEAK FLOW       (cms)=  23.366 (i)
     TIME TO PEAK    (hrs)=  12.250
     RUNOFF VOLUME    (mm)= 149.068
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.703

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| SHIFT HYD(  0024)|
| IN= 2---> OUT= 1 |
| SHIFT= 80.8 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0001):  351.84    23.37     12.25    149.07
    SHIFT ID= 1 (  0024):  351.84    23.37     13.58    149.07

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--------------------
| CALIB            |
| NASHYD   (  0002)|   Area    (ha)= 415.84   Curve Number   (CN)= 75.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.20   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.65

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
               0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
               0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
               0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
               0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
               0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
               0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
               0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
               0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
               0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
               0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
               1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
               1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
               1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
               1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
               1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
               1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
               1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
               1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
               1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
               1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
               1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
               1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
               2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
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2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 5.994

PEAK FLOW (cms)= 24.555 (i)
TIME TO PEAK (hrs)= 12.583
RUNOFF VOLUME (mm)= 143.984
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.679

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0025)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	415.84	24.555	12.58	143.98
+ ID2= 2 (0024):	351.84	23.366	13.58	149.07
ID = 3 (0025):	767.68	46.516	13.17	146.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0031)				
IN= 2---> OUT= 1				
SHIFT=129.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0025):	767.68	46.52	13.17	146.31
SHIFT ID= 1 (0031):	767.68	46.52	15.25	146.31

CALIB			
NASHYD (0011)	Area (ha)= 241.80	Curve Number (CN)= 73.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.81		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 5.103

PEAK FLOW (cms)= 17.061 (i)
TIME TO PEAK (hrs)= 11.917
RUNOFF VOLUME (mm)= 139.407
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.658

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0032)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0011):	241.80	17.061	11.92	139.41
+ ID2= 2 (0031):	767.68	46.516	15.25	146.31
ID = 3 (0032):	1009.48	51.302	14.92	144.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0041)				
IN= 2---> OUT= 1				
SHIFT=155.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0032):	1009.48	51.30	14.92	144.66
SHIFT ID= 1 (0041):	1009.48	51.30	17.50	144.66

CALIB			
NASHYD (0003)	Area (ha)= 161.56	Curve Number (CN)= 70.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.77		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00

2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 3.486

PEAK FLOW (cms)= 11.092 (i)
TIME TO PEAK (hrs)= 11.917
RUNOFF VOLUME (mm)= 132.931
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.627

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026) / IN= 2---> OUT= 1 / SHIFT=115.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0003):	161.56	11.09	11.92	132.93
SHIFT ID= 1 (0026):	161.56	11.09	13.83	132.93

CALIB / NASHYD (0004) / ID= 1 DT= 5.0 min					
	Area	(ha)=	84.72	Curve Number (CN)=	74.0
	Ia	(mm)=	8.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		1.50		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.157

PEAK FLOW (cms)= 6.617 (i)
TIME TO PEAK (hrs)= 11.583
RUNOFF VOLUME (mm)= 141.916
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.669

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027) / IN= 2---> OUT= 1 / SHIFT=101.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0004):	84.72	6.62	11.58	141.92
SHIFT ID= 1 (0027):	84.72	6.62	13.25	141.92

CALIB / NASHYD (0005) / ID= 1 DT= 5.0 min					
	Area	(ha)=	290.88	Curve Number (CN)=	70.0
	Ia	(mm)=	8.30	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		2.09		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 5.316

PEAK FLOW (cms)= 18.358 (i)
TIME TO PEAK (hrs)= 12.167
RUNOFF VOLUME (mm)= 132.756
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.626

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029) / IN= 2---> OUT= 1 / SHIFT=144.1 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0005):	290.88	18.36	12.17	132.76
SHIFT ID= 1 (0029):	290.88	18.36	14.50	132.76

CALIB / NASHYD (0006)					
	Area	(ha)=	391.92	Curve Number (CN)=	76.0

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|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.20

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

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     Unit Hyd Qpeak  (cms)=   6.804

     PEAK FLOW       (cms)=  25.984 (i)
     TIME TO PEAK    (hrs)=  12.250
     RUNOFF VOLUME    (mm)= 146.059
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.689

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
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| CALIB              |
| NASHYD   (  0007)| Area     (ha)=  81.24   Curve Number   (CN)= 69.0
|ID= 1 DT= 5.0 min | Ia       (mm)=   8.70   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.53

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

```
     Unit Hyd Qpeak  (cms)=   2.028

     PEAK FLOW       (cms)=   5.895 (i)
     TIME TO PEAK    (hrs)=  11.667
     RUNOFF VOLUME    (mm)= 130.211
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.614

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
--------------------
| SHIFT HYD(  0030)|
| IN= 2---> OUT= 1 |
| SHIFT=147.5 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0007):   81.24     5.89     11.67    130.21
    SHIFT ID= 1 (  0030):   81.24     5.89     14.08    130.21

-------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0028)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK      R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
       ID1= 1 (  0026):   161.56  11.092    13.83    132.93
     + ID2= 2 (  0027):    84.72   6.617    13.25    141.92
       ==========================================================
       ID = 3 (  0028):   246.28  17.499    13.58    136.02

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0028)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK      R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
       ID1= 3 (  0028):   246.28  17.499    13.58    136.02
     + ID2= 2 (  0029):   290.88  18.358    14.50    132.76
       ==========================================================
       ID = 1 (  0028):   537.16  34.712    14.00    134.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0028)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK      R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
       ID1= 1 (  0028):   537.16  34.712    14.00    134.25
     + ID2= 2 (  0030):    81.24   5.895    14.08    130.21
       ==========================================================
       ID = 3 (  0028):   618.40  40.600    14.00    133.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0028)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK      R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
       ID1= 3 (  0028):   618.40  40.600    14.00    133.72
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```
      + ID2= 2 (  0006):   391.92  25.984    12.25   146.06
        ==========================================
        ID = 1 (  0028):  1010.32  59.976    13.58   138.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| SHIFT HYD(  0033)|
| IN= 2---> OUT= 1 |
| SHIFT=106.7 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0028): 1010.32    59.98     13.58    138.51
    SHIFT ID= 1 (  0033): 1010.32    59.98     15.33    138.51

--------------------------------------------------------------------------------
--------------------
| CALIB              |
| NASHYD   (  0010)|   Area    (ha)= 145.33   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.70   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.25

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
               0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
               0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
               0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
               0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
               0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
               0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
               0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
               0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
               0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
               0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
               1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
               1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
               1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
               1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
               1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
               1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
               1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
               1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
               1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
               1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
               1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
               1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
               2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
               2.083    6.00 | 5.083   13.00 | 8.083   13.00 | 11.08   13.00
               2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
               2.250    6.00 | 5.250   13.00 | 8.250   13.00 | 11.25   13.00
               2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
               2.417    6.00 | 5.417   13.00 | 8.417   13.00 | 11.42   13.00
               2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
               2.583    6.00 | 5.583   13.00 | 8.583   13.00 | 11.58   13.00
               2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
               2.750    6.00 | 5.750   13.00 | 8.750   13.00 | 11.75   13.00
               2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
               2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
               3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

     Unit Hyd Qpeak  (cms)=   2.467

     PEAK FLOW       (cms)=  10.087 (i)
     TIME TO PEAK    (hrs)=  12.250
     RUNOFF VOLUME    (mm)= 158.172
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.746

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0034)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0010):   145.33  10.087    12.25   158.17
     + ID2= 2 (  0033):  1010.32  59.976    15.33   138.51
       ==========================================
       ID = 3 (  0034):  1155.65  64.180    15.17   140.98
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     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| SHIFT HYD(  0040)|
| IN= 2---> OUT= 1 |
| SHIFT=232.1 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0034): 1155.65    64.18     15.17    140.98
    SHIFT ID= 1 (  0040): 1155.65    64.18     19.00    140.98

--------------------------------------------------------------------------------
--------------------
| CALIB              |
| NASHYD   (  0008)|   Area    (ha)= 338.84   Curve Number   (CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.20   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.34

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
               0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
               0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
               0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
               0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
               0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
               0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
               0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
               0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
               0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
               0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
               1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
               1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
               1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
               1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
               1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
               1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
               1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
               1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
               1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
               1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
               1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
               1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
               2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
               2.083    6.00 | 5.083   13.00 | 8.083   13.00 | 11.08   13.00
               2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
               2.250    6.00 | 5.250   13.00 | 8.250   13.00 | 11.25   13.00
               2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
               2.417    6.00 | 5.417   13.00 | 8.417   13.00 | 11.42   13.00
               2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
               2.583    6.00 | 5.583   13.00 | 8.583   13.00 | 11.58   13.00
               2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
               2.750    6.00 | 5.750   13.00 | 8.750   13.00 | 11.75   13.00
               2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
               2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
               3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

     Unit Hyd Qpeak  (cms)=   5.531

     PEAK FLOW       (cms)=  20.389 (i)
     TIME TO PEAK    (hrs)=  12.333
     RUNOFF VOLUME    (mm)= 135.051
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.637

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| SHIFT HYD(  0035)|
| IN= 2---> OUT= 1 |
| SHIFT= 63.2 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0008):  338.84    20.39     12.33    135.05
    SHIFT ID= 1 (  0035):  338.84    20.39     13.33    135.05

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--------------------
| CALIB              |
| NASHYD   (  0014)|   Area    (ha)=  99.92   Curve Number   (CN)= 80.0
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ID= 1 DT= 5.0 min	Ia (mm)= 8.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.66

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.299

PEAK FLOW (cms)= 7.950 (i)
TIME TO PEAK (hrs)= 11.750
RUNOFF VOLUME (mm)= 155.196
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.732

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0036)	1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0014):		99.92	7.950	11.75	155.20
	+ ID2= 2 (0035):		338.84	20.389	13.33	135.05
	ID = 3 (0036):		438.76	26.142	12.92	139.64

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0037) IN= 2---> OUT= 1 SHIFT= 83.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0036):	438.76	26.14	12.92	139.64
SHIFT ID= 1 (0037):	438.76	26.14	14.25	139.64

CALIB NASHYD (0013)| ID= 1 DT= 5.0 min	Area (ha)= 73.84 Curve Number (CN)= 82.0 Ia (mm)= 8.80 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 1.73

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 1.630

PEAK FLOW (cms)= 5.874 (i)
TIME TO PEAK (hrs)= 11.750
RUNOFF VOLUME (mm)= 159.449
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.752

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0038)	1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0013):		73.84	5.874	11.75	159.45
	+ ID2= 2 (0037):		438.76	26.142	14.25	139.64
	ID = 3 (0038):		512.60	28.843	14.00	142.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0009)| ID= 1 DT= 5.0 min	Area (ha)= 249.68 Curve Number (CN)= 76.0 Ia (mm)= 8.40 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 2.41

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00

0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 3.957

PEAK FLOW (cms)= 15.755 (i)
TIME TO PEAK (hrs)= 12.417
RUNOFF VOLUME (mm)= 146.059
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.689

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0039)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT=208.2 min				
ID= 2 (0009):	249.68	15.76	12.42	146.06
SHIFT ID= 1 (0039):	249.68	15.76	15.83	146.06

CALIB					
NASHYD (0012)	Area (ha)= 383.04	Curve Number (CN)= 74.0			
ID= 1 DT= 5.0 min	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 3.18				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 4.601

PEAK FLOW (cms)= 19.924 (i)
TIME TO PEAK (hrs)= 13.000
RUNOFF VOLUME (mm)= 141.644
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.668

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0015)	Area (ha)= 159.16	Curve Number (CN)= 79.0			
ID= 1 DT= 5.0 min	Ia (mm)= 7.10	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 1.50				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 4.053

PEAK FLOW (cms)= 13.154 (i)
TIME TO PEAK (hrs)= 11.583
RUNOFF VOLUME (mm)= 154.116
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.727

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0042) IN= 2---> OUT= 1 SHIFT= 55.3 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0015):	159.16	13.15	11.58	154.12
SHIFT ID= 1 (0042):	159.16	13.15	12.50	154.12

ADD HYD (0043) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	383.04	19.924	13.00	141.64
+ ID2= 2 (0038):	512.60	28.843	14.00	142.49
ID = 3 (0043):	895.64	47.861	13.67	142.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	895.64	47.861	13.67	142.13
+ ID2= 2 (0039):	249.68	15.755	15.83	146.06
ID = 1 (0043):	1145.32	57.962	14.25	142.99

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0043):	1145.32	57.962	14.25	142.99
+ ID2= 2 (0040):	1155.65	64.180	19.00	140.98
ID = 3 (0043):	2300.97	87.917	15.83	141.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	2300.97	87.917	15.83	141.98
+ ID2= 2 (0041):	1009.48	51.302	17.50	144.66
ID = 1 (0043):	3310.45	134.996	17.00	142.80

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0043):	3310.45	134.996	17.00	142.80
+ ID2= 2 (0042):	159.16	13.154	12.50	154.12
ID = 3 (0043):	3469.61	135.899	16.83	143.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0016) ID= 1 DT= 5.0 min			
	Area (ha)= 147.08	Curve Number (CN)= 79.0	
	Ia (mm)= 7.40	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.42		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 3.956

PEAK FLOW (cms)= 12.448 (i)
TIME TO PEAK (hrs)= 11.500
RUNOFF VOLUME (mm)= 153.834
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.726

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0044) IN= 2---> OUT= 1 SHIFT= 20.5 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0016):	147.08	12.45	11.50	153.83
SHIFT ID= 1 (0044):	147.08	12.45	11.83	153.83

CALIB NASHYD (0017) ID= 1 DT= 5.0 min			
	Area (ha)= 147.40	Curve Number (CN)= 65.0	
	Ia (mm)= 8.60	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.43		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00

1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 3.937

PEAK FLOW (cms)= 10.439 (i)
TIME TO PEAK (hrs)= 11.583
RUNOFF VOLUME (mm)= 121.621
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.574

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0045)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0017):	147.40	10.439	11.58	121.62
+ ID2= 2 (0043):	3469.61	135.899	16.83	143.32
ID = 3 (0045):	3617.01	136.164	16.75	142.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0045):	3617.01	136.164	16.75	142.43
+ ID2= 2 (0044):	147.08	12.448	11.83	153.83
ID = 1 (0045):	3764.09	136.629	16.58	142.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0047)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT=107.5 min				
ID= 2 (0045):	3764.09	136.63	16.58	142.88
SHIFT ID= 1 (0047):	3764.09	136.63	18.33	142.88

CALIB NASHYD (0018) ID= 1 DT= 5.0 min			
	Area (ha)= 126.36	Curve Number (CN)= 73.0	
	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.08		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.320

PEAK FLOW (cms)= 8.314 (i)
TIME TO PEAK (hrs)= 12.167
RUNOFF VOLUME (mm)= 139.317
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.657

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0046)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT= 63.7 min				
ID= 2 (0018):	126.36	8.31	12.17	139.32
SHIFT ID= 1 (0046):	126.36	8.31	13.17	139.32

CALIB NASHYD (0019) ID= 1 DT= 5.0 min			
	Area (ha)= 198.16	Curve Number (CN)= 73.0	
	Ia (mm)= 8.60	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.67		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00

1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 4.532

PEAK FLOW (cms)= 14.526 (i)
TIME TO PEAK (hrs)= 11.750
RUNOFF VOLUME (mm)= 139.136
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.656

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0048)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0019):		198.16	14.526	11.75	139.14
+ ID2= 2 (0046):		126.36	8.314	13.17	139.32
ID = 3 (0048):		324.52	21.350	12.25	139.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0048)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0048):		324.52	21.350	12.25	139.21
+ ID2= 2 (0047):		3764.09	136.629	18.33	142.88
ID = 1 (0048):		4088.61	137.781	18.08	142.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0049)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 81.0 min	ID= 2 (0048):	4088.61	137.78	18.08	142.59
	SHIFT ID= 1 (0049):	4088.61	137.78	19.42	142.59

CALIB				
NASHYD (0022)	Area	(ha)= 119.48	Curve Number	(CN)= 73.0
ID= 1 DT= 5.0 min	Ia	(mm)= 8.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)=	1.78		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.564

PEAK FLOW (cms)= 8.501 (i)
TIME TO PEAK (hrs)= 11.917
RUNOFF VOLUME (mm)= 139.587
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.658

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0022):		119.48	8.501	11.92	139.59
+ ID2= 2 (0049):		4088.61	137.781	19.42	142.59
ID = 3 (0050):		4208.09	137.849	19.42	142.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0054)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 52.5 min	ID= 2 (0050):	4208.09	137.85	19.42	142.50
	SHIFT ID= 1 (0054):	4208.09	137.85	20.25	142.50

CALIB				
NASHYD (0020)	Area	(ha)= 126.24	Curve Number	(CN)= 78.0
ID= 1 DT= 5.0 min	Ia	(mm)= 7.90	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)=	1.86		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00

1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.592

PEAK FLOW (cms)= 9.326 (i)
TIME TO PEAK (hrs)= 11.917
RUNOFF VOLUME (mm)= 151.072
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.713

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0051) / IN= 2---> OUT= 1 / SHIFT= 26.3 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0020):	126.24	9.33	11.92	151.07
SHIFT ID= 1 (0051):	126.24	9.33	12.33	151.07

CALIB / NASHYD (0021) / ID= 1 DT= 5.0 min			
	Area (ha)= 133.24	Curve Number (CN)= 79.0	
	Ia (mm)= 8.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.31		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 3.885

PEAK FLOW (cms)= 11.661 (i)
TIME TO PEAK (hrs)= 11.417
RUNOFF VOLUME (mm)= 153.177
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.723

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0052) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0021):	133.24	11.661	11.42	153.18
+ ID2= 2 (0051):	126.24	9.326	12.33	151.07
ID = 3 (0052):	259.48	20.128	11.75	152.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0053) / IN= 2---> OUT= 1 / SHIFT=106.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0052):	259.48	20.13	11.75	152.15
SHIFT ID= 1 (0053):	259.48	20.13	13.50	152.15

CALIB / NASHYD (0023) / ID= 1 DT= 5.0 min			
	Area (ha)= 111.92	Curve Number (CN)= 80.0	
	Ia (mm)= 8.70	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.81		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00

2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.362

PEAK FLOW (cms)= 8.545 (i)
TIME TO PEAK (hrs)= 11.833
RUNOFF VOLUME (mm)= 154.913
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.731

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0055)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0023):		111.92	8.545	11.83	154.91
+ ID2= 2 (0053):		259.48	20.128	13.50	152.15
ID = 3 (0055):		371.40	26.298	13.17	152.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0055)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0055):		371.40	26.298	13.17	152.98
+ ID2= 2 (0054):		4208.09	137.849	20.25	142.50
ID = 1 (0055):		4579.49	139.573	17.75	143.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0065)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 80.8 min	ID= 2 (0055):	4579.49	139.57	17.75	143.35
	SHIFT ID= 1 (0065):	4579.49	139.57	19.08	143.35

CALIB					
NASHYD (0057)	Area	(ha)= 329.71	Curve Number	(CN)= 80.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.90	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.00				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 6.297

PEAK FLOW (cms)= 24.019 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 155.668
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.734

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0064)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0057):		329.71	24.019	12.08	155.67
+ ID2= 2 (0065):		4579.49	139.573	19.08	143.35
ID = 3 (0064):		4909.20	140.125	19.00	144.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0063)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 47.8 min	ID= 2 (0064):	4909.20	140.13	19.00	144.18
	SHIFT ID= 1 (0063):	4909.20	140.13	19.75	144.18

CALIB					
NASHYD (0059)	Area	(ha)= 158.28	Curve Number	(CN)= 78.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.96				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00

2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 3.084

PEAK FLOW (cms)= 11.409 (i)
TIME TO PEAK (hrs)= 12.000
RUNOFF VOLUME (mm)= 151.539
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.715

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0068)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0059):	158.28	11.409	12.00	151.54
+ ID2= 2 (0063):	4909.20	140.125	19.75	144.18
ID = 3 (0068):	5067.48	140.260	19.75	144.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0072)				
IN= 2---> OUT= 1				
SHIFT= 99.0 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0068):	5067.48	140.26	19.75	144.41
SHIFT ID= 1 (0072):	5067.48	140.26	21.33	144.41

CALIB				
NASHYD (0058)	Area	(ha)= 138.00	Curve Number	(CN)= 83.0
ID= 1 DT= 5.0 min	Ia	(mm)= 7.30	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)=	1.83		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.880

PEAK FLOW (cms)= 10.816 (i)
TIME TO PEAK (hrs)= 11.833
RUNOFF VOLUME (mm)= 163.218
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.770

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0066)				
IN= 2---> OUT= 1				
SHIFT= 87.0 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0058):	138.00	10.82	11.83	163.22
SHIFT ID= 1 (0066):	138.00	10.82	13.25	163.22

CALIB				
NASHYD (0060)	Area	(ha)= 92.48	Curve Number	(CN)= 83.0
ID= 1 DT= 5.0 min	Ia	(mm)= 7.30	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)=	1.85		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 1.909

PEAK FLOW (cms)= 7.212 (i)
TIME TO PEAK (hrs)= 11.917
RUNOFF VOLUME (mm)= 163.218
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.770

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0067)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 22.8 min	ID= 2 (0060):	92.48	7.21	11.92	163.22
	SHIFT ID= 1 (0067):	92.48	7.21	12.25	163.22

CALIB					
NASHYD (0061)	Area (ha)= 134.36	Curve Number (CN)= 82.0			
ID= 1 DT= 5.0 min	Ia (mm)= 7.40	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 1.85				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.774

PEAK FLOW (cms)= 10.378 (i)
TIME TO PEAK (hrs)= 11.917
RUNOFF VOLUME (mm)= 160.784
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.758

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0069)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0061):	134.36	10.378	11.92	160.78
	+ ID2= 2 (0066):	138.00	10.816	13.25	163.22
	ID = 3 (0069):	272.36	19.608	12.67	162.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0069)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0069):	272.36	19.608	12.67	162.02
	+ ID2= 2 (0067):	92.48	7.212	12.25	163.22
	ID = 1 (0069):	364.84	26.658	12.58	162.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0070)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 5.6 min	ID= 2 (0069):	364.84	26.66	12.58	162.32
	SHIFT ID= 1 (0070):	364.84	26.66	12.67	162.32

CALIB					
NASHYD (0062)	Area (ha)= 130.00	Curve Number (CN)= 73.0			
ID= 1 DT= 5.0 min	Ia (mm)= 8.40	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 1.91				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.600

PEAK FLOW (cms)= 8.931 (i)
TIME TO PEAK (hrs)= 12.000
RUNOFF VOLUME (mm)= 139.317
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.657

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0071)

```
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0062):   130.00   8.931    12.00   139.32
     + ID2= 2 (  0070):   364.84  26.658    12.67   162.32
       ================================================
       ID = 3 (  0071):   494.84  35.189    12.50   156.28

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0071)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0071):   494.84  35.189    12.50   156.28
     + ID2= 2 (  0072):  5067.48 140.260    21.33   144.41
       ================================================
       ID = 1 (  0071):  5562.32 140.397    21.33   145.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

 FINISH
================================================================================================================
```

Project Name: Center Wellington 4 Bridges EA
Project No: 300058118
Location: Township of Centre Wellington
Designer: J.Koen
Date: 27-Sep-2024

R. J. Burnside & Associates Limited
3 Ronell Crescent, Collingwood, Ontario
telephone (705) 446-0515 fax (705) 446-2399
web www.rjburnside.com

7-E

Storm Event	VO	UOFM
	Q-Peak (cms)	Q-Peak (cms)
2-year	8.32	10.74
5-Year	14.26	-
10-Year	18.47	19.19
25-Year	24.84	23.72
50-Year	29.76	27.15
100-Year	34.86	30.96
Regional	84.85	-
Drainage Area (ha)	3068.99	2980.8

UNIFIED ONTARIO FLOOD METHOD

Bridge 7-E

$Q_{uofm} = Kr * A^a * Li^b * P^c$

Inputs

Parameter	Symbol	Units	Input*
Drainage Area	A	km^2	29.81
Ecozone		Input 1 = Boreal Sheild or 2 = Mixed Wood Plains	2
Lake/Wetland Areas	WA	km^2	5.06
Lake Attenuation Index	LI (LI = 1+(WA/A))	dimensionless	1.169741697
Mean Annual Precipitaiton	P	mm	940

*Input from OFAT



Figure 1: Ecozones of Ontario (EcoZone, 2012)

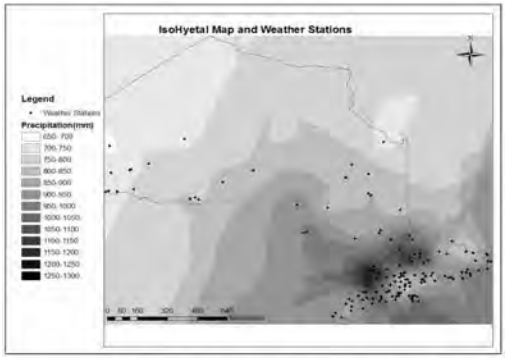

Figure 2: Isohyetal Map with Location of Environment Canada Weather Stations

Regression Parameters

x	a	b	c
-5.483	0.756	-3.061	1.837
-4.139	0.734	-3.78	1.491
-3.68	0.728	-4.017	1.372
-3.397	0.724	-4.162	1.299
-3.151	0.721	-4.287	1.236

T	Standard Error	Lower Limit (%)	Upper Limit (%)
2	0.159	-29	40
10	0.174	-32	46
25	0.183	-33	50
50	0.189	-35	53
100	0.195	-36	57

Results

T	Flow (Q_{uofm}) m^3/s	Lower Limit m^3/s	Upper Limit m^3/s
2	7.6706	5.44614	10.73886
10	13.144	8.93808	19.19058
25	15.811	10.59313	23.71596
50	17.748	11.53597	27.15389
100	19.720	12.62058	30.95986

```
================================================================================================================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
         V  V   I       SS  U   U  A   A  L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M M M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\97a8744f-7059
  Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\97a8744f-7059


DATE: 09/27/2024                          TIME: 03:10:39

USER:


COMMENTS: _____________________________________________________

----------------------------------------------------------------------------------------------------------------
  ***********************************************
  ** SIMULATION : 100yr 24hr 15min SCS Type II  **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jkoen\AppD
|                  |              ata\Local\Temp\
|                  |              249eaddd-ded7-4376-a422-9988b688ab1b\48872986
| Ptotal=132.00 mm |    Comments: 100yr 24hr 15min SCS Type II
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	2.41	12.50	15.40	18.75	2.17
0.25	1.34	6.50	2.47	12.75	10.59	19.00	2.09
0.50	1.37	6.75	2.54	13.00	8.94	19.25	2.00
0.75	1.40	7.00	2.61	13.25	7.57	19.50	1.92
1.00	1.43	7.25	2.67	13.50	6.68	19.75	1.84
1.25	1.47	7.50	2.74	13.75	5.86	20.00	1.76
1.50	1.50	7.75	2.81	14.00	5.23	20.25	1.71
1.75	1.53	8.00	2.87	14.25	4.77	20.50	1.69
2.00	1.57	8.25	3.08	14.50	4.54	20.75	1.67
2.25	1.60	8.50	3.39	14.75	4.30	21.00	1.66
2.50	1.63	8.75	3.74	15.00	4.08	21.25	1.64
2.75	1.67	9.00	4.05	15.25	3.84	21.50	1.63
3.00	1.70	9.25	4.22	15.50	3.62	21.75	1.61
3.25	1.73	9.50	4.22	15.75	3.38	22.00	1.59
3.50	1.77	9.75	4.50	16.00	3.15	22.25	1.58
3.75	1.80	10.00	5.01	16.25	2.99	22.50	1.56
4.00	1.83	10.25	5.69	16.50	2.91	22.75	1.54
4.25	1.88	10.50	6.45	16.75	2.83	23.00	1.53
4.50	1.95	10.75	7.55	17.00	2.75	23.25	1.51
4.75	2.01	11.00	8.82	17.25	2.66	23.50	1.49
5.00	2.08	11.25	11.15	17.50	2.58	23.75	1.48
5.25	2.15	11.50	14.19	17.75	2.50	24.00	1.46
5.50	2.21	11.75	57.86	18.00	2.42		
5.75	2.28	12.00	142.78	18.25	2.33		
6.00	2.34	12.25	22.62	18.50	2.25		

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| CALIB            |
| NASHYD   (  0001)|   Area    (ha)= 153.20   Curve Number   (CN)= 56.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.80   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.86

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

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Unit Hyd Qpeak  (cms)=   3.146

PEAK FLOW       (cms)=   3.577 (i)
TIME TO PEAK    (hrs)=  14.250
RUNOFF VOLUME    (mm)=  47.644
TOTAL RAINFALL   (mm)= 132.000
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RUNOFF COEFFICIENT = 0.361

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
SHIFT HYD(0015) IN= 2---> OUT= 1 SHIFT=114.8 min				
ID= 2 (0001):	153.20	3.58	14.25	47.64
SHIFT ID= 1 (0015):	153.20	3.58	16.08	47.64

CALIB NASHYD (0002) ID= 1 DT= 5.0 min | Area (ha)= 230.56 Curve Number (CN)= 51.0 | Ia (mm)= 7.90 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.79

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 4.920

PEAK FLOW (cms)= 4.825 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 41.834
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.317

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
SHIFT HYD(0016) IN= 2---> OUT= 1 SHIFT= 92.3 min				
ID= 2 (0002):	230.56	4.82	14.17	41.83
SHIFT ID= 1 (0016):	230.56	4.82	15.67	41.83

CALIB NASHYD (0005) ID= 1 DT= 5.0 min | Area (ha)= 199.08 Curve Number (CN)= 57.0 | Ia (mm)= 8.20 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.99

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66

3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 3.821

PEAK FLOW (cms)= 4.508 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 48.592
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.368

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0018) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0016):	230.56	4.825	15.67	41.83
+ ID2= 2 (0005):	199.08	4.508	14.42	48.59
ID = 3 (0018):	429.64	8.747	15.33	44.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0022) IN= 2---> OUT= 1 SHIFT=132.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0018):	429.64	8.75	15.33	44.97
SHIFT ID= 1 (0022):	429.64	8.75	17.50	44.97

CALIB NASHYD (0003) ID= 1 DT= 5.0 min				
	Area	(ha)= 51.28	Curve Number	(CN)= 66.0
	Ia	(mm)= 7.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.19		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 1.646

PEAK FLOW (cms)= 2.205 (i)
TIME TO PEAK (hrs)= 13.417
RUNOFF VOLUME (mm)= 61.071
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.463

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| SHIFT HYD(0017)|
| IN= 2---> OUT= 1 |
| SHIFT= 38.7 min |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0003):	51.28	2.20	13.42	61.07
SHIFT ID= 1 (0017):	51.28	2.20	14.00	61.07

CALIB
NASHYD (0004)
ID= 1 DT= 5.0 min

Area (ha)= 271.60 Curve Number (CN)= 64.0
Ia (mm)= 7.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.55

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 6.693

PEAK FLOW (cms)= 9.029 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 58.043
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.440

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0019)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0017):	51.28	2.205	14.00	61.07
	+ ID2= 2 (0004):	271.60	9.029	13.83	58.04
	ID = 3 (0019):	322.88	11.214	13.92	58.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| SHIFT HYD(0021)|
| IN= 2---> OUT= 1 |
| SHIFT= 58.8 min |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0019):	322.88	11.21	13.92	58.52
SHIFT ID= 1 (0021):	322.88	11.21	14.83	58.52

CALIB
NASHYD (0006)
ID= 1 DT= 5.0 min

Area (ha)= 300.52 Curve Number (CN)= 67.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.97

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69

2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 5.827

PEAK FLOW (cms)= 8.897 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 61.800
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.468

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0020)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0015):	153.20	3.577	16.08	47.64
+ ID2= 2 (0021):	322.88	11.214	14.83	58.52
ID = 3 (0020):	476.08	13.734	15.08	55.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0020):	476.08	13.734	15.08	55.02
+ ID2= 2 (0022):	429.64	8.747	17.50	44.97
ID = 1 (0020):	905.72	17.409	16.50	50.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0020):	905.72	17.409	16.50	50.25
+ ID2= 2 (0006):	300.52	8.897	14.33	61.80
ID = 3 (0020):	1206.24	24.788	15.33	53.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0023)
IN= 2---> OUT= 1
SHIFT=128.8 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0020):	1206.24	24.79	15.33	53.13
SHIFT ID= 1 (0023):	1206.24	24.79	17.42	53.13

CALIB
NASHYD (0007)
ID= 1 DT= 5.0 min

Area (ha)= 128.72 Curve Number (CN)= 62.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.98

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54

4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 2.483

PEAK FLOW (cms)= 3.347 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 55.047
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.417

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0024) | 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0023):	1206.24	24.788	17.42	53.13
+ ID2= 2 (0007):	128.72	3.347	14.33	55.05
ID = 3 (0024):	1334.96	26.452	17.33	53.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0025) | IN= 2---> OUT= 1 | SHIFT=155.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0024):	1334.96	26.45	17.33	53.31
SHIFT ID= 1 (0025):	1334.96	26.45	19.92	53.31

CALIB NASHYD (0008) | ID= 1 DT= 5.0 min				
	Area	(ha)= 109.00	Curve Number	(CN)= 55.0
	Ia	(mm)= 7.80	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)=	1.78		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 2.339

PEAK FLOW (cms)= 2.562 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 46.460
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.352

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026) | IN= 2---> OUT= 1 | SHIFT= 95.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0008):	109.00	2.56	14.17	46.46
SHIFT ID= 1 (0026):	109.00	2.56	15.75	46.46

CALIB NASHYD (0009) | ID= 1 DT= 5.0 min				
	Area	(ha)= 110.92	Curve Number	(CN)= 55.0
	Ia	(mm)= 7.90	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)=	1.89		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr

0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 2.242

PEAK FLOW (cms)= 2.487 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 46.399
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.352

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT=116.6 min				
ID= 2 (0009):	110.92	2.49	14.25	46.40
SHIFT ID= 1 (0029):	110.92	2.49	16.17	46.40

CALIB			
NASHYD (0010)	Area (ha)= 86.84	Curve Number (CN)= 55.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.84		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51

5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 1.803

PEAK FLOW (cms)= 1.979 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 46.217
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.350

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0028)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0010):	86.84	1.98	14.25	46.22
SHIFT= 98.7 min	SHIFT ID= 1 (0028):	86.84	1.98	15.83	46.22

CALIB					
NASHYD (0011)	Area (ha)= 25.76	Curve Number (CN)= 67.0			
ID= 1 DT= 5.0 min	Ia (mm)= 7.10	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 1.07				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 0.920

PEAK FLOW (cms)= 1.230 (i)
TIME TO PEAK (hrs)= 13.250
RUNOFF VOLUME (mm)= 62.399
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.473

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0011):	25.76	1.23	13.25	62.40
SHIFT= 76.1 min	SHIFT ID= 1 (0027):	25.76	1.23	14.50	62.40

CALIB					
NASHYD (0012)	Area (ha)= 229.28	Curve Number (CN)= 60.0			
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 2.19				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92

1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 3.999

PEAK FLOW (cms)= 5.237 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 52.485
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.398

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0013) | ID= 1 DT= 5.0 min	Area (ha)= 118.16 Curve Number (CN)= 69.0 Ia (mm)= 7.80 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 2.14

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 2.109

PEAK FLOW (cms)= 3.449 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 64.728
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.490

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0031) | IN= 2---> OUT= 1 | SHIFT= 56.8 min	AREA	QPEAK	TPEAK	R.V.

	(ha)	(cms)	(hrs)	(mm)
ID= 2 (0013):	118.16	3.45	14.50	64.73
SHIFT ID= 1 (0031):	118.16	3.45	15.42	64.73

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	229.28	5.237	14.58	52.48
+ ID2= 2 (0025):	1334.96	26.452	19.92	53.31
ID = 3 (0030):	1564.24	28.018	19.83	53.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1564.24	28.018	19.83	53.19
+ ID2= 2 (0026):	109.00	2.562	15.75	46.46
ID = 1 (0030):	1673.24	28.824	19.83	52.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1673.24	28.824	19.83	52.75
+ ID2= 2 (0027):	25.76	1.230	14.50	62.40
ID = 3 (0030):	1699.00	28.973	19.83	52.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1699.00	28.973	19.83	52.90
+ ID2= 2 (0028):	86.84	1.979	15.83	46.22
ID = 1 (0030):	1785.84	29.642	19.75	52.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1785.84	29.642	19.75	52.58
+ ID2= 2 (0029):	110.92	2.487	16.17	46.40
ID = 3 (0030):	1896.76	30.637	19.75	52.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1896.76	30.637	19.75	52.21
+ ID2= 2 (0031):	118.16	3.449	15.42	64.73
ID = 1 (0030):	2014.92	31.867	19.67	52.95

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0032)				
IN= 2---> OUT= 1				
SHIFT=124.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0030):	2014.92	31.87	19.67	52.95
SHIFT ID= 1 (0032):	2014.92	31.87	21.67	52.95

CALIB
NASHYD (0014) | ID= 1 DT= 5.0 min

Area (ha)= 134.04 Curve Number (CN)= 60.0
Ia (mm)= 7.60 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.09

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46

5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 2.450

PEAK FLOW (cms)= 3.187 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 52.685
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.399

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0033)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0014):	134.04	3.187	14.50	52.69
+ ID2= 2 (0032):	2014.92	31.867	21.67	52.95
ID = 3 (0033):	2148.96	32.469	21.67	52.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0041)
IN= 2---> OUT= 1
SHIFT=126.1 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0033):	2148.96	32.47	21.67	52.93
SHIFT ID= 1 (0041):	2148.96	32.47	23.75	52.93

CALIB
NASHYD (0035)
ID= 1 DT= 5.0 min

Area (ha)= 121.48 Curve Number (CN)= 63.0
Ia (mm)= 7.70 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.68

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 2.762

PEAK FLOW (cms)= 3.688 (i)
TIME TO PEAK (hrs)= 14.000
RUNOFF VOLUME (mm)= 56.497
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.428

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0042)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0035):	121.48	3.688	14.00	56.50
+ ID2= 2 (0041):	2148.96	32.469	23.75	52.93
ID = 3 (0042):	2270.44	32.871	23.75	53.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0043)
IN= 2---> OUT= 1
SHIFT= 94.5 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0042):	2270.44	32.87	23.75	53.12
SHIFT ID= 1 (0043):	2270.44	32.87	25.25	53.12

CALIB
NASHYD (0034)
ID= 1 DT= 5.0 min

Area (ha)= 244.28 Curve Number (CN)= 64.0
Ia (mm)= 8.10 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.19

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33

0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 4.260

PEAK FLOW (cms)= 6.165 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 57.544
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.436

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0044)
IN= 2---> OUT= 1
SHIFT= 78.3 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0034):	244.28	6.16	14.58	57.54
SHIFT ID= 1 (0044):	244.28	6.16	15.83	57.54

CALIB			
NASHYD (0036)	Area (ha)= 154.31	Curve Number (CN)= 65.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.39		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49

5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 2.466

PEAK FLOW (cms)= 3.721 (i)
TIME TO PEAK (hrs)= 14.833
RUNOFF VOLUME (mm)= 58.747
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.445

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0046) / IN= 2---> OUT= 1 / SHIFT= 18.9 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0036):	154.31	3.72	14.83	58.75
SHIFT ID= 1 (0046):	154.31	3.72	15.08	58.75

CALIB / NASHYD (0037) / ID= 1 DT= 5.0 min				
	Area (ha)= 144.96	Curve Number (CN)= 60.0		
	Ia (mm)= 8.10	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.56			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 3.549

PEAK FLOW (cms)= 4.289 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 52.352
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.397

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0045) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0037):	144.96	4.289	13.83	52.35
+ ID2= 2 (0043):	2270.44	32.871	25.25	53.12
ID = 3 (0045):	2415.40	33.226	25.25	53.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045) / 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0045):	2415.40	33.226	25.25	53.08
+ ID2= 2 (0044):	244.28	6.165	15.83	57.54
ID = 1 (0045):	2659.68	34.119	25.25	53.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0045):	2659.68	34.119	25.25	53.49
+ ID2= 2 (0046):	154.31	3.721	15.08	58.75
ID = 3 (0045):	2813.99	34.655	25.25	53.77

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0047) / IN= 2---> OUT= 1 / SHIFT= 73.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

```
        ID= 2 (  0045): 2813.99    34.65     25.25     53.77
    SHIFT ID= 1 (  0047): 2813.99    34.65     26.42     53.77
```

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--------------------
| CALIB            |
| NASHYD   (  0038)|   Area    (ha)= 137.16   Curve Number   (CN)= 68.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.70   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.25
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

```
     Unit Hyd Qpeak  (cms)=   4.191

     PEAK FLOW       (cms)=   5.922 (i)
     TIME TO PEAK    (hrs)=  13.500
     RUNOFF VOLUME    (mm)=  63.366
     TOTAL RAINFALL   (mm)= 132.000
     RUNOFF COEFFICIENT   =   0.480
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
--------------------
| ADD HYD  (  0048)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0038):   137.16   5.922    13.50    63.37
     + ID2= 2 (  0047):  2813.99  34.655    26.42    53.77
       ================================================
       ID = 3 (  0048):  2951.15  34.792    26.42    54.22
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
--------------------
| SHIFT HYD(  0049)|
| IN= 2---> OUT= 1 |
| SHIFT= 38.3 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0048): 2951.15    34.79     26.42     54.22
    SHIFT ID= 1 (  0049): 2951.15    34.79     27.00     54.22
```

```
--------------------
| CALIB            |
| NASHYD   (  0039)|   Area    (ha)=  86.88   Curve Number   (CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   9.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.25
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66

2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 2.655

PEAK FLOW (cms)= 3.515 (i)
TIME TO PEAK (hrs)= 13.500
RUNOFF VOLUME (mm)= 59.598
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.452

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0051)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0039):	86.88	3.51	13.50	59.60
SHIFT ID= 1 (0051):	86.88	3.51	13.83	59.60

CALIB NASHYD (0040) ID= 1 DT= 5.0 min				
	Area	(ha)= 30.96	Curve Number	(CN)= 69.0
	Ia	(mm)= 8.30	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.85		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.34	12.250	142.78	18.33	2.33
0.167	0.00	6.250	2.34	12.333	22.63	18.42	2.33
0.250	0.00	6.333	2.41	12.417	22.62	18.50	2.33
0.333	1.34	6.417	2.41	12.500	22.62	18.58	2.25
0.417	1.34	6.500	2.41	12.583	15.40	18.67	2.25
0.500	1.34	6.583	2.47	12.667	15.40	18.75	2.25
0.583	1.37	6.667	2.47	12.750	15.40	18.83	2.17
0.667	1.37	6.750	2.47	12.833	10.59	18.92	2.17
0.750	1.37	6.833	2.54	12.917	10.59	19.00	2.17
0.833	1.40	6.917	2.54	13.000	10.59	19.08	2.09
0.917	1.40	7.000	2.54	13.083	8.94	19.17	2.09
1.000	1.40	7.083	2.61	13.167	8.94	19.25	2.09
1.083	1.43	7.167	2.61	13.250	8.94	19.33	2.00
1.167	1.43	7.250	2.61	13.333	7.57	19.42	2.00
1.250	1.43	7.333	2.67	13.417	7.57	19.50	2.00
1.333	1.47	7.417	2.67	13.500	7.57	19.58	1.92
1.417	1.47	7.500	2.67	13.583	6.68	19.67	1.92
1.500	1.47	7.583	2.74	13.667	6.68	19.75	1.92
1.583	1.50	7.667	2.74	13.750	6.68	19.83	1.84
1.667	1.50	7.750	2.74	13.833	5.86	19.92	1.84
1.750	1.50	7.833	2.81	13.917	5.86	20.00	1.84
1.833	1.53	7.917	2.81	14.000	5.86	20.08	1.76
1.917	1.53	8.000	2.81	14.083	5.23	20.17	1.76
2.000	1.53	8.083	2.87	14.167	5.23	20.25	1.76
2.083	1.57	8.167	2.87	14.250	5.23	20.33	1.71
2.167	1.57	8.250	2.87	14.333	4.77	20.42	1.71
2.250	1.57	8.333	3.08	14.417	4.77	20.50	1.71
2.333	1.60	8.417	3.08	14.500	4.77	20.58	1.69
2.417	1.60	8.500	3.08	14.583	4.54	20.67	1.69
2.500	1.60	8.583	3.39	14.667	4.54	20.75	1.69
2.583	1.63	8.667	3.39	14.750	4.54	20.83	1.67
2.667	1.63	8.750	3.39	14.833	4.30	20.92	1.67
2.750	1.63	8.833	3.74	14.917	4.30	21.00	1.67
2.833	1.67	8.917	3.74	15.000	4.30	21.08	1.66
2.917	1.67	9.000	3.74	15.083	4.08	21.17	1.66
3.000	1.67	9.083	4.05	15.167	4.08	21.25	1.66
3.083	1.70	9.167	4.05	15.250	4.08	21.33	1.64
3.167	1.70	9.250	4.05	15.333	3.84	21.42	1.64
3.250	1.70	9.333	4.22	15.417	3.84	21.50	1.64
3.333	1.73	9.417	4.22	15.500	3.84	21.58	1.63
3.417	1.73	9.500	4.22	15.583	3.62	21.67	1.63
3.500	1.73	9.583	4.22	15.667	3.62	21.75	1.63
3.583	1.77	9.667	4.22	15.750	3.62	21.83	1.61
3.667	1.77	9.750	4.22	15.833	3.38	21.92	1.61
3.750	1.77	9.833	4.50	15.917	3.38	22.00	1.61
3.833	1.80	9.917	4.50	16.000	3.38	22.08	1.59
3.917	1.80	10.000	4.50	16.083	3.15	22.17	1.59
4.000	1.80	10.083	5.01	16.167	3.15	22.25	1.59
4.083	1.83	10.167	5.01	16.250	3.15	22.33	1.58
4.167	1.83	10.250	5.01	16.333	2.99	22.42	1.58
4.250	1.83	10.333	5.69	16.417	2.99	22.50	1.58
4.333	1.88	10.417	5.69	16.500	2.99	22.58	1.56
4.417	1.88	10.500	5.69	16.583	2.91	22.67	1.56
4.500	1.88	10.583	6.45	16.667	2.91	22.75	1.56
4.583	1.95	10.667	6.45	16.750	2.91	22.83	1.54
4.667	1.95	10.750	6.45	16.833	2.83	22.92	1.54
4.750	1.95	10.833	7.55	16.917	2.83	23.00	1.54
4.833	2.01	10.917	7.55	17.000	2.83	23.08	1.53
4.917	2.01	11.000	7.55	17.083	2.75	23.17	1.53
5.000	2.01	11.083	8.82	17.167	2.75	23.25	1.53
5.083	2.08	11.167	8.82	17.250	2.75	23.33	1.51
5.167	2.08	11.250	8.82	17.333	2.66	23.42	1.51
5.250	2.08	11.333	11.15	17.417	2.66	23.50	1.51
5.333	2.15	11.417	11.15	17.500	2.66	23.58	1.49
5.417	2.15	11.500	11.15	17.583	2.58	23.67	1.49
5.500	2.15	11.583	14.19	17.667	2.58	23.75	1.49
5.583	2.21	11.667	14.19	17.750	2.58	23.83	1.48
5.667	2.21	11.750	14.19	17.833	2.50	23.92	1.48
5.750	2.21	11.833	57.85	17.917	2.50	24.00	1.48
5.833	2.28	11.917	57.86	18.000	2.50	24.08	1.46
5.917	2.28	12.000	57.86	18.083	2.42	24.17	1.46
6.000	2.28	12.083	142.77	18.167	2.42	24.25	1.46
6.083	2.34	12.167	142.78	18.250	2.42		

Unit Hyd Qpeak (cms)= 1.391

PEAK FLOW (cms)= 1.824 (i)
TIME TO PEAK (hrs)= 13.000
RUNOFF VOLUME (mm)= 64.342
TOTAL RAINFALL (mm)= 132.000
RUNOFF COEFFICIENT = 0.487

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0040):	30.96	1.824	13.00	64.34
+ ID2= 2 (0049):	2951.15	34.792	27.00	54.22
ID = 3 (0050):	2982.11	34.796	27.00	54.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0050)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0050):  2982.11  34.796    27.00    54.33
     + ID2= 2 (  0051):    86.88   3.515    13.83    59.60
       ================================================
       ID = 1 (  0050):  3068.99  34.864    26.92    54.47

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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 FINISH
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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M M M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\ca89e2b6-2e57
  Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\ca89e2b6-2e57


DATE: 09/27/2024                          TIME: 03:10:38

USER:


COMMENTS: _____________________________________________________


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  ************************************************
  ** SIMULATION : 10yr 24hr 15min SCS Type II   **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jkoen\AppD
|                  |              ata\Local\Temp\
|                  |              249eaddd-ded7-4376-a422-9988b688ab1b\5589a492
| Ptotal= 91.20 mm |    Comments: 10yr 24hr 15min SCS Type II
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TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	1.67	12.50	10.64	18.75	1.50
0.25	0.92	6.50	1.71	12.75	7.32	19.00	1.44
0.50	0.95	6.75	1.76	13.00	6.18	19.25	1.38
0.75	0.97	7.00	1.80	13.25	5.23	19.50	1.33
1.00	0.99	7.25	1.85	13.50	4.62	19.75	1.27
1.25	1.02	7.50	1.89	13.75	4.05	20.00	1.21
1.50	1.04	7.75	1.94	14.00	3.61	20.25	1.18
1.75	1.06	8.00	1.98	14.25	3.29	20.50	1.17
2.00	1.08	8.25	2.12	14.50	3.14	20.75	1.16
2.25	1.11	8.50	2.34	14.75	2.97	21.00	1.15
2.50	1.13	8.75	2.58	15.00	2.82	21.25	1.13
2.75	1.15	9.00	2.80	15.25	2.65	21.50	1.12
3.00	1.17	9.25	2.92	15.50	2.50	21.75	1.11
3.25	1.20	9.50	2.92	15.75	2.33	22.00	1.10
3.50	1.22	9.75	3.11	16.00	2.18	22.25	1.09
3.75	1.24	10.00	3.46	16.25	2.07	22.50	1.08
4.00	1.26	10.25	3.93	16.50	2.01	22.75	1.07
4.25	1.30	10.50	4.46	16.75	1.95	23.00	1.05
4.50	1.34	10.75	5.22	17.00	1.90	23.25	1.04
4.75	1.39	11.00	6.09	17.25	1.84	23.50	1.03
5.00	1.44	11.25	7.70	17.50	1.79	23.75	1.02
5.25	1.48	11.50	9.81	17.75	1.73	24.00	1.01
5.50	1.53	11.75	39.97	18.00	1.67		
5.75	1.57	12.00	98.65	18.25	1.61		
6.00	1.62	12.25	15.63	18.50	1.56		

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| CALIB            |
| NASHYD   (  0001)|   Area    (ha)= 153.20   Curve Number   (CN)= 56.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.80   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.86

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04

5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 3.146

PEAK FLOW (cms)= 1.810 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 24.580
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.270

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0015) / IN= 2---> OUT= 1 / SHIFT=114.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0001):	153.20	1.81	14.25	24.58
SHIFT ID= 1 (0015):	153.20	1.81	16.08	24.58

CALIB NASHYD (0002) / ID= 1 DT= 5.0 min | Area (ha)= 230.56 | Curve Number (CN)= 51.0 | Ia (mm)= 7.90 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.79

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 4.920

PEAK FLOW (cms)= 2.398 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 21.198
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.232

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0016) / IN= 2---> OUT= 1 / SHIFT= 92.3 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0002):	230.56	2.40	14.25	21.20
SHIFT ID= 1 (0016):	230.56	2.40	15.75	21.20

CALIB NASHYD (0005) / ID= 1 DT= 5.0 min | Area (ha)= 199.08 | Curve Number (CN)= 57.0 | Ia (mm)= 8.20 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.99

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27

1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 3.821

PEAK FLOW (cms)= 2.282 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 25.086
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.275

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0018)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0016):		230.56	2.398	15.75	21.20
+ ID2= 2 (0005):		199.08	2.282	14.42	25.09
ID = 3 (0018):		429.64	4.398	15.33	23.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0022)	AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1	(ha)	(cms)	(hrs)	(mm)
SHIFT=132.2 min				
ID= 2 (0018):	429.64	4.40	15.33	23.00

SHIFT ID= 1 (0022): 429.64 4.40 17.50 23.00

CALIB			
NASHYD (0003)	Area (ha)= 51.28	Curve Number (CN)= 66.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.19		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02

5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 1.646

PEAK FLOW (cms)= 1.168 (i)
TIME TO PEAK (hrs)= 13.417
RUNOFF VOLUME (mm)= 32.968
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.361

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0017)
IN= 2---> OUT= 1
SHIFT= 38.7 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0003):	51.28	1.17	13.42	32.97
SHIFT ID= 1 (0017):	51.28	1.17	14.00	32.97

CALIB
NASHYD (0004)
ID= 1 DT= 5.0 min

Area (ha)= 271.60 Curve Number (CN)= 64.0
Ia (mm)= 7.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.55

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 6.693

PEAK FLOW (cms)= 4.726 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 30.980
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.340

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0019)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0017):	51.28	1.168	14.00	32.97
+ ID2= 2 (0004):	271.60	4.726	13.92	30.98
ID = 3 (0019):	322.88	5.887	13.92	31.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0021)
IN= 2---> OUT= 1
SHIFT= 58.8 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0019):	322.88	5.89	13.92	31.30
SHIFT ID= 1 (0021):	322.88	5.89	14.83	31.30

CALIB
NASHYD (0006)
ID= 1 DT= 5.0 min

Area (ha)= 300.52 Curve Number (CN)= 67.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.97

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38

1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 5.827

PEAK FLOW (cms)= 4.702 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 33.295
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.365

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0020)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0015):	153.20	1.810	16.08	24.58
+ ID2= 2 (0021):	322.88	5.887	14.83	31.30
ID = 3 (0020):	476.08	7.161	15.17	29.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0020):	476.08	7.161	15.17	29.13
+ ID2= 2 (0022):	429.64	4.398	17.50	23.00
ID = 1 (0020):	905.72	8.985	16.50	26.22

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0020):	905.72	8.985	16.50	26.22
+ ID2= 2 (0006):	300.52	4.702	14.42	33.30
ID = 3 (0020):	1206.24	12.927	15.33	27.99

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0023)
IN= 2---> OUT= 1
SHIFT=128.8 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0020):	1206.24	12.93	15.33	27.99
SHIFT ID= 1 (0023):	1206.24	12.93	17.42	27.99

CALIB
NASHYD (0007)
ID= 1 DT= 5.0 min

Area (ha)= 128.72 Curve Number (CN)= 62.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.98

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13

3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.483

PEAK FLOW (cms)= 1.732 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 29.036
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.318

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0024)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0023):	1206.24	12.927	17.42	27.99
	+ ID2= 2 (0007):	128.72	1.732	14.42	29.04
	ID = 3 (0024):	1334.96	13.817	17.33	28.09

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0025)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=155.6 min	ID= 2 (0024):	1334.96	13.82	17.33	28.09
	SHIFT ID= 1 (0025):	1334.96	13.82	19.92	28.09

CALIB					
NASHYD (0008)	Area	(ha)= 109.00	Curve Number	(CN)= 55.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.80	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.78				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.339

PEAK FLOW (cms)= 1.292 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 23.884
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.262

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT= 95.6 min					

	(ha)	(cms)	(hrs)	(mm)
ID= 2 (0008):	109.00	1.29	14.17	23.88
SHIFT ID= 1 (0026):	109.00	1.29	15.75	23.88

CALIB NASHYD (0009)	Area (ha)= 110.92	Curve Number (CN)= 55.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.89	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.242

PEAK FLOW (cms)= 1.253 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 23.835
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.261

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029) IN= 2---> OUT= 1 SHIFT=116.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0009):	110.92	1.25	14.33	23.84
SHIFT ID= 1 (0029):	110.92	1.25	16.25	23.84

CALIB NASHYD (0010)	Area (ha)= 86.84	Curve Number (CN)= 55.0
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.84	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11

3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 1.803

PEAK FLOW (cms)= 0.995 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 23.688
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.260

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0028)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT= 98.7 min	ID= 2 (0010):	86.84	0.99	14.25	23.69
	SHIFT ID= 1 (0028):	86.84	0.99	15.83	23.69

CALIB					
NASHYD (0011)	Area	(ha)= 25.76	Curve Number	(CN)= 67.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.10	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.07				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 0.920

PEAK FLOW (cms)= 0.653 (i)
TIME TO PEAK (hrs)= 13.333
RUNOFF VOLUME (mm)= 33.808
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.371

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT= 76.1 min	ID= 2 (0011):	25.76	0.65	13.33	33.81
	SHIFT ID= 1 (0027):	25.76	0.65	14.58	33.81

CALIB					
NASHYD (0012)	Area	(ha)= 229.28	Curve Number	(CN)= 60.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.90	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.19				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61

0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 3.999

PEAK FLOW (cms)= 2.689 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 27.466
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.301

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0013)	Area (ha)= 118.16	Curve Number (CN)= 69.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.14		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01

```
             6.083    1.62 |12.167   98.65 |18.250    1.67 |

     Unit Hyd Qpeak  (cms)=   2.109

     PEAK FLOW       (cms)=   1.843 (i)
     TIME TO PEAK    (hrs)=  14.583
     RUNOFF VOLUME    (mm)=  35.215
     TOTAL RAINFALL   (mm)=  91.200
     RUNOFF COEFFICIENT   =   0.386

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| SHIFT HYD(  0031)|
| IN= 2---> OUT= 1 |
| SHIFT= 56.8 min  |      AREA     QPEAK     TPEAK      R.V.
-------------------      (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0013):  118.16     1.84     14.58     35.22
    SHIFT ID= 1 (  0031):  118.16     1.84     15.50     35.22

--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0012):   229.28   2.689    14.67    27.47
     + ID2= 2 (  0025):  1334.96  13.817    19.92    28.09
       ================================================
       ID = 3 (  0030):  1564.24  14.668    19.83    28.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):  1564.24  14.668    19.83    28.00
     + ID2= 2 (  0026):   109.00   1.292    15.75    23.88
       ================================================
       ID = 1 (  0030):  1673.24  15.099    19.83    27.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0030):  1673.24  15.099    19.83    27.73
     + ID2= 2 (  0027):    25.76   0.653    14.58    33.81
       ================================================
       ID = 3 (  0030):  1699.00  15.186    19.83    27.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):  1699.00  15.186    19.83    27.82
     + ID2= 2 (  0028):    86.84   0.995    15.83    23.69
       ================================================
       ID = 1 (  0030):  1785.84  15.540    19.83    27.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0030):  1785.84  15.540    19.83    27.62
     + ID2= 2 (  0029):   110.92   1.253    16.25    23.84
       ================================================
       ID = 3 (  0030):  1896.76  16.060    19.75    27.40

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):  1896.76  16.060    19.75    27.40
     + ID2= 2 (  0031):   118.16   1.843    15.50    35.22
       ================================================
       ID = 1 (  0030):  2014.92  16.756    19.75    27.86

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0032)|
| IN= 2---> OUT= 1 |
| SHIFT=124.2 min  |      AREA     QPEAK     TPEAK      R.V.
-------------------      (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0030): 2014.92    16.76     19.75     27.86
    SHIFT ID= 1 (  0032): 2014.92    16.76     21.75     27.86

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0014)|   Area    (ha)= 134.04   Curve Number   (CN)= 60.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.60   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   2.09

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
   TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
    hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
  0.083     0.00 | 6.167     1.62 |12.250    98.65 | 18.33     1.61
  0.167     0.00 | 6.250     1.62 |12.333    15.64 | 18.42     1.61
  0.250     0.00 | 6.333     1.67 |12.417    15.63 | 18.50     1.61
  0.333     0.92 | 6.417     1.67 |12.500    15.63 | 18.58     1.56
  0.417     0.92 | 6.500     1.67 |12.583    10.64 | 18.67     1.56
  0.500     0.92 | 6.583     1.71 |12.667    10.64 | 18.75     1.56
  0.583     0.95 | 6.667     1.71 |12.750    10.64 | 18.83     1.50
  0.667     0.95 | 6.750     1.71 |12.833     7.32 | 18.92     1.50
  0.750     0.95 | 6.833     1.76 |12.917     7.32 | 19.00     1.50
  0.833     0.97 | 6.917     1.76 |13.000     7.32 | 19.08     1.44
  0.917     0.97 | 7.000     1.76 |13.083     6.18 | 19.17     1.44
  1.000     0.97 | 7.083     1.80 |13.167     6.18 | 19.25     1.44
  1.083     0.99 | 7.167     1.80 |13.250     6.18 | 19.33     1.38
  1.167     0.99 | 7.250     1.80 |13.333     5.23 | 19.42     1.38
  1.250     0.99 | 7.333     1.85 |13.417     5.23 | 19.50     1.38
  1.333     1.02 | 7.417     1.85 |13.500     5.23 | 19.58     1.33
  1.417     1.02 | 7.500     1.85 |13.583     4.62 | 19.67     1.33
  1.500     1.02 | 7.583     1.89 |13.667     4.62 | 19.75     1.33
  1.583     1.04 | 7.667     1.89 |13.750     4.62 | 19.83     1.27
  1.667     1.04 | 7.750     1.89 |13.833     4.05 | 19.92     1.27
  1.750     1.04 | 7.833     1.94 |13.917     4.05 | 20.00     1.27
  1.833     1.06 | 7.917     1.94 |14.000     4.05 | 20.08     1.21
  1.917     1.06 | 8.000     1.94 |14.083     3.61 | 20.17     1.21
  2.000     1.06 | 8.083     1.98 |14.167     3.61 | 20.25     1.21
  2.083     1.08 | 8.167     1.98 |14.250     3.61 | 20.33     1.18
  2.167     1.08 | 8.250     1.98 |14.333     3.29 | 20.42     1.18
  2.250     1.08 | 8.333     2.12 |14.417     3.29 | 20.50     1.18
  2.333     1.11 | 8.417     2.12 |14.500     3.29 | 20.58     1.17
  2.417     1.11 | 8.500     2.12 |14.583     3.14 | 20.67     1.17
  2.500     1.11 | 8.583     2.34 |14.667     3.14 | 20.75     1.17
  2.583     1.13 | 8.667     2.34 |14.750     3.14 | 20.83     1.16
  2.667     1.13 | 8.750     2.34 |14.833     2.97 | 20.92     1.16
  2.750     1.13 | 8.833     2.58 |14.917     2.97 | 21.00     1.16
  2.833     1.15 | 8.917     2.58 |15.000     2.97 | 21.08     1.15
  2.917     1.15 | 9.000     2.58 |15.083     2.82 | 21.17     1.15
  3.000     1.15 | 9.083     2.80 |15.167     2.82 | 21.25     1.15
  3.083     1.17 | 9.167     2.80 |15.250     2.82 | 21.33     1.13
  3.167     1.17 | 9.250     2.80 |15.333     2.65 | 21.42     1.13
  3.250     1.17 | 9.333     2.92 |15.417     2.65 | 21.50     1.13
  3.333     1.20 | 9.417     2.92 |15.500     2.65 | 21.58     1.12
  3.417     1.20 | 9.500     2.92 |15.583     2.50 | 21.67     1.12
  3.500     1.20 | 9.583     2.92 |15.667     2.50 | 21.75     1.12
  3.583     1.22 | 9.667     2.92 |15.750     2.50 | 21.83     1.11
  3.667     1.22 | 9.750     2.92 |15.833     2.33 | 21.92     1.11
  3.750     1.22 | 9.833     3.11 |15.917     2.33 | 22.00     1.11
  3.833     1.24 | 9.917     3.11 |16.000     2.33 | 22.08     1.10
  3.917     1.24 |10.000     3.11 |16.083     2.18 | 22.17     1.10
  4.000     1.24 |10.083     3.46 |16.167     2.18 | 22.25     1.10
  4.083     1.26 |10.167     3.46 |16.250     2.18 | 22.33     1.09
  4.167     1.26 |10.250     3.46 |16.333     2.07 | 22.42     1.09
  4.250     1.26 |10.333     3.93 |16.417     2.07 | 22.50     1.09
  4.333     1.30 |10.417     3.93 |16.500     2.07 | 22.58     1.08
  4.417     1.30 |10.500     3.93 |16.583     2.01 | 22.67     1.08
```

4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.450

PEAK FLOW (cms)= 1.640 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 27.632
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.303

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0033)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0014):	134.04	1.640	14.58	27.63
	+ ID2= 2 (0032):	2014.92	16.756	21.75	27.86
	ID = 3 (0033):	2148.96	17.089	21.75	27.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0041)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT=126.1 min		(ha)	(cms)	(hrs)	(mm)
	ID= 2 (0033):	2148.96	17.09	21.75	27.84
SHIFT	ID= 1 (0041):	2148.96	17.09	23.83	27.84

CALIB					
NASHYD (0035)	Area (ha)= 121.48	Curve Number (CN)= 63.0			
ID= 1 DT= 5.0 min	Ia (mm)= 7.70	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 1.68				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.762

PEAK FLOW (cms)= 1.917 (i)
TIME TO PEAK (hrs)= 14.083
RUNOFF VOLUME (mm)= 29.966
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.329

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0042)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0035):	121.48	1.917	14.08	29.97
	+ ID2= 2 (0041):	2148.96	17.089	23.83	27.84
	ID = 3 (0042):	2270.44	17.319	23.83	27.96

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0043)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT= 94.5 min		(ha)	(cms)	(hrs)	(mm)
	ID= 2 (0042):	2270.44	17.32	23.83	27.96

SHIFT ID= 1 (0043): 2270.44 17.32 25.33 27.96

CALIB NASHYD (0034) ID= 1 DT= 5.0 min	Area (ha)= 244.28 Curve Number (CN)= 64.0 Ia (mm)= 8.10 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 2.19

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 4.260

PEAK FLOW (cms)= 3.211 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 30.559
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.335

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0044) IN= 2---> OUT= 1 SHIFT= 78.3 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0034):	244.28	3.21	14.67	30.56
SHIFT ID= 1 (0044):	244.28	3.21	15.92	30.56

CALIB NASHYD (0036) ID= 1 DT= 5.0 min	Area (ha)= 154.31 Curve Number (CN)= 65.0 Ia (mm)= 8.30 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 2.39

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10

4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.466

PEAK FLOW (cms)= 1.944 (i)
TIME TO PEAK (hrs)= 14.917
RUNOFF VOLUME (mm)= 31.285
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.343

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0046)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT= 18.9 min	ID= 2 (0036):	154.31	1.94	14.92	31.29
	SHIFT ID= 1 (0046):	154.31	1.94	15.17	31.29

CALIB			
NASHYD (0037)	Area (ha)= 144.96	Curve Number (CN)= 60.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.56		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 3.549

PEAK FLOW (cms)= 2.196 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 27.356
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.300

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0045)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0037):	144.96	2.196	13.92	27.36
	+ ID2= 2 (0043):	2270.44	17.319	25.33	27.96
	ID = 3 (0045):	2415.40	17.518	25.25	27.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1	ID1= 3 (0045):	2415.40	17.518	25.25	27.92
	+ ID2= 2 (0044):	244.28	3.211	15.92	30.56
	ID = 1 (0045):	2659.68	18.032	25.25	28.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0045)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
--------------------           (ha)     (cms)     (hrs)      (mm)
        ID1= 1 (  0045):  2659.68  18.032    25.25    28.16
      + ID2= 2 (  0046):   154.31   1.944    15.17    31.29
        ================================================
        ID = 3 (  0045):  2813.99  18.343    25.25    28.33

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0047)|
| IN= 2---> OUT= 1 |
| SHIFT= 73.6 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0045): 2813.99    18.34     25.25     28.33
    SHIFT ID= 1 (  0047): 2813.99    18.34     26.42     28.33

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--------------------
| CALIB            |
| NASHYD   (  0038)|   Area    (ha)= 137.16   Curve Number   (CN)= 68.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.70   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.25

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
 TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
  hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
0.083     0.00 | 6.167     1.62 |12.250    98.65 | 18.33     1.61
0.167     0.00 | 6.250     1.62 |12.333    15.64 | 18.42     1.61
0.250     0.00 | 6.333     1.67 |12.417    15.63 | 18.50     1.61
0.333     0.92 | 6.417     1.67 |12.500    15.63 | 18.58     1.56
0.417     0.92 | 6.500     1.67 |12.583    10.64 | 18.67     1.56
0.500     0.92 | 6.583     1.71 |12.667    10.64 | 18.75     1.56
0.583     0.95 | 6.667     1.71 |12.750    10.64 | 18.83     1.50
0.667     0.95 | 6.750     1.71 |12.833     7.32 | 18.92     1.50
0.750     0.95 | 6.833     1.76 |12.917     7.32 | 19.00     1.50
0.833     0.97 | 6.917     1.76 |13.000     7.32 | 19.08     1.44
0.917     0.97 | 7.000     1.76 |13.083     6.18 | 19.17     1.44
1.000     0.97 | 7.083     1.80 |13.167     6.18 | 19.25     1.44
1.083     0.99 | 7.167     1.80 |13.250     6.18 | 19.33     1.38
1.167     0.99 | 7.250     1.80 |13.333     5.23 | 19.42     1.38
1.250     0.99 | 7.333     1.85 |13.417     5.23 | 19.50     1.38
1.333     1.02 | 7.417     1.85 |13.500     5.23 | 19.58     1.33
1.417     1.02 | 7.500     1.85 |13.583     4.62 | 19.67     1.33
1.500     1.02 | 7.583     1.89 |13.667     4.62 | 19.75     1.33
1.583     1.04 | 7.667     1.89 |13.750     4.62 | 19.83     1.27
1.667     1.04 | 7.750     1.89 |13.833     4.05 | 19.92     1.27
1.750     1.04 | 7.833     1.94 |13.917     4.05 | 20.00     1.27
1.833     1.06 | 7.917     1.94 |14.000     4.05 | 20.08     1.21
1.917     1.06 | 8.000     1.94 |14.083     3.61 | 20.17     1.21
2.000     1.06 | 8.083     1.98 |14.167     3.61 | 20.25     1.21
2.083     1.08 | 8.167     1.98 |14.250     3.61 | 20.33     1.18
2.167     1.08 | 8.250     1.98 |14.333     3.29 | 20.42     1.18
2.250     1.08 | 8.333     2.12 |14.417     3.29 | 20.50     1.18
2.333     1.11 | 8.417     2.12 |14.500     3.29 | 20.58     1.17
2.417     1.11 | 8.500     2.12 |14.583     3.14 | 20.67     1.17
2.500     1.11 | 8.583     2.34 |14.667     3.14 | 20.75     1.17
2.583     1.13 | 8.667     2.34 |14.750     3.14 | 20.83     1.16
2.667     1.13 | 8.750     2.34 |14.833     2.97 | 20.92     1.16
2.750     1.13 | 8.833     2.58 |14.917     2.97 | 21.00     1.16
2.833     1.15 | 8.917     2.58 |15.000     2.97 | 21.08     1.15
2.917     1.15 | 9.000     2.58 |15.083     2.82 | 21.17     1.15
3.000     1.15 | 9.083     2.80 |15.167     2.82 | 21.25     1.15
3.083     1.17 | 9.167     2.80 |15.250     2.82 | 21.33     1.13
3.167     1.17 | 9.250     2.80 |15.333     2.65 | 21.42     1.13
3.250     1.17 | 9.333     2.92 |15.417     2.65 | 21.50     1.13
3.333     1.20 | 9.417     2.92 |15.500     2.65 | 21.58     1.12
3.417     1.20 | 9.500     2.92 |15.583     2.50 | 21.67     1.12
3.500     1.20 | 9.583     2.92 |15.667     2.50 | 21.75     1.12
3.583     1.22 | 9.667     2.92 |15.750     2.50 | 21.83     1.11
3.667     1.22 | 9.750     2.92 |15.833     2.33 | 21.92     1.11
3.750     1.22 | 9.833     3.11 |15.917     2.33 | 22.00     1.11
3.833     1.24 | 9.917     3.11 |16.000     2.33 | 22.08     1.10
3.917     1.24 |10.000     3.11 |16.083     2.18 | 22.17     1.10
4.000     1.24 |10.083     3.46 |16.167     2.18 | 22.25     1.10
4.083     1.26 |10.167     3.46 |16.250     2.18 | 22.33     1.09
4.167     1.26 |10.250     3.46 |16.333     2.07 | 22.42     1.09
4.250     1.26 |10.333     3.93 |16.417     2.07 | 22.50     1.09
4.333     1.30 |10.417     3.93 |16.500     2.07 | 22.58     1.08
4.417     1.30 |10.500     3.93 |16.583     2.01 | 22.67     1.08
4.500     1.30 |10.583     4.46 |16.667     2.01 | 22.75     1.08
4.583     1.34 |10.667     4.46 |16.750     2.01 | 22.83     1.07
4.667     1.34 |10.750     4.46 |16.833     1.95 | 22.92     1.07
4.750     1.34 |10.833     5.22 |16.917     1.95 | 23.00     1.07
4.833     1.39 |10.917     5.22 |17.000     1.95 | 23.08     1.05
4.917     1.39 |11.000     5.22 |17.083     1.90 | 23.17     1.05
5.000     1.39 |11.083     6.09 |17.167     1.90 | 23.25     1.05
5.083     1.44 |11.167     6.09 |17.250     1.90 | 23.33     1.04
5.167     1.44 |11.250     6.09 |17.333     1.84 | 23.42     1.04
5.250     1.44 |11.333     7.70 |17.417     1.84 | 23.50     1.04
5.333     1.48 |11.417     7.70 |17.500     1.84 | 23.58     1.03
5.417     1.48 |11.500     7.70 |17.583     1.79 | 23.67     1.03
5.500     1.48 |11.583     9.81 |17.667     1.79 | 23.75     1.03
5.583     1.53 |11.667     9.81 |17.750     1.79 | 23.83     1.02
5.667     1.53 |11.750     9.81 |17.833     1.73 | 23.92     1.02
5.750     1.53 |11.833    39.97 |17.917     1.73 | 24.00     1.02
5.833     1.57 |11.917    39.97 |18.000     1.73 | 24.08     1.01
5.917     1.57 |12.000    39.97 |18.083     1.67 | 24.17     1.01
6.000     1.57 |12.083    98.64 |18.167     1.67 | 24.25     1.01
6.083     1.62 |12.167    98.65 |18.250     1.67 |

     Unit Hyd Qpeak  (cms)=   4.191

     PEAK FLOW       (cms)=   3.148 (i)
     TIME TO PEAK    (hrs)=  13.500
     RUNOFF VOLUME    (mm)=  34.341
     TOTAL RAINFALL   (mm)=  91.200
     RUNOFF COEFFICIENT   =   0.377

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0048)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
--------------------           (ha)     (cms)     (hrs)      (mm)
        ID1= 1 (  0038):   137.16    3.148    13.50     34.34
      + ID2= 2 (  0047):  2813.99  18.343    26.42     28.33
        ================================================
        ID = 3 (  0048):  2951.15  18.424    26.42     28.61

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| SHIFT HYD(  0049)|
| IN= 2---> OUT= 1 |
| SHIFT= 38.3 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
          ID= 2 (  0048): 2951.15    18.42     26.42     28.61
    SHIFT ID= 1 (  0049): 2951.15    18.42     27.00     28.61

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--------------------
| CALIB            |
| NASHYD   (  0039)|   Area    (ha)=  86.88   Curve Number   (CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   9.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.25

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
 TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
  hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
0.083     0.00 | 6.167     1.62 |12.250    98.65 | 18.33     1.61
0.167     0.00 | 6.250     1.62 |12.333    15.64 | 18.42     1.61
0.250     0.00 | 6.333     1.67 |12.417    15.63 | 18.50     1.61
0.333     0.92 | 6.417     1.67 |12.500    15.63 | 18.58     1.56
0.417     0.92 | 6.500     1.67 |12.583    10.64 | 18.67     1.56
0.500     0.92 | 6.583     1.71 |12.667    10.64 | 18.75     1.56
0.583     0.95 | 6.667     1.71 |12.750    10.64 | 18.83     1.50
0.667     0.95 | 6.750     1.71 |12.833     7.32 | 18.92     1.50
0.750     0.95 | 6.833     1.76 |12.917     7.32 | 19.00     1.50
0.833     0.97 | 6.917     1.76 |13.000     7.32 | 19.08     1.44
0.917     0.97 | 7.000     1.76 |13.083     6.18 | 19.17     1.44
1.000     0.97 | 7.083     1.80 |13.167     6.18 | 19.25     1.44
1.083     0.99 | 7.167     1.80 |13.250     6.18 | 19.33     1.38
1.167     0.99 | 7.250     1.80 |13.333     5.23 | 19.42     1.38
1.250     0.99 | 7.333     1.85 |13.417     5.23 | 19.50     1.38
1.333     1.02 | 7.417     1.85 |13.500     5.23 | 19.58     1.33
1.417     1.02 | 7.500     1.85 |13.583     4.62 | 19.67     1.33
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1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 2.655

PEAK FLOW (cms)= 1.829 (i)
TIME TO PEAK (hrs)= 13.500
RUNOFF VOLUME (mm)= 31.715
TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.348

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0051)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT= 22.1 min	ID= 2 (0039):	86.88	1.83	13.50	31.72
	SHIFT ID= 1 (0051):	86.88	1.83	13.83	31.72

CALIB				
NASHYD (0040)	Area (ha)= 30.96	Curve Number (CN)= 69.0		
ID= 1 DT= 5.0 min	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 0.85			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.62	12.250	98.65	18.33	1.61
0.167	0.00	6.250	1.62	12.333	15.64	18.42	1.61
0.250	0.00	6.333	1.67	12.417	15.63	18.50	1.61
0.333	0.92	6.417	1.67	12.500	15.63	18.58	1.56
0.417	0.92	6.500	1.67	12.583	10.64	18.67	1.56
0.500	0.92	6.583	1.71	12.667	10.64	18.75	1.56
0.583	0.95	6.667	1.71	12.750	10.64	18.83	1.50
0.667	0.95	6.750	1.71	12.833	7.32	18.92	1.50
0.750	0.95	6.833	1.76	12.917	7.32	19.00	1.50
0.833	0.97	6.917	1.76	13.000	7.32	19.08	1.44
0.917	0.97	7.000	1.76	13.083	6.18	19.17	1.44
1.000	0.97	7.083	1.80	13.167	6.18	19.25	1.44
1.083	0.99	7.167	1.80	13.250	6.18	19.33	1.38
1.167	0.99	7.250	1.80	13.333	5.23	19.42	1.38
1.250	0.99	7.333	1.85	13.417	5.23	19.50	1.38
1.333	1.02	7.417	1.85	13.500	5.23	19.58	1.33
1.417	1.02	7.500	1.85	13.583	4.62	19.67	1.33
1.500	1.02	7.583	1.89	13.667	4.62	19.75	1.33
1.583	1.04	7.667	1.89	13.750	4.62	19.83	1.27
1.667	1.04	7.750	1.89	13.833	4.05	19.92	1.27
1.750	1.04	7.833	1.94	13.917	4.05	20.00	1.27
1.833	1.06	7.917	1.94	14.000	4.05	20.08	1.21
1.917	1.06	8.000	1.94	14.083	3.61	20.17	1.21
2.000	1.06	8.083	1.98	14.167	3.61	20.25	1.21
2.083	1.08	8.167	1.98	14.250	3.61	20.33	1.18
2.167	1.08	8.250	1.98	14.333	3.29	20.42	1.18
2.250	1.08	8.333	2.12	14.417	3.29	20.50	1.18
2.333	1.11	8.417	2.12	14.500	3.29	20.58	1.17
2.417	1.11	8.500	2.12	14.583	3.14	20.67	1.17
2.500	1.11	8.583	2.34	14.667	3.14	20.75	1.17
2.583	1.13	8.667	2.34	14.750	3.14	20.83	1.16
2.667	1.13	8.750	2.34	14.833	2.97	20.92	1.16
2.750	1.13	8.833	2.58	14.917	2.97	21.00	1.16
2.833	1.15	8.917	2.58	15.000	2.97	21.08	1.15
2.917	1.15	9.000	2.58	15.083	2.82	21.17	1.15
3.000	1.15	9.083	2.80	15.167	2.82	21.25	1.15
3.083	1.17	9.167	2.80	15.250	2.82	21.33	1.13
3.167	1.17	9.250	2.80	15.333	2.65	21.42	1.13
3.250	1.17	9.333	2.92	15.417	2.65	21.50	1.13
3.333	1.20	9.417	2.92	15.500	2.65	21.58	1.12
3.417	1.20	9.500	2.92	15.583	2.50	21.67	1.12
3.500	1.20	9.583	2.92	15.667	2.50	21.75	1.12
3.583	1.22	9.667	2.92	15.750	2.50	21.83	1.11
3.667	1.22	9.750	2.92	15.833	2.33	21.92	1.11
3.750	1.22	9.833	3.11	15.917	2.33	22.00	1.11
3.833	1.24	9.917	3.11	16.000	2.33	22.08	1.10
3.917	1.24	10.000	3.11	16.083	2.18	22.17	1.10
4.000	1.24	10.083	3.46	16.167	2.18	22.25	1.10
4.083	1.26	10.167	3.46	16.250	2.18	22.33	1.09
4.167	1.26	10.250	3.46	16.333	2.07	22.42	1.09
4.250	1.26	10.333	3.93	16.417	2.07	22.50	1.09
4.333	1.30	10.417	3.93	16.500	2.07	22.58	1.08
4.417	1.30	10.500	3.93	16.583	2.01	22.67	1.08
4.500	1.30	10.583	4.46	16.667	2.01	22.75	1.08
4.583	1.34	10.667	4.46	16.750	2.01	22.83	1.07
4.667	1.34	10.750	4.46	16.833	1.95	22.92	1.07
4.750	1.34	10.833	5.22	16.917	1.95	23.00	1.07
4.833	1.39	10.917	5.22	17.000	1.95	23.08	1.05
4.917	1.39	11.000	5.22	17.083	1.90	23.17	1.05
5.000	1.39	11.083	6.09	17.167	1.90	23.25	1.05
5.083	1.44	11.167	6.09	17.250	1.90	23.33	1.04
5.167	1.44	11.250	6.09	17.333	1.84	23.42	1.04
5.250	1.44	11.333	7.70	17.417	1.84	23.50	1.04
5.333	1.48	11.417	7.70	17.500	1.84	23.58	1.03
5.417	1.48	11.500	7.70	17.583	1.79	23.67	1.03
5.500	1.48	11.583	9.81	17.667	1.79	23.75	1.03
5.583	1.53	11.667	9.81	17.750	1.79	23.83	1.02
5.667	1.53	11.750	9.81	17.833	1.73	23.92	1.02
5.750	1.53	11.833	39.97	17.917	1.73	24.00	1.02
5.833	1.57	11.917	39.97	18.000	1.73	24.08	1.01
5.917	1.57	12.000	39.97	18.083	1.67	24.17	1.01
6.000	1.57	12.083	98.64	18.167	1.67	24.25	1.01
6.083	1.62	12.167	98.65	18.250	1.67		

Unit Hyd Qpeak (cms)= 1.391

PEAK FLOW (cms)= 0.968 (i)
TIME TO PEAK (hrs)= 13.000
RUNOFF VOLUME (mm)= 34.882

TOTAL RAINFALL (mm)= 91.200
RUNOFF COEFFICIENT = 0.382

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0040):	30.96	0.968	13.00	34.88
+ ID2= 2 (0049):	2951.15	18.424	27.00	28.61
ID = 3 (0050):	2982.11	18.427	27.00	28.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0050)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0050):	2982.11	18.427	27.00	28.68
+ ID2= 2 (0051):	86.88	1.829	13.83	31.72
ID = 1 (0050):	3068.99	18.465	27.00	28.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\vO2\voin.dat
Output filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\b524f7d4-8f9f
Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\b524f7d4-8f9f

DATE: 09/27/2024 TIME: 03:10:38

USER:

COMMENTS: _____

** SIMULATION : 25yr 24hr 15min SCS Type II **

READ STORM	Filename: C:\Users\jkoen\AppData\Local\Temp\249eaddd-ded7-4376-a422-9988b688ab1b\7aecba5b
Ptotal=108.00 mm	Comments: 25yr 24hr 15min SCS Type II

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	1.97	12.50	12.60	18.75	1.77
0.25	1.10	6.50	2.02	12.75	8.67	19.00	1.71
0.50	1.12	6.75	2.08	13.00	7.32	19.25	1.64
0.75	1.15	7.00	2.13	13.25	6.19	19.50	1.57
1.00	1.17	7.25	2.19	13.50	5.47	19.75	1.50
1.25	1.20	7.50	2.24	13.75	4.80	20.00	1.44
1.50	1.23	7.75	2.30	14.00	4.28	20.25	1.40
1.75	1.25	8.00	2.35	14.25	3.90	20.50	1.38
2.00	1.28	8.25	2.52	14.50	3.72	20.75	1.37
2.25	1.31	8.50	2.78	14.75	3.52	21.00	1.36
2.50	1.34	8.75	3.06	15.00	3.34	21.25	1.34
2.75	1.36	9.00	3.32	15.25	3.14	21.50	1.33
3.00	1.39	9.25	3.46	15.50	2.96	21.75	1.32
3.25	1.42	9.50	3.46	15.75	2.76	22.00	1.30
3.50	1.45	9.75	3.68	16.00	2.58	22.25	1.29
3.75	1.47	10.00	4.10	16.25	2.45	22.50	1.28
4.00	1.50	10.25	4.66	16.50	2.38	22.75	1.26
4.25	1.54	10.50	5.28	16.75	2.31	23.00	1.25
4.50	1.59	10.75	6.18	17.00	2.25	23.25	1.24
4.75	1.65	11.00	7.21	17.25	2.18	23.50	1.22
5.00	1.70	11.25	9.12	17.50	2.11	23.75	1.21
5.25	1.76	11.50	11.61	17.75	2.04	24.00	1.19
5.50	1.81	11.75	47.34	18.00	1.98		
5.75	1.86	12.00	116.82	18.25	1.91		
6.00	1.92	12.25	18.51	18.50	1.84		

CALIB			
NASHYD (0001)	Area (ha)= 153.20	Curve Number (CN)= 56.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.86		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29

4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 3.146

PEAK FLOW (cms)= 2.490 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 33.492
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.310

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0015)				
IN= 2---> OUT= 1				
SHIFT=114.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0001):	153.20	2.49	14.25	33.49
SHIFT ID= 1 (0015):	153.20	2.49	16.08	33.49

CALIB			
NASHYD (0002)	Area (ha)= 230.56	Curve Number (CN)= 51.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.79		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 4.920

PEAK FLOW (cms)= 3.324 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 29.116
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.270

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0016)				
IN= 2---> OUT= 1				
SHIFT= 92.3 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0002):	230.56	3.32	14.17	29.12
SHIFT ID= 1 (0016):	230.56	3.32	15.67	29.12

CALIB			
NASHYD (0005)	Area (ha)= 199.08	Curve Number (CN)= 57.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.99		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84

0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 3.821

PEAK FLOW (cms)= 3.139 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 34.178
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.316

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0018)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0016):		230.56	3.324	15.67	29.12
+ ID2= 2 (0005):		199.08	3.139	14.42	34.18
ID = 3 (0018):		429.64	6.067	15.33	31.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0022)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=132.2 min	ID= 2 (0018):	429.64	6.07	15.33	31.46
	SHIFT ID= 1 (0022):	429.64	6.07	17.50	31.46

CALIB					
NASHYD (0003)	Area	(ha)= 51.28	Curve Number	(CN)= 66.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.00	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.19				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26

4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 1.646

PEAK FLOW (cms)= 1.573 (i)
TIME TO PEAK (hrs)= 13.417
RUNOFF VOLUME (mm)= 43.999
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.407

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0017)
IN= 2---> OUT= 1
SHIFT= 38.7 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0003):	51.28	1.57	13.42	44.00
SHIFT ID= 1 (0017):	51.28	1.57	14.00	44.00

CALIB
NASHYD (0004)
ID= 1 DT= 5.0 min

Area (ha)= 271.60 Curve Number (CN)= 64.0
Ia (mm)= 7.40 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.55

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 6.693

PEAK FLOW (cms)= 6.402 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 41.566
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.385

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0019)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0017):	51.28	1.573	14.00	44.00
+ ID2= 2 (0004):	271.60	6.402	13.83	41.57
ID = 3 (0019):	322.88	7.965	13.92	41.95

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0021)
IN= 2---> OUT= 1
SHIFT= 58.8 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0019):	322.88	7.96	13.92	41.95
SHIFT ID= 1 (0021):	322.88	7.96	14.83	41.95

CALIB
NASHYD (0006)
ID= 1 DT= 5.0 min

Area (ha)= 300.52 Curve Number (CN)= 67.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.97

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr

0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 5.827

PEAK FLOW (cms)= 6.344 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 44.493
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.412

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0020)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0015):	153.20	2.490	16.08	33.49
	+ ID2= 2 (0021):	322.88	7.965	14.83	41.95
	ID = 3 (0020):	476.08	9.716	15.17	39.23

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0020):	476.08	9.716	15.17	39.23
	+ ID2= 2 (0022):	429.64	6.067	17.50	31.46
	ID = 1 (0020):	905.72	12.245	16.50	35.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0020):	905.72	12.245	16.50	35.55
	+ ID2= 2 (0006):	300.52	6.344	14.33	44.49
	ID = 3 (0020):	1206.24	17.542	15.33	37.77

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0023)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT=128.8 min		(ha)	(cms)	(hrs)	(mm)
	ID= 2 (0020):	1206.24	17.54	15.33	37.77
	SHIFT ID= 1 (0023):	1206.24	17.54	17.42	37.77

CALIB			
NASHYD (0007)	Area (ha)= 128.72	Curve Number (CN)= 62.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.98		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40

2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 2.483

PEAK FLOW (cms)= 2.358 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 39.175
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.363

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0024)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0023):	1206.24	17.542	17.42	37.77
+ ID2= 2 (0007):	128.72	2.358	14.42	39.17
ID = 3 (0024):	1334.96	18.735	17.33	37.91

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0025)				
IN= 2---> OUT= 1				
SHIFT=155.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0024):	1334.96	18.74	17.33	37.91
SHIFT ID= 1 (0025):	1334.96	18.74	19.92	37.91

CALIB				
NASHYD (0008)	Area	(ha)= 109.00	Curve Number	(CN)= 55.0
ID= 1 DT= 5.0 min	Ia	(mm)= 7.80	# of Linear Res.(N)= 3.00	

U.H. Tp(hrs)= 1.78

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 2.339

PEAK FLOW (cms)= 1.780 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 32.596
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.302

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT= 95.6 min	ID= 2 (0008):	109.00	1.78	14.17	32.60
	SHIFT ID= 1 (0026):	109.00	1.78	15.75	32.60

CALIB				
NASHYD (0009)	Area (ha)= 110.92	Curve Number (CN)= 55.0		
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.89			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 2.242

PEAK FLOW (cms)= 1.727 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 32.541
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.301

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT=116.6 min	ID= 2 (0009):	110.92	1.73	14.33	32.54
	SHIFT ID= 1 (0029):	110.92	1.73	16.25	32.54

CALIB				
NASHYD (0010)	Area (ha)= 86.84	Curve Number (CN)= 55.0		
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.84			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37

2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 1.803

PEAK FLOW (cms)= 1.373 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 32.378
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.300

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0028)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 98.7 min	ID= 2 (0010):	86.84	1.37	14.25	32.38
	SHIFT ID= 1 (0028):	86.84	1.37	15.83	32.38

CALIB					
NASHYD (0011)	Area (ha)=	25.76	Curve Number (CN)=	67.0	
ID= 1 DT= 5.0 min	Ia (mm)=	7.10	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.07			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 0.920

PEAK FLOW (cms)= 0.879 (i)
TIME TO PEAK (hrs)= 13.250
RUNOFF VOLUME (mm)= 45.047
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.417

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 76.1 min	ID= 2 (0011):	25.76	0.88	13.25	45.05
	SHIFT ID= 1 (0027):	25.76	0.88	14.50	45.05

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| CALIB            |
| NASHYD   (  0012)|   Area    (ha)= 229.28   Curve Number   (CN)= 60.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.19

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

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     Unit Hyd Qpeak  (cms)=   3.999

     PEAK FLOW       (cms)=   3.675 (i)
     TIME TO PEAK    (hrs)=  14.667
     RUNOFF VOLUME    (mm)=  37.189
     TOTAL RAINFALL   (mm)= 108.000
     RUNOFF COEFFICIENT   =   0.344

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| NASHYD   (  0013)|   Area    (ha)= 118.16   Curve Number   (CN)= 69.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.80   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.14

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25

5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 2.109

PEAK FLOW (cms)= 2.474 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 46.847
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.434

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0031)				
IN= 2---> OUT= 1				
SHIFT= 56.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0013):	118.16	2.47	14.58	46.85
SHIFT ID= 1 (0031):	118.16	2.47	15.50	46.85

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	229.28	3.675	14.67	37.19
+ ID2= 2 (0025):	1334.96	18.735	19.92	37.91
ID = 3 (0030):	1564.24	19.867	19.83	37.80

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1564.24	19.867	19.83	37.80
+ ID2= 2 (0026):	109.00	1.780	15.75	32.60
ID = 1 (0030):	1673.24	20.445	19.83	37.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1673.24	20.445	19.83	37.46
+ ID2= 2 (0027):	25.76	0.879	14.50	45.05
ID = 3 (0030):	1699.00	20.557	19.83	37.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1699.00	20.557	19.83	37.58
+ ID2= 2 (0028):	86.84	1.373	15.83	32.38
ID = 1 (0030):	1785.84	21.033	19.83	37.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1785.84	21.033	19.83	37.33
+ ID2= 2 (0029):	110.92	1.727	16.25	32.54
ID = 3 (0030):	1896.76	21.738	19.75	37.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1896.76	21.738	19.75	37.05
+ ID2= 2 (0031):	118.16	2.474	15.50	46.85
ID = 1 (0030):	2014.92	22.647	19.75	37.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0032)				
IN= 2---> OUT= 1				
SHIFT=124.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0030):	2014.92	22.65	19.75	37.62
SHIFT ID= 1 (0032):	2014.92	22.65	21.75	37.62

CALIB			
NASHYD (0014)	Area (ha)= 134.04	Curve Number (CN)= 60.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.60	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.09		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33

3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 2.450

PEAK FLOW (cms)= 2.239 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 37.371
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.346

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0033)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0014):	134.04	2.239	14.50	37.37
+ ID2= 2 (0032):	2014.92	22.647	21.75	37.62
ID = 3 (0033):	2148.96	23.085	21.67	37.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0041)				
IN= 2---> OUT= 1				
SHIFT=126.1 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0033):	2148.96	23.08	21.67	37.61
SHIFT ID= 1 (0041):	2148.96	23.08	23.75	37.61

CALIB				
NASHYD (0035)	Area (ha)= 121.48	Curve Number (CN)= 63.0		
ID= 1 DT= 5.0 min	Ia (mm)= 7.70	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.68			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 2.762

PEAK FLOW (cms)= 2.606 (i)
TIME TO PEAK (hrs)= 14.000
RUNOFF VOLUME (mm)= 40.325
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.373

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0042)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

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      ID1= 1 (  0035):   121.48   2.606    14.00    40.33
    + ID2= 2 (  0041):  2148.96  23.085    23.75    37.61
      ==========================================================
      ID = 3 (  0042):  2270.44  23.385    23.75    37.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| SHIFT HYD(  0043)|
| IN= 2---> OUT= 1 |
| SHIFT= 94.5 min  |      AREA     QPEAK     TPEAK      R.V.
-------------------      (ha)     (cms)     (hrs)      (mm)
        ID= 2 (  0042): 2270.44    23.38     23.75     37.75
    SHIFT ID= 1 (  0043): 2270.44    23.38     25.25     37.75

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| CALIB              |
| NASHYD   (  0034)|   Area    (ha)= 244.28   Curve Number   (CN)= 64.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.10   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.19

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.92 |12.250  116.82 | 18.33    1.91
 0.167    0.00 | 6.250    1.92 |12.333   18.52 | 18.42    1.91
 0.250    0.00 | 6.333    1.97 |12.417   18.51 | 18.50    1.91
 0.333    1.10 | 6.417    1.97 |12.500   18.51 | 18.58    1.84
 0.417    1.10 | 6.500    1.97 |12.583   12.60 | 18.67    1.84
 0.500    1.10 | 6.583    2.02 |12.667   12.60 | 18.75    1.84
 0.583    1.12 | 6.667    2.02 |12.750   12.60 | 18.83    1.77
 0.667    1.12 | 6.750    2.02 |12.833    8.67 | 18.92    1.77
 0.750    1.12 | 6.833    2.08 |12.917    8.67 | 19.00    1.77
 0.833    1.15 | 6.917    2.08 |13.000    8.67 | 19.08    1.71
 0.917    1.15 | 7.000    2.08 |13.083    7.32 | 19.17    1.71
 1.000    1.15 | 7.083    2.13 |13.167    7.32 | 19.25    1.71
 1.083    1.17 | 7.167    2.13 |13.250    7.32 | 19.33    1.64
 1.167    1.17 | 7.250    2.13 |13.333    6.20 | 19.42    1.64
 1.250    1.17 | 7.333    2.19 |13.417    6.19 | 19.50    1.64
 1.333    1.20 | 7.417    2.19 |13.500    6.19 | 19.58    1.57
 1.417    1.20 | 7.500    2.19 |13.583    5.47 | 19.67    1.57
 1.500    1.20 | 7.583    2.24 |13.667    5.47 | 19.75    1.57
 1.583    1.23 | 7.667    2.24 |13.750    5.47 | 19.83    1.50
 1.667    1.23 | 7.750    2.24 |13.833    4.80 | 19.92    1.50
 1.750    1.23 | 7.833    2.30 |13.917    4.80 | 20.00    1.50
 1.833    1.25 | 7.917    2.30 |14.000    4.80 | 20.08    1.44
 1.917    1.25 | 8.000    2.30 |14.083    4.28 | 20.17    1.44
 2.000    1.25 | 8.083    2.35 |14.167    4.28 | 20.25    1.44
 2.083    1.28 | 8.167    2.35 |14.250    4.28 | 20.33    1.40
 2.167    1.28 | 8.250    2.35 |14.333    3.90 | 20.42    1.40
 2.250    1.28 | 8.333    2.52 |14.417    3.90 | 20.50    1.40
 2.333    1.31 | 8.417    2.52 |14.500    3.90 | 20.58    1.38
 2.417    1.31 | 8.500    2.52 |14.583    3.72 | 20.67    1.38
 2.500    1.31 | 8.583    2.78 |14.667    3.72 | 20.75    1.38
 2.583    1.34 | 8.667    2.78 |14.750    3.72 | 20.83    1.37
 2.667    1.34 | 8.750    2.78 |14.833    3.52 | 20.92    1.37
 2.750    1.34 | 8.833    3.06 |14.917    3.52 | 21.00    1.37
 2.833    1.36 | 8.917    3.06 |15.000    3.52 | 21.08    1.36
 2.917    1.36 | 9.000    3.06 |15.083    3.34 | 21.17    1.36
 3.000    1.36 | 9.083    3.32 |15.167    3.34 | 21.25    1.36
 3.083    1.39 | 9.167    3.32 |15.250    3.34 | 21.33    1.34
 3.167    1.39 | 9.250    3.32 |15.333    3.14 | 21.42    1.34
 3.250    1.39 | 9.333    3.46 |15.417    3.14 | 21.50    1.34
 3.333    1.42 | 9.417    3.46 |15.500    3.14 | 21.58    1.33
 3.417    1.42 | 9.500    3.46 |15.583    2.96 | 21.67    1.33
 3.500    1.42 | 9.583    3.46 |15.667    2.96 | 21.75    1.33
 3.583    1.45 | 9.667    3.46 |15.750    2.96 | 21.83    1.32
 3.667    1.45 | 9.750    3.46 |15.833    2.76 | 21.92    1.32
 3.750    1.45 | 9.833    3.68 |15.917    2.76 | 22.00    1.32
 3.833    1.47 | 9.917    3.68 |16.000    2.76 | 22.08    1.30
 3.917    1.47 |10.000    3.68 |16.083    2.58 | 22.17    1.30
 4.000    1.47 |10.083    4.10 |16.167    2.58 | 22.25    1.30
 4.083    1.50 |10.167    4.10 |16.250    2.58 | 22.33    1.29
 4.167    1.50 |10.250    4.10 |16.333    2.45 | 22.42    1.29
 4.250    1.50 |10.333    4.66 |16.417    2.45 | 22.50    1.29
 4.333    1.54 |10.417    4.66 |16.500    2.45 | 22.58    1.28
 4.417    1.54 |10.500    4.66 |16.583    2.38 | 22.67    1.28
 4.500    1.54 |10.583    5.28 |16.667    2.38 | 22.75    1.28
 4.583    1.59 |10.667    5.28 |16.750    2.38 | 22.83    1.26
 4.667    1.59 |10.750    5.28 |16.833    2.31 | 22.92    1.26
 4.750    1.59 |10.833    6.18 |16.917    2.31 | 23.00    1.26
 4.833    1.65 |10.917    6.18 |17.000    2.31 | 23.08    1.25
 4.917    1.65 |11.000    6.18 |17.083    2.25 | 23.17    1.25
 5.000    1.65 |11.083    7.21 |17.167    2.25 | 23.25    1.25
 5.083    1.70 |11.167    7.21 |17.250    2.25 | 23.33    1.24
 5.167    1.70 |11.250    7.21 |17.333    2.18 | 23.42    1.24
 5.250    1.70 |11.333    9.12 |17.417    2.18 | 23.50    1.24
 5.333    1.76 |11.417    9.12 |17.500    2.18 | 23.58    1.22
 5.417    1.76 |11.500    9.12 |17.583    2.11 | 23.67    1.22
 5.500    1.76 |11.583   11.61 |17.667    2.11 | 23.75    1.22
 5.583    1.81 |11.667   11.61 |17.750    2.11 | 23.83    1.21
 5.667    1.81 |11.750   11.61 |17.833    2.04 | 23.92    1.21
 5.750    1.81 |11.833   47.33 |17.917    2.04 | 24.00    1.21
 5.833    1.86 |11.917   47.34 |18.000    2.04 | 24.08    1.19
 5.917    1.86 |12.000   47.34 |18.083    1.98 | 24.17    1.19
 6.000    1.86 |12.083  116.82 |18.167    1.98 | 24.25    1.19
 6.083    1.92 |12.167  116.82 |18.250    1.98 |

     Unit Hyd Qpeak  (cms)=   4.260

     PEAK FLOW       (cms)=   4.361 (i)
     TIME TO PEAK    (hrs)=  14.667
     RUNOFF VOLUME    (mm)=  41.108
     TOTAL RAINFALL   (mm)= 108.000
     RUNOFF COEFFICIENT   =   0.381

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| SHIFT HYD(  0044)|
| IN= 2---> OUT= 1 |
| SHIFT= 78.3 min  |      AREA     QPEAK     TPEAK      R.V.
-------------------      (ha)     (cms)     (hrs)      (mm)
        ID= 2 (  0034):  244.28     4.36     14.67     41.11
    SHIFT ID= 1 (  0044):  244.28     4.36     15.92     41.11

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| CALIB              |
| NASHYD   (  0036)|   Area    (ha)= 154.31   Curve Number   (CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.30   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.39

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.92 |12.250  116.82 | 18.33    1.91
 0.167    0.00 | 6.250    1.92 |12.333   18.52 | 18.42    1.91
 0.250    0.00 | 6.333    1.97 |12.417   18.51 | 18.50    1.91
 0.333    1.10 | 6.417    1.97 |12.500   18.51 | 18.58    1.84
 0.417    1.10 | 6.500    1.97 |12.583   12.60 | 18.67    1.84
 0.500    1.10 | 6.583    2.02 |12.667   12.60 | 18.75    1.84
 0.583    1.12 | 6.667    2.02 |12.750   12.60 | 18.83    1.77
 0.667    1.12 | 6.750    2.02 |12.833    8.67 | 18.92    1.77
 0.750    1.12 | 6.833    2.08 |12.917    8.67 | 19.00    1.77
 0.833    1.15 | 6.917    2.08 |13.000    8.67 | 19.08    1.71
 0.917    1.15 | 7.000    2.08 |13.083    7.32 | 19.17    1.71
 1.000    1.15 | 7.083    2.13 |13.167    7.32 | 19.25    1.71
 1.083    1.17 | 7.167    2.13 |13.250    7.32 | 19.33    1.64
 1.167    1.17 | 7.250    2.13 |13.333    6.20 | 19.42    1.64
 1.250    1.17 | 7.333    2.19 |13.417    6.19 | 19.50    1.64
 1.333    1.20 | 7.417    2.19 |13.500    6.19 | 19.58    1.57
 1.417    1.20 | 7.500    2.19 |13.583    5.47 | 19.67    1.57
 1.500    1.20 | 7.583    2.24 |13.667    5.47 | 19.75    1.57
 1.583    1.23 | 7.667    2.24 |13.750    5.47 | 19.83    1.50
 1.667    1.23 | 7.750    2.24 |13.833    4.80 | 19.92    1.50
 1.750    1.23 | 7.833    2.30 |13.917    4.80 | 20.00    1.50
 1.833    1.25 | 7.917    2.30 |14.000    4.80 | 20.08    1.44
 1.917    1.25 | 8.000    2.30 |14.083    4.28 | 20.17    1.44
 2.000    1.25 | 8.083    2.35 |14.167    4.28 | 20.25    1.44
 2.083    1.28 | 8.167    2.35 |14.250    4.28 | 20.33    1.40
 2.167    1.28 | 8.250    2.35 |14.333    3.90 | 20.42    1.40
 2.250    1.28 | 8.333    2.52 |14.417    3.90 | 20.50    1.40
 2.333    1.31 | 8.417    2.52 |14.500    3.90 | 20.58    1.38
 2.417    1.31 | 8.500    2.52 |14.583    3.72 | 20.67    1.38
 2.500    1.31 | 8.583    2.78 |14.667    3.72 | 20.75    1.38
 2.583    1.34 | 8.667    2.78 |14.750    3.72 | 20.83    1.37
 2.667    1.34 | 8.750    2.78 |14.833    3.52 | 20.92    1.37
 2.750    1.34 | 8.833    3.06 |14.917    3.52 | 21.00    1.37
 2.833    1.36 | 8.917    3.06 |15.000    3.52 | 21.08    1.36
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2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 2.466

PEAK FLOW (cms)= 2.637 (i)
TIME TO PEAK (hrs)= 14.917
RUNOFF VOLUME (mm)= 42.035
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.389

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0046)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 18.9 min	ID= 2 (0036):	154.31	2.64	14.92	42.04
	SHIFT ID= 1 (0046):	154.31	2.64	15.17	42.04

CALIB					
NASHYD (0037)	Area	(ha)= 144.96	Curve Number	(CN)= 60.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.10	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.56				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 3.549

PEAK FLOW (cms)= 3.005 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 37.068
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.343

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0045)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0037):	144.96	3.005	13.92	37.07
	+ ID2= 2 (0043):	2270.44	23.385	25.25	37.75
	ID = 3 (0045):	2415.40	23.647	25.25	37.71

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
--------------------
| ADD HYD  (  0045)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0045):  2415.40  23.647    25.25    37.71
     + ID2= 2 (  0044):   244.28   4.361    15.92    41.11
       ================================================
       ID = 1 (  0045):  2659.68  24.314    25.25    38.02

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------
| ADD HYD  (  0045)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0045):  2659.68  24.314    25.25    38.02
     + ID2= 2 (  0046):   154.31   2.637    15.17    42.04
       ================================================
       ID = 3 (  0045):  2813.99  24.715    25.25    38.24

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------
| SHIFT HYD(  0047)|
| IN= 2---> OUT= 1 |
| SHIFT= 73.6 min  |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
        ID= 2 (  0045): 2813.99    24.71     25.25     38.24
    SHIFT ID= 1 (  0047): 2813.99    24.71     26.42     38.24
--------------------
| CALIB            |
| NASHYD   (  0038)|   Area    (ha)= 137.16   Curve Number   (CN)= 68.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.70   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.25

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.92 |12.250  116.82 | 18.33    1.91
 0.167    0.00 | 6.250    1.92 |12.333   18.52 | 18.42    1.91
 0.250    0.00 | 6.333    1.97 |12.417   18.51 | 18.50    1.91
 0.333    1.10 | 6.417    1.97 |12.500   18.51 | 18.58    1.84
 0.417    1.10 | 6.500    1.97 |12.583   12.60 | 18.67    1.84
 0.500    1.10 | 6.583    2.02 |12.667   12.60 | 18.75    1.84
 0.583    1.12 | 6.667    2.02 |12.750   12.60 | 18.83    1.77
 0.667    1.12 | 6.750    2.02 |12.833    8.67 | 18.92    1.77
 0.750    1.12 | 6.833    2.08 |12.917    8.67 | 19.00    1.77
 0.833    1.15 | 6.917    2.08 |13.000    8.67 | 19.08    1.71
 0.917    1.15 | 7.000    2.08 |13.083    7.32 | 19.17    1.71
 1.000    1.15 | 7.083    2.13 |13.167    7.32 | 19.25    1.71
 1.083    1.17 | 7.167    2.13 |13.250    7.32 | 19.33    1.64
 1.167    1.17 | 7.250    2.13 |13.333    6.20 | 19.42    1.64
 1.250    1.17 | 7.333    2.19 |13.417    6.19 | 19.50    1.64
 1.333    1.20 | 7.417    2.19 |13.500    6.19 | 19.58    1.57
 1.417    1.20 | 7.500    2.19 |13.583    5.47 | 19.67    1.57
 1.500    1.20 | 7.583    2.24 |13.667    5.47 | 19.75    1.57
 1.583    1.23 | 7.667    2.24 |13.750    5.47 | 19.83    1.50
 1.667    1.23 | 7.750    2.24 |13.833    4.80 | 19.92    1.50
 1.750    1.23 | 7.833    2.30 |13.917    4.80 | 20.00    1.50
 1.833    1.25 | 7.917    2.30 |14.000    4.80 | 20.08    1.44
 1.917    1.25 | 8.000    2.30 |14.083    4.28 | 20.17    1.44
 2.000    1.25 | 8.083    2.35 |14.167    4.28 | 20.25    1.44
 2.083    1.28 | 8.167    2.35 |14.250    4.28 | 20.33    1.40
 2.167    1.28 | 8.250    2.35 |14.333    3.90 | 20.42    1.40
 2.250    1.28 | 8.333    2.52 |14.417    3.90 | 20.50    1.40
 2.333    1.31 | 8.417    2.52 |14.500    3.90 | 20.58    1.38
 2.417    1.31 | 8.500    2.52 |14.583    3.72 | 20.67    1.38
 2.500    1.31 | 8.583    2.78 |14.667    3.72 | 20.75    1.38
 2.583    1.34 | 8.667    2.78 |14.750    3.72 | 20.83    1.37
 2.667    1.34 | 8.750    2.78 |14.833    3.52 | 20.92    1.37
 2.750    1.34 | 8.833    3.06 |14.917    3.52 | 21.00    1.37
 2.833    1.36 | 8.917    3.06 |15.000    3.52 | 21.08    1.36
 2.917    1.36 | 9.000    3.06 |15.083    3.34 | 21.17    1.36
 3.000    1.36 | 9.083    3.32 |15.167    3.34 | 21.25    1.36
 3.083    1.39 | 9.167    3.32 |15.250    3.34 | 21.33    1.34
 3.167    1.39 | 9.250    3.32 |15.333    3.14 | 21.42    1.34
 3.250    1.39 | 9.333    3.46 |15.417    3.14 | 21.50    1.34
 3.333    1.42 | 9.417    3.46 |15.500    3.14 | 21.58    1.33
 3.417    1.42 | 9.500    3.46 |15.583    2.96 | 21.67    1.33
 3.500    1.42 | 9.583    3.46 |15.667    2.96 | 21.75    1.33
 3.583    1.45 | 9.667    3.46 |15.750    2.96 | 21.83    1.32
 3.667    1.45 | 9.750    3.46 |15.833    2.76 | 21.92    1.32
 3.750    1.45 | 9.833    3.68 |15.917    2.76 | 22.00    1.32
 3.833    1.47 | 9.917    3.68 |16.000    2.76 | 22.08    1.30
 3.917    1.47 |10.000    3.68 |16.083    2.58 | 22.17    1.30
 4.000    1.47 |10.083    4.10 |16.167    2.58 | 22.25    1.30
 4.083    1.50 |10.167    4.10 |16.250    2.58 | 22.33    1.29
 4.167    1.50 |10.250    4.10 |16.333    2.45 | 22.42    1.29
 4.250    1.50 |10.333    4.66 |16.417    2.45 | 22.50    1.29
 4.333    1.54 |10.417    4.66 |16.500    2.45 | 22.58    1.28
 4.417    1.54 |10.500    4.66 |16.583    2.38 | 22.67    1.28
 4.500    1.54 |10.583    5.28 |16.667    2.38 | 22.75    1.28
 4.583    1.59 |10.667    5.28 |16.750    2.38 | 22.83    1.26
 4.667    1.59 |10.750    5.28 |16.833    2.31 | 22.92    1.26
 4.750    1.59 |10.833    6.18 |16.917    2.31 | 23.00    1.26
 4.833    1.65 |10.917    6.18 |17.000    2.31 | 23.08    1.25
 4.917    1.65 |11.000    6.18 |17.083    2.25 | 23.17    1.25
 5.000    1.65 |11.083    7.21 |17.167    2.25 | 23.25    1.25
 5.083    1.70 |11.167    7.21 |17.250    2.25 | 23.33    1.24
 5.167    1.70 |11.250    7.21 |17.333    2.18 | 23.42    1.24
 5.250    1.70 |11.333    9.12 |17.417    2.18 | 23.50    1.24
 5.333    1.76 |11.417    9.12 |17.500    2.18 | 23.58    1.22
 5.417    1.76 |11.500    9.12 |17.583    2.11 | 23.67    1.22
 5.500    1.76 |11.583   11.61 |17.667    2.11 | 23.75    1.22
 5.583    1.81 |11.667   11.61 |17.750    2.11 | 23.83    1.21
 5.667    1.81 |11.750   11.61 |17.833    2.04 | 23.92    1.21
 5.750    1.81 |11.833   47.33 |17.917    2.04 | 24.00    1.21
 5.833    1.86 |11.917   47.34 |18.000    2.04 | 24.08    1.19
 5.917    1.86 |12.000   47.34 |18.083    1.98 | 24.17    1.19
 6.000    1.86 |12.083  116.82 |18.167    1.98 | 24.25    1.19
 6.083    1.92 |12.167  116.82 |18.250    1.98 |

     Unit Hyd Qpeak  (cms)=   4.191

     PEAK FLOW       (cms)=   4.237 (i)
     TIME TO PEAK    (hrs)=  13.500
     RUNOFF VOLUME    (mm)=  45.763
     TOTAL RAINFALL   (mm)= 108.000
     RUNOFF COEFFICIENT   =   0.424

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
--------------------
| ADD HYD  (  0048)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0038):   137.16   4.237    13.50    45.76
     + ID2= 2 (  0047):  2813.99  24.715    26.42    38.24
       ================================================
       ID = 3 (  0048):  2951.15  24.819    26.42    38.59

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------
| SHIFT HYD(  0049)|
| IN= 2---> OUT= 1 |
| SHIFT= 38.3 min  |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
        ID= 2 (  0048): 2951.15    24.82     26.42     38.59
    SHIFT ID= 1 (  0049): 2951.15    24.82     27.00     38.59
--------------------
| CALIB            |
| NASHYD   (  0039)|   Area    (ha)=  86.88   Curve Number   (CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   9.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.25

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.92 |12.250  116.82 | 18.33    1.91
 0.167    0.00 | 6.250    1.92 |12.333   18.52 | 18.42    1.91
 0.250    0.00 | 6.333    1.97 |12.417   18.51 | 18.50    1.91
 0.333    1.10 | 6.417    1.97 |12.500   18.51 | 18.58    1.84
```

0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22
5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 2.655

PEAK FLOW (cms)= 2.487 (i)
TIME TO PEAK (hrs)= 13.500
RUNOFF VOLUME (mm)= 42.641
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.395

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0051)
IN= 2---> OUT= 1

SHIFT= 22.1 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0039):	86.88	2.49	13.50	42.64
SHIFT ID= 1 (0051):	86.88	2.49	13.83	42.64

CALIB				
NASHYD (0040)	Area (ha)= 30.96	Curve Number (CN)= 69.0		
ID= 1 DT= 5.0 min	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 0.85			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.92	12.250	116.82	18.33	1.91
0.167	0.00	6.250	1.92	12.333	18.52	18.42	1.91
0.250	0.00	6.333	1.97	12.417	18.51	18.50	1.91
0.333	1.10	6.417	1.97	12.500	18.51	18.58	1.84
0.417	1.10	6.500	1.97	12.583	12.60	18.67	1.84
0.500	1.10	6.583	2.02	12.667	12.60	18.75	1.84
0.583	1.12	6.667	2.02	12.750	12.60	18.83	1.77
0.667	1.12	6.750	2.02	12.833	8.67	18.92	1.77
0.750	1.12	6.833	2.08	12.917	8.67	19.00	1.77
0.833	1.15	6.917	2.08	13.000	8.67	19.08	1.71
0.917	1.15	7.000	2.08	13.083	7.32	19.17	1.71
1.000	1.15	7.083	2.13	13.167	7.32	19.25	1.71
1.083	1.17	7.167	2.13	13.250	7.32	19.33	1.64
1.167	1.17	7.250	2.13	13.333	6.20	19.42	1.64
1.250	1.17	7.333	2.19	13.417	6.19	19.50	1.64
1.333	1.20	7.417	2.19	13.500	6.19	19.58	1.57
1.417	1.20	7.500	2.19	13.583	5.47	19.67	1.57
1.500	1.20	7.583	2.24	13.667	5.47	19.75	1.57
1.583	1.23	7.667	2.24	13.750	5.47	19.83	1.50
1.667	1.23	7.750	2.24	13.833	4.80	19.92	1.50
1.750	1.23	7.833	2.30	13.917	4.80	20.00	1.50
1.833	1.25	7.917	2.30	14.000	4.80	20.08	1.44
1.917	1.25	8.000	2.30	14.083	4.28	20.17	1.44
2.000	1.25	8.083	2.35	14.167	4.28	20.25	1.44
2.083	1.28	8.167	2.35	14.250	4.28	20.33	1.40
2.167	1.28	8.250	2.35	14.333	3.90	20.42	1.40
2.250	1.28	8.333	2.52	14.417	3.90	20.50	1.40
2.333	1.31	8.417	2.52	14.500	3.90	20.58	1.38
2.417	1.31	8.500	2.52	14.583	3.72	20.67	1.38
2.500	1.31	8.583	2.78	14.667	3.72	20.75	1.38
2.583	1.34	8.667	2.78	14.750	3.72	20.83	1.37
2.667	1.34	8.750	2.78	14.833	3.52	20.92	1.37
2.750	1.34	8.833	3.06	14.917	3.52	21.00	1.37
2.833	1.36	8.917	3.06	15.000	3.52	21.08	1.36
2.917	1.36	9.000	3.06	15.083	3.34	21.17	1.36
3.000	1.36	9.083	3.32	15.167	3.34	21.25	1.36
3.083	1.39	9.167	3.32	15.250	3.34	21.33	1.34
3.167	1.39	9.250	3.32	15.333	3.14	21.42	1.34
3.250	1.39	9.333	3.46	15.417	3.14	21.50	1.34
3.333	1.42	9.417	3.46	15.500	3.14	21.58	1.33
3.417	1.42	9.500	3.46	15.583	2.96	21.67	1.33
3.500	1.42	9.583	3.46	15.667	2.96	21.75	1.33
3.583	1.45	9.667	3.46	15.750	2.96	21.83	1.32
3.667	1.45	9.750	3.46	15.833	2.76	21.92	1.32
3.750	1.45	9.833	3.68	15.917	2.76	22.00	1.32
3.833	1.47	9.917	3.68	16.000	2.76	22.08	1.30
3.917	1.47	10.000	3.68	16.083	2.58	22.17	1.30
4.000	1.47	10.083	4.10	16.167	2.58	22.25	1.30
4.083	1.50	10.167	4.10	16.250	2.58	22.33	1.29
4.167	1.50	10.250	4.10	16.333	2.45	22.42	1.29
4.250	1.50	10.333	4.66	16.417	2.45	22.50	1.29
4.333	1.54	10.417	4.66	16.500	2.45	22.58	1.28
4.417	1.54	10.500	4.66	16.583	2.38	22.67	1.28
4.500	1.54	10.583	5.28	16.667	2.38	22.75	1.28
4.583	1.59	10.667	5.28	16.750	2.38	22.83	1.26
4.667	1.59	10.750	5.28	16.833	2.31	22.92	1.26
4.750	1.59	10.833	6.18	16.917	2.31	23.00	1.26
4.833	1.65	10.917	6.18	17.000	2.31	23.08	1.25
4.917	1.65	11.000	6.18	17.083	2.25	23.17	1.25
5.000	1.65	11.083	7.21	17.167	2.25	23.25	1.25
5.083	1.70	11.167	7.21	17.250	2.25	23.33	1.24
5.167	1.70	11.250	7.21	17.333	2.18	23.42	1.24
5.250	1.70	11.333	9.12	17.417	2.18	23.50	1.24
5.333	1.76	11.417	9.12	17.500	2.18	23.58	1.22
5.417	1.76	11.500	9.12	17.583	2.11	23.67	1.22
5.500	1.76	11.583	11.61	17.667	2.11	23.75	1.22

5.583	1.81	11.667	11.61	17.750	2.11	23.83	1.21
5.667	1.81	11.750	11.61	17.833	2.04	23.92	1.21
5.750	1.81	11.833	47.33	17.917	2.04	24.00	1.21
5.833	1.86	11.917	47.34	18.000	2.04	24.08	1.19
5.917	1.86	12.000	47.34	18.083	1.98	24.17	1.19
6.000	1.86	12.083	116.82	18.167	1.98	24.25	1.19
6.083	1.92	12.167	116.82	18.250	1.98		

Unit Hyd Qpeak (cms)= 1.391

PEAK FLOW (cms)= 1.304 (i)
TIME TO PEAK (hrs)= 13.000
RUNOFF VOLUME (mm)= 46.489
TOTAL RAINFALL (mm)= 108.000
RUNOFF COEFFICIENT = 0.430

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0040):		30.96	1.304	13.00	46.49
+ ID2= 2 (0049):		2951.15	24.819	27.00	38.59
ID = 3 (0050):		2982.11	24.822	27.00	38.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0050)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0050):		2982.11	24.822	27.00	38.67
+ ID2= 2 (0051):		86.88	2.487	13.83	42.64
ID = 1 (0050):		3068.99	24.872	27.00	38.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
        V  V    I       SS  U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M M M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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***** D E T A I L E D O U T P U T *****

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  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\2e1e54c6-b82c
  Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\2e1e54c6-b82c

DATE: 09/27/2024                          TIME: 03:10:36

USER:


COMMENTS: _____________________________________________________________
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  ************************************************
  ** SIMULATION : 2yr 24hr 15min SCS Type II    **
  ************************************************
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READ STORM	Filename: C:\Users\jkoen\AppData\Local\Temp\249eaddd-ded7-4376-a422-9988b688ab1b\33424221
Ptotal= 60.00 mm	Comments: 2yr 24hr 15min SCS Type II

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	1.10	12.50	7.00	18.75	0.99
0.25	0.61	6.50	1.12	12.75	4.81	19.00	0.95
0.50	0.62	6.75	1.16	13.00	4.07	19.25	0.91
0.75	0.64	7.00	1.18	13.25	3.44	19.50	0.87
1.00	0.65	7.25	1.22	13.50	3.04	19.75	0.84
1.25	0.67	7.50	1.24	13.75	2.66	20.00	0.80
1.50	0.68	7.75	1.28	14.00	2.38	20.25	0.78
1.75	0.70	8.00	1.30	14.25	2.17	20.50	0.77
2.00	0.71	8.25	1.40	14.50	2.07	20.75	0.76
2.25	0.73	8.50	1.54	14.75	1.95	21.00	0.75
2.50	0.74	8.75	1.70	15.00	1.85	21.25	0.75
2.75	0.76	9.00	1.84	15.25	1.75	21.50	0.74
3.00	0.77	9.25	1.92	15.50	1.65	21.75	0.73
3.25	0.79	9.50	1.92	15.75	1.53	22.00	0.72
3.50	0.80	9.75	2.04	16.00	1.43	22.25	0.72
3.75	0.82	10.00	2.28	16.25	1.36	22.50	0.71
4.00	0.83	10.25	2.59	16.50	1.32	22.75	0.70
4.25	0.86	10.50	2.93	16.75	1.29	23.00	0.69
4.50	0.88	10.75	3.43	17.00	1.25	23.25	0.69
4.75	0.92	11.00	4.01	17.25	1.21	23.50	0.68
5.00	0.94	11.25	5.07	17.50	1.17	23.75	0.67
5.25	0.98	11.50	6.45	17.75	1.14	24.00	0.66
5.50	1.00	11.75	26.30	18.00	1.10		
5.75	1.04	12.00	64.90	18.25	1.06		
6.00	1.06	12.25	10.28	18.50	1.02		

CALIB NASHYD (0001)	Area (ha)= 153.20	Curve Number (CN)= 56.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.86	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75

3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 3.146

PEAK FLOW (cms)= 0.774 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 10.823
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.180

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0015)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0001):	153.20	0.77	14.33	10.82
SHIFT=114.8 min	SHIFT ID= 1 (0015):	153.20	0.77	16.17	10.82

CALIB NASHYD (0002)				
ID= 1 DT= 5.0 min	Area (ha)= 230.56	Curve Number (CN)= 51.0		
	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.79			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 4.920

PEAK FLOW (cms)= 1.008 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 9.166
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.153

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0016)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0002):	230.56	1.01	14.25	9.17
SHIFT= 92.3 min	SHIFT ID= 1 (0016):	230.56	1.01	15.75	9.17

CALIB NASHYD (0005)				
ID= 1 DT= 5.0 min	Area (ha)= 199.08	Curve Number (CN)= 57.0		
	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.99			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 3.821

PEAK FLOW (cms)= 0.972 (i)

TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 11.023
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.184

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0018) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0016):	230.56	1.008	15.75	9.17
+ ID2= 2 (0005):	199.08	0.972	14.50	11.02
ID = 3 (0018):	429.64	1.868	15.42	10.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0022) IN= 2---> OUT= 1 SHIFT=132.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0018):	429.64	1.87	15.42	10.03
SHIFT ID= 1 (0022):	429.64	1.87	17.58	10.03

CALIB NASHYD (0003) ID= 1 DT= 5.0 min | Area (ha)= 51.28 Curve Number (CN)= 66.0 | Ia (mm)= 7.00 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.19

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73

3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 1.646

PEAK FLOW (cms)= 0.525 (i)
TIME TO PEAK (hrs)= 13.500
RUNOFF VOLUME (mm)= 15.279
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.255

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0017) / IN= 2---> OUT= 1 / SHIFT= 38.7 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0003):	51.28	0.53	13.50	15.28
SHIFT ID= 1 (0017):	51.28	0.53	14.08	15.28

CALIB / NASHYD (0004) / ID= 1 DT= 5.0 min | Area (ha)= 271.60 | Curve Number (CN)= 64.0 | Ia (mm)= 7.40 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.55

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 6.693

PEAK FLOW (cms)= 2.095 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 14.154
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.236

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0019) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0017):	51.28	0.525	14.08	15.28
+ ID2= 2 (0004):	271.60	2.095	13.92	14.15
ID = 3 (0019):	322.88	2.618	14.00	14.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0021) / IN= 2---> OUT= 1 / SHIFT= 58.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0019):	322.88	2.62	14.00	14.33
SHIFT ID= 1 (0021):	322.88	2.62	14.92	14.33

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| CALIB            |
| NASHYD   (  0006)|   Area    (ha)= 300.52   Curve Number   (CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.97

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
  TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
   hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
 0.083     0.00 | 6.167     1.06 |12.250    64.90 | 18.33     1.06
 0.167     0.00 | 6.250     1.06 |12.333    10.29 | 18.42     1.06
 0.250     0.00 | 6.333     1.10 |12.417    10.28 | 18.50     1.06
 0.333     0.61 | 6.417     1.10 |12.500    10.28 | 18.58     1.02
 0.417     0.61 | 6.500     1.10 |12.583     7.00 | 18.67     1.02
 0.500     0.61 | 6.583     1.12 |12.667     7.00 | 18.75     1.02
 0.583     0.62 | 6.667     1.12 |12.750     7.00 | 18.83     0.99
 0.667     0.62 | 6.750     1.12 |12.833     4.81 | 18.92     0.99
 0.750     0.62 | 6.833     1.16 |12.917     4.81 | 19.00     0.99
 0.833     0.64 | 6.917     1.16 |13.000     4.81 | 19.08     0.95
 0.917     0.64 | 7.000     1.16 |13.083     4.07 | 19.17     0.95
 1.000     0.64 | 7.083     1.18 |13.167     4.07 | 19.25     0.95
 1.083     0.65 | 7.167     1.18 |13.250     4.07 | 19.33     0.91
 1.167     0.65 | 7.250     1.18 |13.333     3.44 | 19.42     0.91
 1.250     0.65 | 7.333     1.22 |13.417     3.44 | 19.50     0.91
 1.333     0.67 | 7.417     1.22 |13.500     3.44 | 19.58     0.87
 1.417     0.67 | 7.500     1.22 |13.583     3.04 | 19.67     0.87
 1.500     0.67 | 7.583     1.24 |13.667     3.04 | 19.75     0.87
 1.583     0.68 | 7.667     1.24 |13.750     3.04 | 19.83     0.84
 1.667     0.68 | 7.750     1.24 |13.833     2.66 | 19.92     0.84
 1.750     0.68 | 7.833     1.28 |13.917     2.66 | 20.00     0.84
 1.833     0.70 | 7.917     1.28 |14.000     2.66 | 20.08     0.80
 1.917     0.70 | 8.000     1.28 |14.083     2.38 | 20.17     0.80
 2.000     0.70 | 8.083     1.30 |14.167     2.38 | 20.25     0.80
 2.083     0.71 | 8.167     1.30 |14.250     2.38 | 20.33     0.78
 2.167     0.71 | 8.250     1.30 |14.333     2.17 | 20.42     0.78
 2.250     0.71 | 8.333     1.40 |14.417     2.17 | 20.50     0.78
 2.333     0.73 | 8.417     1.40 |14.500     2.17 | 20.58     0.77
 2.417     0.73 | 8.500     1.40 |14.583     2.07 | 20.67     0.77
 2.500     0.73 | 8.583     1.54 |14.667     2.07 | 20.75     0.77
 2.583     0.74 | 8.667     1.54 |14.750     2.07 | 20.83     0.76
 2.667     0.74 | 8.750     1.54 |14.833     1.95 | 20.92     0.76
 2.750     0.74 | 8.833     1.70 |14.917     1.95 | 21.00     0.76
 2.833     0.76 | 8.917     1.70 |15.000     1.95 | 21.08     0.75
 2.917     0.76 | 9.000     1.70 |15.083     1.85 | 21.17     0.75
 3.000     0.76 | 9.083     1.84 |15.167     1.85 | 21.25     0.75
 3.083     0.77 | 9.167     1.84 |15.250     1.85 | 21.33     0.75
 3.167     0.77 | 9.250     1.84 |15.333     1.75 | 21.42     0.75
 3.250     0.77 | 9.333     1.92 |15.417     1.75 | 21.50     0.75
 3.333     0.79 | 9.417     1.92 |15.500     1.75 | 21.58     0.74
 3.417     0.79 | 9.500     1.92 |15.583     1.65 | 21.67     0.74
 3.500     0.79 | 9.583     1.92 |15.667     1.65 | 21.75     0.74
 3.583     0.80 | 9.667     1.92 |15.750     1.65 | 21.83     0.73
 3.667     0.80 | 9.750     1.92 |15.833     1.53 | 21.92     0.73
 3.750     0.80 | 9.833     2.04 |15.917     1.53 | 22.00     0.73
 3.833     0.82 | 9.917     2.04 |16.000     1.53 | 22.08     0.72
 3.917     0.82 |10.000     2.04 |16.083     1.43 | 22.17     0.72
 4.000     0.82 |10.083     2.28 |16.167     1.43 | 22.25     0.72
 4.083     0.83 |10.167     2.28 |16.250     1.43 | 22.33     0.72
 4.167     0.83 |10.250     2.28 |16.333     1.36 | 22.42     0.72
 4.250     0.83 |10.333     2.59 |16.417     1.36 | 22.50     0.72
 4.333     0.86 |10.417     2.59 |16.500     1.36 | 22.58     0.71
 4.417     0.86 |10.500     2.59 |16.583     1.32 | 22.67     0.71
 4.500     0.86 |10.583     2.93 |16.667     1.32 | 22.75     0.71
 4.583     0.88 |10.667     2.93 |16.750     1.32 | 22.83     0.70
 4.667     0.88 |10.750     2.93 |16.833     1.29 | 22.92     0.70
 4.750     0.88 |10.833     3.43 |16.917     1.29 | 23.00     0.70
 4.833     0.92 |10.917     3.43 |17.000     1.29 | 23.08     0.69
 4.917     0.92 |11.000     3.43 |17.083     1.25 | 23.17     0.69
 5.000     0.92 |11.083     4.01 |17.167     1.25 | 23.25     0.69
 5.083     0.94 |11.167     4.01 |17.250     1.25 | 23.33     0.69
 5.167     0.94 |11.250     4.01 |17.333     1.21 | 23.42     0.69
 5.250     0.94 |11.333     5.07 |17.417     1.21 | 23.50     0.69
 5.333     0.98 |11.417     5.07 |17.500     1.21 | 23.58     0.68
 5.417     0.98 |11.500     5.07 |17.583     1.17 | 23.67     0.68
 5.500     0.98 |11.583     6.45 |17.667     1.17 | 23.75     0.68
 5.583     1.00 |11.667     6.45 |17.750     1.17 | 23.83     0.67
 5.667     1.00 |11.750     6.45 |17.833     1.14 | 23.92     0.67
 5.750     1.00 |11.833    26.30 |17.917     1.14 | 24.00     0.67
 5.833     1.04 |11.917    26.30 |18.000     1.14 | 24.08     0.66
 5.917     1.04 |12.000    26.30 |18.083     1.10 | 24.17     0.66
 6.000     1.04 |12.083    64.90 |18.167     1.10 | 24.25     0.66
 6.083     1.06 |12.167    64.90 |18.250     1.10 |

     Unit Hyd Qpeak  (cms)=   5.827

     PEAK FLOW       (cms)=   2.096 (i)
     TIME TO PEAK    (hrs)=  14.500
     RUNOFF VOLUME    (mm)=  15.318
     TOTAL RAINFALL   (mm)=  60.000
     RUNOFF COEFFICIENT   =   0.255

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0015):   153.20   0.774    16.17    10.82
     + ID2= 2 (  0021):   322.88   2.618    14.92    14.33
       ================================================
       ID = 3 (  0020):   476.08   3.162    15.17    13.20

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0020)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0020):   476.08   3.162    15.17    13.20
     + ID2= 2 (  0022):   429.64   1.868    17.58    10.03
       ================================================
       ID = 1 (  0020):   905.72   3.933    16.58    11.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0020):   905.72   3.933    16.58    11.70
     + ID2= 2 (  0006):   300.52   2.096    14.50    15.32
       ================================================
       ID = 3 (  0020):  1206.24   5.698    15.33    12.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0023)|
| IN= 2---> OUT= 1 |
| SHIFT=128.8 min  |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0020): 1206.24      5.70     15.33     12.60
    SHIFT ID= 1 (  0023): 1206.24      5.70     17.42     12.60

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--------------------
| CALIB            |
| NASHYD   (  0007)|   Area    (ha)= 128.72   Curve Number   (CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.98

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
  TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
   hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
 0.083     0.00 | 6.167     1.06 |12.250    64.90 | 18.33     1.06
 0.167     0.00 | 6.250     1.06 |12.333    10.29 | 18.42     1.06
 0.250     0.00 | 6.333     1.10 |12.417    10.28 | 18.50     1.06
 0.333     0.61 | 6.417     1.10 |12.500    10.28 | 18.58     1.02
 0.417     0.61 | 6.500     1.10 |12.583     7.00 | 18.67     1.02
 0.500     0.61 | 6.583     1.12 |12.667     7.00 | 18.75     1.02
 0.583     0.62 | 6.667     1.12 |12.750     7.00 | 18.83     0.99
 0.667     0.62 | 6.750     1.12 |12.833     4.81 | 18.92     0.99
 0.750     0.62 | 6.833     1.16 |12.917     4.81 | 19.00     0.99
 0.833     0.64 | 6.917     1.16 |13.000     4.81 | 19.08     0.95
 0.917     0.64 | 7.000     1.16 |13.083     4.07 | 19.17     0.95
 1.000     0.64 | 7.083     1.18 |13.167     4.07 | 19.25     0.95
 1.083     0.65 | 7.167     1.18 |13.250     4.07 | 19.33     0.91
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1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.483

PEAK FLOW (cms)= 0.755 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 13.064
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.218

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0024)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0023):	1206.24	5.698	17.42	12.60
+ ID2= 2 (0007):	128.72	0.755	14.50	13.06
ID = 3 (0024):	1334.96	6.104	17.42	12.64

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0025)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT=155.6 min				
ID= 2 (0024):	1334.96	6.10	17.42	12.64
SHIFT ID= 1 (0025):	1334.96	6.10	20.00	12.64

CALIB
NASHYD (0008) | ID= 1 DT= 5.0 min

Area (ha)= 109.00 Curve Number (CN)= 55.0
Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.78

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69

5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.339

PEAK FLOW (cms)= 0.550 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 10.479
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.175

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026) / IN= 2---> OUT= 1 / SHIFT= 95.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0008):	109.00	0.55	14.25	10.48
SHIFT ID= 1 (0026):	109.00	0.55	15.83	10.48

CALIB NASHYD (0009) / ID= 1 DT= 5.0 min | Area (ha)= 110.92 | Curve Number (CN)= 55.0 | Ia (mm)= 7.90 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.89

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.242

PEAK FLOW (cms)= 0.533 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 10.443
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.174

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029) / IN= 2---> OUT= 1 / SHIFT=116.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0009):	110.92	0.53	14.42	10.44
SHIFT ID= 1 (0029):	110.92	0.53	16.33	10.44

CALIB NASHYD (0010) / ID= 1 DT= 5.0 min | Area (ha)= 86.84 | Curve Number (CN)= 55.0 | Ia (mm)= 8.20 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.84

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84

1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 1.803

PEAK FLOW (cms)= 0.421 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 10.335
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.172

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0028)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1	ID= 2 (0010):	86.84	0.42	14.33	10.34
SHIFT= 98.7 min	SHIFT ID= 1 (0028):	86.84	0.42	15.92	10.34

CALIB				
NASHYD (0011)	Area (ha)= 25.76	Curve Number (CN)= 67.0		
ID= 1 DT= 5.0 min	Ia (mm)= 7.10	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.07			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 0.920

PEAK FLOW (cms)= 0.295 (i)
TIME TO PEAK (hrs)= 13.333
RUNOFF VOLUME (mm)= 15.721
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.262

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027) / IN= 2---> OUT= 1 / SHIFT= 76.1 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0011):	25.76	0.29	13.33	15.72
SHIFT ID= 1 (0027):	25.76	0.29	14.58	15.72

CALIB NASHYD (0012) / ID= 1 DT= 5.0 min				
	Area	(ha)= 229.28	Curve Number	(CN)= 60.0
	Ia	(mm)= 7.90	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)=	2.19		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 3.999

PEAK FLOW (cms)= 1.165 (i)
TIME TO PEAK (hrs)= 14.750
RUNOFF VOLUME (mm)= 12.258
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.204

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0013) / ID= 1 DT= 5.0 min				
	Area	(ha)= 118.16	Curve Number	(CN)= 69.0
	Ia	(mm)= 7.80	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)=	2.14		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72

3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.109

PEAK FLOW (cms)= 0.831 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 16.383
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.273

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0031)				
IN= 2---> OUT= 1				
SHIFT= 56.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0013):	118.16	0.83	14.67	16.38
SHIFT ID= 1 (0031):	118.16	0.83	15.58	16.38

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	229.28	1.165	14.75	12.26
+ ID2= 2 (0025):	1334.96	6.104	20.00	12.64
ID = 3 (0030):	1564.24	6.505	19.92	12.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1564.24	6.505	19.92	12.59
+ ID2= 2 (0026):	109.00	0.550	15.83	10.48
ID = 1 (0030):	1673.24	6.700	19.92	12.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1673.24	6.700	19.92	12.45
+ ID2= 2 (0027):	25.76	0.295	14.58	15.72
ID = 3 (0030):	1699.00	6.743	19.92	12.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1699.00	6.743	19.92	12.50
+ ID2= 2 (0028):	86.84	0.421	15.92	10.34
ID = 1 (0030):	1785.84	6.904	19.83	12.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1785.84	6.904	19.83	12.39
+ ID2= 2 (0029):	110.92	0.533	16.33	10.44
ID = 3 (0030):	1896.76	7.138	19.83	12.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1896.76	7.138	19.83	12.28
+ ID2= 2 (0031):	118.16	0.831	15.58	16.38
ID = 1 (0030):	2014.92	7.474	19.75	12.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0032)				
IN= 2---> OUT= 1				
SHIFT=124.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0030):	2014.92	7.47	19.75	12.52
SHIFT ID= 1 (0032):	2014.92	7.47	21.75	12.52

CALIB				
NASHYD (0014)	Area (ha)= 134.04		Curve Number (CN)= 60.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.60		# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.09			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78

2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.450

PEAK FLOW (cms)= 0.714 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 12.383
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.206

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0033)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0014):	134.04	0.714	14.67	12.38
+ ID2= 2 (0032):	2014.92	7.474	21.75	12.52
ID = 3 (0033):	2148.96	7.635	21.75	12.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0041)
IN= 2---> OUT= 1
SHIFT=126.1 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0033):	2148.96	7.64	21.75	12.51
SHIFT ID= 1 (0041):	2148.96	7.64	23.83	12.51

CALIB
NASHYD (0035)
ID= 1 DT= 5.0 min

Area (ha)= 121.48 Curve Number (CN)= 63.0
Ia (mm)= 7.70 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.68

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.762

PEAK FLOW (cms)= 0.842 (i)

TIME TO PEAK (hrs)= 14.083
RUNOFF VOLUME (mm)= 13.576
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.226

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0042)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0035):	121.48	0.842	14.08	13.58
	+ ID2= 2 (0041):	2148.96	7.635	23.83	12.51
	ID = 3 (0042):	2270.44	7.750	23.83	12.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0043)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT= 94.5 min	ID= 2 (0042):	2270.44	7.75	23.83	12.57
	SHIFT ID= 1 (0043):	2270.44	7.75	25.33	12.57

CALIB					
NASHYD (0034)	Area (ha)= 244.28	Curve Number (CN)= 64.0			
ID= 1 DT= 5.0 min	Ia (mm)= 8.10	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 2.19				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 4.260

PEAK FLOW (cms)= 1.409 (i)
TIME TO PEAK (hrs)= 14.750
RUNOFF VOLUME (mm)= 13.829
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.230

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0044)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT= 78.3 min	ID= 2 (0034):	244.28	1.41	14.75	13.83
	SHIFT ID= 1 (0044):	244.28	1.41	16.00	13.83

CALIB					
NASHYD (0036)	Area (ha)= 154.31	Curve Number (CN)= 65.0			
ID= 1 DT= 5.0 min	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 2.39				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84

1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.466

PEAK FLOW (cms)= 0.854 (i)
TIME TO PEAK (hrs)= 15.000
RUNOFF VOLUME (mm)= 14.182
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.236

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0046)			
IN= 2---> OUT= 1			
SHIFT= 18.9 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0036):	154.31	0.85	15.00	14.18
SHIFT ID= 1 (0046):	154.31	0.85	15.25	14.18

CALIB			
NASHYD (0037)	Area (ha)= 144.96	Curve Number (CN)= 60.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.56		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 3.549

PEAK FLOW (cms)= 0.946 (i)
TIME TO PEAK (hrs)= 14.000
RUNOFF VOLUME (mm)= 12.175
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.203

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0045)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0037):   144.96   0.946    14.00    12.18
     + ID2= 2 (  0043):  2270.44   7.750    25.33    12.57
       ================================================
       ID = 3 (  0045):  2415.40   7.847    25.33    12.55

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0045)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0045):  2415.40   7.847    25.33    12.55
     + ID2= 2 (  0044):   244.28   1.409    16.00    13.83
       ================================================
       ID = 1 (  0045):  2659.68   8.102    25.33    12.66

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0045)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0045):  2659.68   8.102    25.33    12.66
     + ID2= 2 (  0046):   154.31   0.854    15.25    14.18
       ================================================
       ID = 3 (  0045):  2813.99   8.256    25.33    12.75

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0047)|
| IN= 2---> OUT= 1 |
| SHIFT= 73.6 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0045): 2813.99     8.26     25.33     12.75
    SHIFT ID= 1 (  0047): 2813.99     8.26     26.50     12.75

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--------------------
| CALIB            |
| NASHYD   (  0038)|   Area    (ha)= 137.16   Curve Number   (CN)= 68.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.70   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.25

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    0.00 | 6.167    1.06 |12.250   64.90 | 18.33    1.06
0.167    0.00 | 6.250    1.06 |12.333   10.29 | 18.42    1.06
0.250    0.00 | 6.333    1.10 |12.417   10.28 | 18.50    1.06
0.333    0.61 | 6.417    1.10 |12.500   10.28 | 18.58    1.02
0.417    0.61 | 6.500    1.10 |12.583    7.00 | 18.67    1.02
0.500    0.61 | 6.583    1.12 |12.667    7.00 | 18.75    1.02
0.583    0.62 | 6.667    1.12 |12.750    7.00 | 18.83    0.99
0.667    0.62 | 6.750    1.12 |12.833    4.81 | 18.92    0.99
0.750    0.62 | 6.833    1.16 |12.917    4.81 | 19.00    0.99
0.833    0.64 | 6.917    1.16 |13.000    4.81 | 19.08    0.95
0.917    0.64 | 7.000    1.16 |13.083    4.07 | 19.17    0.95
1.000    0.64 | 7.083    1.18 |13.167    4.07 | 19.25    0.95
1.083    0.65 | 7.167    1.18 |13.250    4.07 | 19.33    0.91
1.167    0.65 | 7.250    1.18 |13.333    3.44 | 19.42    0.91
1.250    0.65 | 7.333    1.22 |13.417    3.44 | 19.50    0.91
1.333    0.67 | 7.417    1.22 |13.500    3.44 | 19.58    0.87
1.417    0.67 | 7.500    1.22 |13.583    3.04 | 19.67    0.87
1.500    0.67 | 7.583    1.24 |13.667    3.04 | 19.75    0.87
1.583    0.68 | 7.667    1.24 |13.750    3.04 | 19.83    0.84
1.667    0.68 | 7.750    1.24 |13.833    2.66 | 19.92    0.84
1.750    0.68 | 7.833    1.28 |13.917    2.66 | 20.00    0.84
1.833    0.70 | 7.917    1.28 |14.000    2.66 | 20.08    0.80
1.917    0.70 | 8.000    1.28 |14.083    2.38 | 20.17    0.80
2.000    0.70 | 8.083    1.30 |14.167    2.38 | 20.25    0.80
2.083    0.71 | 8.167    1.30 |14.250    2.38 | 20.33    0.78
2.167    0.71 | 8.250    1.30 |14.333    2.17 | 20.42    0.78
2.250    0.71 | 8.333    1.40 |14.417    2.17 | 20.50    0.78
2.333    0.73 | 8.417    1.40 |14.500    2.17 | 20.58    0.77
2.417    0.73 | 8.500    1.40 |14.583    2.07 | 20.67    0.77
2.500    0.73 | 8.583    1.54 |14.667    2.07 | 20.75    0.77
2.583    0.74 | 8.667    1.54 |14.750    2.07 | 20.83    0.76
2.667    0.74 | 8.750    1.54 |14.833    1.95 | 20.92    0.76
2.750    0.74 | 8.833    1.70 |14.917    1.95 | 21.00    0.76
2.833    0.76 | 8.917    1.70 |15.000    1.95 | 21.08    0.75
2.917    0.76 | 9.000    1.70 |15.083    1.85 | 21.17    0.75
3.000    0.76 | 9.083    1.84 |15.167    1.85 | 21.25    0.75
3.083    0.77 | 9.167    1.84 |15.250    1.85 | 21.33    0.75
3.167    0.77 | 9.250    1.84 |15.333    1.75 | 21.42    0.75
3.250    0.77 | 9.333    1.92 |15.417    1.75 | 21.50    0.75
3.333    0.79 | 9.417    1.92 |15.500    1.75 | 21.58    0.74
3.417    0.79 | 9.500    1.92 |15.583    1.65 | 21.67    0.74
3.500    0.79 | 9.583    1.92 |15.667    1.65 | 21.75    0.74
3.583    0.80 | 9.667    1.92 |15.750    1.65 | 21.83    0.73
3.667    0.80 | 9.750    1.92 |15.833    1.53 | 21.92    0.73
3.750    0.80 | 9.833    2.04 |15.917    1.53 | 22.00    0.73
3.833    0.82 | 9.917    2.04 |16.000    1.53 | 22.08    0.72
3.917    0.82 |10.000    2.04 |16.083    1.43 | 22.17    0.72
4.000    0.82 |10.083    2.28 |16.167    1.43 | 22.25    0.72
4.083    0.83 |10.167    2.28 |16.250    1.43 | 22.33    0.72
4.167    0.83 |10.250    2.28 |16.333    1.36 | 22.42    0.72
4.250    0.83 |10.333    2.59 |16.417    1.36 | 22.50    0.72
4.333    0.86 |10.417    2.59 |16.500    1.36 | 22.58    0.71
4.417    0.86 |10.500    2.59 |16.583    1.32 | 22.67    0.71
4.500    0.86 |10.583    2.93 |16.667    1.32 | 22.75    0.71
4.583    0.88 |10.667    2.93 |16.750    1.32 | 22.83    0.70
4.667    0.88 |10.750    2.93 |16.833    1.29 | 22.92    0.70
4.750    0.88 |10.833    3.43 |16.917    1.29 | 23.00    0.70
4.833    0.92 |10.917    3.43 |17.000    1.29 | 23.08    0.69
4.917    0.92 |11.000    3.43 |17.083    1.25 | 23.17    0.69
5.000    0.92 |11.083    4.01 |17.167    1.25 | 23.25    0.69
5.083    0.94 |11.167    4.01 |17.250    1.25 | 23.33    0.69
5.167    0.94 |11.250    4.01 |17.333    1.21 | 23.42    0.69
5.250    0.94 |11.333    5.07 |17.417    1.21 | 23.50    0.69
5.333    0.98 |11.417    5.07 |17.500    1.21 | 23.58    0.68
5.417    0.98 |11.500    5.07 |17.583    1.17 | 23.67    0.68
5.500    0.98 |11.583    6.45 |17.667    1.17 | 23.75    0.68
5.583    1.00 |11.667    6.45 |17.750    1.17 | 23.83    0.67
5.667    1.00 |11.750    6.45 |17.833    1.14 | 23.92    0.67
5.750    1.00 |11.833   26.30 |17.917    1.14 | 24.00    0.67
5.833    1.04 |11.917   26.30 |18.000    1.14 | 24.08    0.66
5.917    1.04 |12.000   26.30 |18.083    1.10 | 24.17    0.66
6.000    1.04 |12.083   64.90 |18.167    1.10 | 24.25    0.66
6.083    1.06 |12.167   64.90 |18.250    1.10 |

    Unit Hyd Qpeak  (cms)=   4.191

    PEAK FLOW       (cms)=   1.412 (i)
    TIME TO PEAK    (hrs)=  13.583
    RUNOFF VOLUME    (mm)=  15.919
    TOTAL RAINFALL   (mm)=  60.000
    RUNOFF COEFFICIENT   =   0.265

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD  (  0048)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0038):   137.16   1.412    13.58    15.92
     + ID2= 2 (  0047):  2813.99   8.256    26.50    12.75
       ================================================
       ID = 3 (  0048):  2951.15   8.297    26.42    12.89

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0049)|
| IN= 2---> OUT= 1 |
| SHIFT= 38.3 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0048): 2951.15     8.30     26.42     12.89
    SHIFT ID= 1 (  0049): 2951.15     8.30     27.00     12.89

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| CALIB            |
| NASHYD   (  0039)|   Area    (ha)=  86.88   Curve Number   (CN)= 66.0
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|ID= 1 DT= 5.0 min | Ia (mm)= 9.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.25

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71
4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 2.655

PEAK FLOW (cms)= 0.793 (i)
TIME TO PEAK (hrs)= 13.583
RUNOFF VOLUME (mm)= 14.303
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.238

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0051)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT= 22.1 min				
ID= 2 (0039):	86.88	0.79	13.58	14.30
SHIFT ID= 1 (0051):	86.88	0.79	13.92	14.30

CALIB NASHYD (0040)	Area (ha)= 30.96	Curve Number (CN)= 69.0
ID= 1 DT= 5.0 min	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.85	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.06	12.250	64.90	18.33	1.06
0.167	0.00	6.250	1.06	12.333	10.29	18.42	1.06
0.250	0.00	6.333	1.10	12.417	10.28	18.50	1.06
0.333	0.61	6.417	1.10	12.500	10.28	18.58	1.02
0.417	0.61	6.500	1.10	12.583	7.00	18.67	1.02
0.500	0.61	6.583	1.12	12.667	7.00	18.75	1.02
0.583	0.62	6.667	1.12	12.750	7.00	18.83	0.99
0.667	0.62	6.750	1.12	12.833	4.81	18.92	0.99
0.750	0.62	6.833	1.16	12.917	4.81	19.00	0.99
0.833	0.64	6.917	1.16	13.000	4.81	19.08	0.95
0.917	0.64	7.000	1.16	13.083	4.07	19.17	0.95
1.000	0.64	7.083	1.18	13.167	4.07	19.25	0.95
1.083	0.65	7.167	1.18	13.250	4.07	19.33	0.91
1.167	0.65	7.250	1.18	13.333	3.44	19.42	0.91
1.250	0.65	7.333	1.22	13.417	3.44	19.50	0.91
1.333	0.67	7.417	1.22	13.500	3.44	19.58	0.87
1.417	0.67	7.500	1.22	13.583	3.04	19.67	0.87
1.500	0.67	7.583	1.24	13.667	3.04	19.75	0.87
1.583	0.68	7.667	1.24	13.750	3.04	19.83	0.84
1.667	0.68	7.750	1.24	13.833	2.66	19.92	0.84
1.750	0.68	7.833	1.28	13.917	2.66	20.00	0.84
1.833	0.70	7.917	1.28	14.000	2.66	20.08	0.80
1.917	0.70	8.000	1.28	14.083	2.38	20.17	0.80
2.000	0.70	8.083	1.30	14.167	2.38	20.25	0.80
2.083	0.71	8.167	1.30	14.250	2.38	20.33	0.78
2.167	0.71	8.250	1.30	14.333	2.17	20.42	0.78
2.250	0.71	8.333	1.40	14.417	2.17	20.50	0.78
2.333	0.73	8.417	1.40	14.500	2.17	20.58	0.77
2.417	0.73	8.500	1.40	14.583	2.07	20.67	0.77
2.500	0.73	8.583	1.54	14.667	2.07	20.75	0.77
2.583	0.74	8.667	1.54	14.750	2.07	20.83	0.76
2.667	0.74	8.750	1.54	14.833	1.95	20.92	0.76
2.750	0.74	8.833	1.70	14.917	1.95	21.00	0.76
2.833	0.76	8.917	1.70	15.000	1.95	21.08	0.75
2.917	0.76	9.000	1.70	15.083	1.85	21.17	0.75
3.000	0.76	9.083	1.84	15.167	1.85	21.25	0.75
3.083	0.77	9.167	1.84	15.250	1.85	21.33	0.75
3.167	0.77	9.250	1.84	15.333	1.75	21.42	0.75
3.250	0.77	9.333	1.92	15.417	1.75	21.50	0.75
3.333	0.79	9.417	1.92	15.500	1.75	21.58	0.74
3.417	0.79	9.500	1.92	15.583	1.65	21.67	0.74
3.500	0.79	9.583	1.92	15.667	1.65	21.75	0.74
3.583	0.80	9.667	1.92	15.750	1.65	21.83	0.73
3.667	0.80	9.750	1.92	15.833	1.53	21.92	0.73
3.750	0.80	9.833	2.04	15.917	1.53	22.00	0.73
3.833	0.82	9.917	2.04	16.000	1.53	22.08	0.72
3.917	0.82	10.000	2.04	16.083	1.43	22.17	0.72
4.000	0.82	10.083	2.28	16.167	1.43	22.25	0.72
4.083	0.83	10.167	2.28	16.250	1.43	22.33	0.72
4.167	0.83	10.250	2.28	16.333	1.36	22.42	0.72
4.250	0.83	10.333	2.59	16.417	1.36	22.50	0.72
4.333	0.86	10.417	2.59	16.500	1.36	22.58	0.71
4.417	0.86	10.500	2.59	16.583	1.32	22.67	0.71

4.500	0.86	10.583	2.93	16.667	1.32	22.75	0.71
4.583	0.88	10.667	2.93	16.750	1.32	22.83	0.70
4.667	0.88	10.750	2.93	16.833	1.29	22.92	0.70
4.750	0.88	10.833	3.43	16.917	1.29	23.00	0.70
4.833	0.92	10.917	3.43	17.000	1.29	23.08	0.69
4.917	0.92	11.000	3.43	17.083	1.25	23.17	0.69
5.000	0.92	11.083	4.01	17.167	1.25	23.25	0.69
5.083	0.94	11.167	4.01	17.250	1.25	23.33	0.69
5.167	0.94	11.250	4.01	17.333	1.21	23.42	0.69
5.250	0.94	11.333	5.07	17.417	1.21	23.50	0.69
5.333	0.98	11.417	5.07	17.500	1.21	23.58	0.68
5.417	0.98	11.500	5.07	17.583	1.17	23.67	0.68
5.500	0.98	11.583	6.45	17.667	1.17	23.75	0.68
5.583	1.00	11.667	6.45	17.750	1.17	23.83	0.67
5.667	1.00	11.750	6.45	17.833	1.14	23.92	0.67
5.750	1.00	11.833	26.30	17.917	1.14	24.00	0.67
5.833	1.04	11.917	26.30	18.000	1.14	24.08	0.66
5.917	1.04	12.000	26.30	18.083	1.10	24.17	0.66
6.000	1.04	12.083	64.90	18.167	1.10	24.25	0.66
6.083	1.06	12.167	64.90	18.250	1.10		

Unit Hyd Qpeak (cms)= 1.391

PEAK FLOW (cms)= 0.432 (i)
TIME TO PEAK (hrs)= 13.083
RUNOFF VOLUME (mm)= 16.119
TOTAL RAINFALL (mm)= 60.000
RUNOFF COEFFICIENT = 0.269

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0040):	30.96	0.432	13.08	16.12
	+ ID2= 2 (0049):	2951.15	8.297	27.00	12.89
	ID = 3 (0050):	2982.11	8.299	27.00	12.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0050)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0050):	2982.11	8.299	27.00	12.93
	+ ID2= 2 (0051):	86.88	0.793	13.92	14.30
	ID = 1 (0050):	3068.99	8.318	27.00	12.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
        V  V    I       SS  U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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***** D E T A I L E D O U T P U T *****

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  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\93a30eab-2b35
  Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\93a30eab-2b35

DATE: 09/27/2024                          TIME: 03:10:39

USER:
```

COMMENTS: _____

```
  ************************************************
  ** SIMULATION : 50yr 24hr 15min SCS Type II   **
  ************************************************
```

READ STORM	Filename: C:\Users\jkoen\AppData\Local\Temp\249eaddd-ded7-4376-a422-9988b688ab1b\3aadf176
Ptotal=120.00 mm	Comments: 50yr 24hr 15min SCS Type II

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	2.19	12.50	14.00	18.75	1.97
0.25	1.22	6.50	2.25	12.75	9.63	19.00	1.90
0.50	1.25	6.75	2.31	13.00	8.13	19.25	1.82
0.75	1.27	7.00	2.37	13.25	6.88	19.50	1.75
1.00	1.30	7.25	2.43	13.50	6.08	19.75	1.67
1.25	1.34	7.50	2.49	13.75	5.33	20.00	1.60
1.50	1.37	7.75	2.55	14.00	4.75	20.25	1.55
1.75	1.39	8.00	2.61	14.25	4.33	20.50	1.54
2.00	1.42	8.25	2.80	14.50	4.13	20.75	1.52
2.25	1.46	8.50	3.08	14.75	3.91	21.00	1.51
2.50	1.49	8.75	3.40	15.00	3.71	21.25	1.49
2.75	1.51	9.00	3.68	15.25	3.49	21.50	1.48
3.00	1.54	9.25	3.84	15.50	3.29	21.75	1.46
3.25	1.58	9.50	3.84	15.75	3.07	22.00	1.45
3.50	1.61	9.75	4.09	16.00	2.87	22.25	1.43
3.75	1.63	10.00	4.55	16.25	2.72	22.50	1.42
4.00	1.66	10.25	5.17	16.50	2.65	22.75	1.40
4.25	1.71	10.50	5.87	16.75	2.57	23.00	1.39
4.50	1.77	10.75	6.86	17.00	2.50	23.25	1.37
4.75	1.83	11.00	8.02	17.25	2.42	23.50	1.36
5.00	1.89	11.25	10.14	17.50	2.35	23.75	1.34
5.25	1.95	11.50	12.90	17.75	2.27	24.00	1.33
5.50	2.01	11.75	52.60	18.00	2.20		
5.75	2.07	12.00	129.80	18.25	2.12		
6.00	2.13	12.25	20.56	18.50	2.05		

CALIB NASHYD (0001)	Area (ha)= 153.20	Curve Number (CN)= 56.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.86	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60

2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 3.146

PEAK FLOW (cms)= 3.018 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 40.378
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.336

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0015)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=114.8 min	ID= 2 (0001):	153.20	3.02	14.25	40.38
	SHIFT ID= 1 (0015):	153.20	3.02	16.08	40.38

CALIB			
NASHYD (0002)	Area (ha)= 230.56	Curve Number (CN)= 51.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.79		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 4.920

PEAK FLOW (cms)= 4.051 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 35.285
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.294

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| SHIFT HYD(0016)|
| IN= 2---> OUT= 1 |
| SHIFT= 92.3 min |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0002):	230.56	4.05	14.17	35.29
SHIFT ID= 1 (0016):	230.56	4.05	15.67	35.29

CALIB				
NASHYD (0005)	Area (ha)= 199.08	Curve Number (CN)= 57.0		
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.99			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 3.821

PEAK FLOW (cms)= 3.804 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 41.195
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.343

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0018)					
1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0016):	230.56	4.051	15.67	35.29
	+ ID2= 2 (0005):	199.08	3.804	14.42	41.20
	ID = 3 (0018):	429.64	7.367	15.33	38.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0022)
IN= 2---> OUT= 1
SHIFT=132.2 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0018):	429.64	7.37	15.33	38.02
SHIFT ID= 1 (0022):	429.64	7.37	17.50	38.02

CALIB				
NASHYD (0003)	Area (ha)= 51.28	Curve Number (CN)= 66.0		
ID= 1 DT= 5.0 min	Ia (mm)= 7.00	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.19			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54

2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 1.646

PEAK FLOW (cms)= 1.882 (i)
TIME TO PEAK (hrs)= 13.417
RUNOFF VOLUME (mm)= 52.364
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.436

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0017)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 38.7 min	ID= 2 (0003):	51.28	1.88	13.42	52.36
	SHIFT ID= 1 (0017):	51.28	1.88	14.00	52.36

CALIB			
NASHYD (0004)	Area (ha)= 271.60	Curve Number (CN)= 64.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.40	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.55		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 6.693

PEAK FLOW (cms)= 7.685 (i)
TIME TO PEAK (hrs)= 13.833
RUNOFF VOLUME (mm)= 49.628
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.414

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0019)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0017):	51.28	1.882	14.00	52.36
	+ ID2= 2 (0004):	271.60	7.685	13.83	49.63

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      ================================================
      ID = 3 (  0019):   322.88   9.553    13.92    50.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| SHIFT HYD(  0021)|
| IN= 2---> OUT= 1 |
| SHIFT= 58.8 min  |      AREA     QPEAK     TPEAK      R.V.
-------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0019):  322.88     9.55     13.92     50.06
    SHIFT ID= 1 (  0021):  322.88     9.55     14.83     50.06

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--------------------
| CALIB              |
| NASHYD   (  0006)|   Area    (ha)= 300.52   Curve Number   (CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.97

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
  TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
   hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
 0.083     0.00 | 6.167     2.13 |12.250   129.80 | 18.33     2.12
 0.167     0.00 | 6.250     2.13 |12.333    20.58 | 18.42     2.12
 0.250     0.00 | 6.333     2.19 |12.417    20.56 | 18.50     2.12
 0.333     1.22 | 6.417     2.19 |12.500    20.56 | 18.58     2.05
 0.417     1.22 | 6.500     2.19 |12.583    14.00 | 18.67     2.05
 0.500     1.22 | 6.583     2.25 |12.667    14.00 | 18.75     2.05
 0.583     1.25 | 6.667     2.25 |12.750    14.00 | 18.83     1.97
 0.667     1.25 | 6.750     2.25 |12.833     9.63 | 18.92     1.97
 0.750     1.25 | 6.833     2.31 |12.917     9.63 | 19.00     1.97
 0.833     1.27 | 6.917     2.31 |13.000     9.63 | 19.08     1.90
 0.917     1.27 | 7.000     2.31 |13.083     8.13 | 19.17     1.90
 1.000     1.27 | 7.083     2.37 |13.167     8.13 | 19.25     1.90
 1.083     1.30 | 7.167     2.37 |13.250     8.13 | 19.33     1.82
 1.167     1.30 | 7.250     2.37 |13.333     6.88 | 19.42     1.82
 1.250     1.30 | 7.333     2.43 |13.417     6.88 | 19.50     1.82
 1.333     1.34 | 7.417     2.43 |13.500     6.88 | 19.58     1.75
 1.417     1.34 | 7.500     2.43 |13.583     6.08 | 19.67     1.75
 1.500     1.34 | 7.583     2.49 |13.667     6.08 | 19.75     1.75
 1.583     1.37 | 7.667     2.49 |13.750     6.08 | 19.83     1.67
 1.667     1.37 | 7.750     2.49 |13.833     5.33 | 19.92     1.67
 1.750     1.37 | 7.833     2.55 |13.917     5.33 | 20.00     1.67
 1.833     1.39 | 7.917     2.55 |14.000     5.33 | 20.08     1.60
 1.917     1.39 | 8.000     2.55 |14.083     4.75 | 20.17     1.60
 2.000     1.39 | 8.083     2.61 |14.167     4.75 | 20.25     1.60
 2.083     1.42 | 8.167     2.61 |14.250     4.75 | 20.33     1.55
 2.167     1.42 | 8.250     2.61 |14.333     4.33 | 20.42     1.55
 2.250     1.42 | 8.333     2.80 |14.417     4.33 | 20.50     1.55
 2.333     1.46 | 8.417     2.80 |14.500     4.33 | 20.58     1.54
 2.417     1.46 | 8.500     2.80 |14.583     4.13 | 20.67     1.54
 2.500     1.46 | 8.583     3.08 |14.667     4.13 | 20.75     1.54
 2.583     1.49 | 8.667     3.08 |14.750     4.13 | 20.83     1.52
 2.667     1.49 | 8.750     3.08 |14.833     3.91 | 20.92     1.52
 2.750     1.49 | 8.833     3.40 |14.917     3.91 | 21.00     1.52
 2.833     1.51 | 8.917     3.40 |15.000     3.91 | 21.08     1.51
 2.917     1.51 | 9.000     3.40 |15.083     3.71 | 21.17     1.51
 3.000     1.51 | 9.083     3.68 |15.167     3.71 | 21.25     1.51
 3.083     1.54 | 9.167     3.68 |15.250     3.71 | 21.33     1.49
 3.167     1.54 | 9.250     3.68 |15.333     3.49 | 21.42     1.49
 3.250     1.54 | 9.333     3.84 |15.417     3.49 | 21.50     1.49
 3.333     1.58 | 9.417     3.84 |15.500     3.49 | 21.58     1.48
 3.417     1.58 | 9.500     3.84 |15.583     3.29 | 21.67     1.48
 3.500     1.58 | 9.583     3.84 |15.667     3.29 | 21.75     1.48
 3.583     1.61 | 9.667     3.84 |15.750     3.29 | 21.83     1.46
 3.667     1.61 | 9.750     3.84 |15.833     3.07 | 21.92     1.46
 3.750     1.61 | 9.833     4.09 |15.917     3.07 | 22.00     1.46
 3.833     1.63 | 9.917     4.09 |16.000     3.07 | 22.08     1.45
 3.917     1.63 |10.000     4.09 |16.083     2.87 | 22.17     1.45
 4.000     1.63 |10.083     4.55 |16.167     2.87 | 22.25     1.45
 4.083     1.66 |10.167     4.55 |16.250     2.87 | 22.33     1.43
 4.167     1.66 |10.250     4.55 |16.333     2.72 | 22.42     1.43
 4.250     1.66 |10.333     5.17 |16.417     2.72 | 22.50     1.43
 4.333     1.71 |10.417     5.17 |16.500     2.72 | 22.58     1.42
 4.417     1.71 |10.500     5.17 |16.583     2.65 | 22.67     1.42
 4.500     1.71 |10.583     5.87 |16.667     2.65 | 22.75     1.42
 4.583     1.77 |10.667     5.87 |16.750     2.65 | 22.83     1.40
 4.667     1.77 |10.750     5.87 |16.833     2.57 | 22.92     1.40
 4.750     1.77 |10.833     6.86 |16.917     2.57 | 23.00     1.40
 4.833     1.83 |10.917     6.86 |17.000     2.57 | 23.08     1.39
 4.917     1.83 |11.000     6.86 |17.083     2.50 | 23.17     1.39
 5.000     1.83 |11.083     8.02 |17.167     2.50 | 23.25     1.39
 5.083     1.89 |11.167     8.02 |17.250     2.50 | 23.33     1.37
 5.167     1.89 |11.250     8.02 |17.333     2.42 | 23.42     1.37
 5.250     1.89 |11.333    10.14 |17.417     2.42 | 23.50     1.37
 5.333     1.95 |11.417    10.14 |17.500     2.42 | 23.58     1.36
 5.417     1.95 |11.500    10.14 |17.583     2.35 | 23.67     1.36
 5.500     1.95 |11.583    12.90 |17.667     2.35 | 23.75     1.36
 5.583     2.01 |11.667    12.90 |17.750     2.35 | 23.83     1.34
 5.667     2.01 |11.750    12.90 |17.833     2.27 | 23.92     1.34
 5.750     2.01 |11.833    52.59 |17.917     2.27 | 24.00     1.34
 5.833     2.07 |11.917    52.60 |18.000     2.27 | 24.08     1.33
 5.917     2.07 |12.000    52.60 |18.083     2.20 | 24.17     1.33
 6.000     2.07 |12.083   129.79 |18.167     2.20 | 24.25     1.33
 6.083     2.13 |12.167   129.80 |18.250     2.20 |

     Unit Hyd Qpeak  (cms)=   5.827

     PEAK FLOW       (cms)=   7.594 (i)
     TIME TO PEAK    (hrs)=  14.333
     RUNOFF VOLUME    (mm)=  52.977
     TOTAL RAINFALL   (mm)= 120.000
     RUNOFF COEFFICIENT   =   0.441

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0015):   153.20    3.018    16.08    40.38
     + ID2= 2 (  0021):   322.88    9.553    14.83    50.06
       ================================================
       ID = 3 (  0020):   476.08   11.676    15.08    46.95

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0020)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0020):   476.08   11.676    15.08    46.95
     + ID2= 2 (  0022):   429.64    7.367    17.50    38.02
       ================================================
       ID = 1 (  0020):   905.72   14.760    16.50    42.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0020):   905.72   14.760    16.50    42.71
     + ID2= 2 (  0006):   300.52    7.594    14.33    52.98
       ================================================
       ID = 3 (  0020):  1206.24   21.079    15.33    45.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0023)|
| IN= 2---> OUT= 1 |
| SHIFT=128.8 min  |      AREA     QPEAK     TPEAK      R.V.
-------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0020): 1206.24    21.08     15.33     45.27
    SHIFT ID= 1 (  0023): 1206.24    21.08     17.42     45.27

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--------------------
| CALIB              |
| NASHYD   (  0007)|   Area    (ha)= 128.72   Curve Number   (CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.98

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
  TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
   hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
```

0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 2.483

PEAK FLOW (cms)= 2.840 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 46.929
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.391

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0024)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0023):	1206.24	21.079	17.42	45.27
	+ ID2= 2 (0007):	128.72	2.840	14.42	46.93
	ID = 3 (0024):	1334.96	22.503	17.33	45.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0025)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT=155.6 min	ID= 2 (0024):	1334.96	22.50	17.33	45.43
	SHIFT ID= 1 (0025):	1334.96	22.50	19.92	45.43

CALIB				
NASHYD (0008)	Area (ha)= 109.00	Curve Number (CN)= 55.0		
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.78			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43

4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 2.339

PEAK FLOW (cms)= 2.160 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 39.338
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.328

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026)				
IN= 2---> OUT= 1				
SHIFT= 95.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0008):	109.00	2.16	14.17	39.34
SHIFT ID= 1 (0026):	109.00	2.16	15.75	39.34

CALIB			
NASHYD (0009)	Area (ha)= 110.92	Curve Number (CN)= 55.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.89		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 2.242

PEAK FLOW (cms)= 2.095 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 39.280
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.327

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029)				
IN= 2---> OUT= 1				
SHIFT=116.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0009):	110.92	2.10	14.25	39.28
SHIFT ID= 1 (0029):	110.92	2.10	16.17	39.28

CALIB			
NASHYD (0010)	Area (ha)= 86.84	Curve Number (CN)= 55.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.84		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05

0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 1.803

PEAK FLOW (cms)= 1.667 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 39.107
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.326

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0028)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT= 98.7 min				
ID= 2 (0010):	86.84	1.67	14.25	39.11
SHIFT ID= 1 (0028):	86.84	1.67	15.83	39.11

CALIB			
NASHYD (0011)	Area (ha)= 25.76	Curve Number (CN)= 67.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.07		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34

5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 0.920

PEAK FLOW (cms)= 1.051 (i)
TIME TO PEAK (hrs)= 13.250
RUNOFF VOLUME (mm)= 53.555
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.446

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027)
IN= 2---> OUT= 1
SHIFT= 76.1 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0011):	25.76	1.05	13.25	53.56
SHIFT ID= 1 (0027):	25.76	1.05	14.50	53.56

CALIB
NASHYD (0012)
ID= 1 DT= 5.0 min

Area (ha)= 229.28 Curve Number (CN)= 60.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.19

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 3.999

PEAK FLOW (cms)= 4.436 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 44.651
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.372

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0013)
ID= 1 DT= 5.0 min

Area (ha)= 118.16 Curve Number (CN)= 69.0
Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.14

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52

2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 2.109

PEAK FLOW (cms)= 2.952 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 55.625
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.464

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0031)			
IN= 2---> OUT= 1			
SHIFT= 56.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0013):	118.16	2.95	14.50	55.63
SHIFT ID= 1 (0031):	118.16	2.95	15.42	55.63

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	229.28	4.436	14.67	44.65
+ ID2= 2 (0025):	1334.96	22.503	19.92	45.43
ID = 3 (0030):	1564.24	23.848	19.83	45.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1564.24	23.848	19.83	45.32
+ ID2= 2 (0026):	109.00	2.160	15.75	39.34
ID = 1 (0030):	1673.24	24.538	19.83	44.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1673.24	24.538	19.83	44.93
+ ID2= 2 (0027):	25.76	1.051	14.50	53.56
ID = 3 (0030):	1699.00	24.668	19.83	45.06

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1699.00	24.668	19.83	45.06
+ ID2= 2 (0028):	86.84	1.667	15.83	39.11
ID = 1 (0030):	1785.84	25.236	19.83	44.77

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1785.84	25.236	19.83	44.77
+ ID2= 2 (0029):	110.92	2.095	16.17	39.28
ID = 3 (0030):	1896.76	26.084	19.75	44.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1896.76	26.084	19.75	44.45
+ ID2= 2 (0031):	118.16	2.952	15.42	55.63
ID = 1 (0030):	2014.92	27.150	19.75	45.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0032)				
IN= 2---> OUT= 1				
SHIFT=124.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0030):	2014.92	27.15	19.75	45.10
SHIFT ID= 1 (0032):	2014.92	27.15	21.75	45.10

CALIB			
NASHYD (0014)	Area (ha)= 134.04	Curve Number (CN)= 60.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.60	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.09		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82

1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 2.450

PEAK FLOW (cms)= 2.701 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 44.843
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.374

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0033)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0014):		134.04	2.701	14.50	44.84
+ ID2= 2 (0032):		2014.92	27.150	21.75	45.10
ID = 3 (0033):		2148.96	27.671	21.67	45.09

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0041)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT=126.1 min		(ha)	(cms)	(hrs)	(mm)
ID= 2 (0033):		2148.96	27.67	21.67	45.09
SHIFT ID= 1 (0041):		2148.96	27.67	23.75	45.09

CALIB					
NASHYD (0035)	Area	(ha)= 121.48	Curve Number	(CN)= 63.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 7.70	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.68				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36

5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 2.762

PEAK FLOW (cms)= 3.134 (i)
TIME TO PEAK (hrs)= 14.000
RUNOFF VOLUME (mm)= 48.231
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.402

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0042)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0035):	121.48	3.134	14.00	48.23
+ ID2= 2 (0041):	2148.96	27.671	23.75	45.09
ID = 3 (0042):	2270.44	28.021	23.75	45.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0043)
IN= 2---> OUT= 1
SHIFT= 94.5 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0042):	2270.44	28.02	23.75	45.25
SHIFT ID= 1 (0043):	2270.44	28.02	25.25	45.25

CALIB
NASHYD (0034)
ID= 1 DT= 5.0 min

Area (ha)= 244.28 Curve Number (CN)= 64.0
Ia (mm)= 8.10 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.19

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 4.260

PEAK FLOW (cms)= 5.241 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 49.148
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.410

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0044)
IN= 2---> OUT= 1
SHIFT= 78.3 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0034):	244.28	5.24	14.58	49.15
SHIFT ID= 1 (0044):	244.28	5.24	15.83	49.15

CALIB
NASHYD (0036)
ID= 1 DT= 5.0 min

Area (ha)= 154.31 Curve Number (CN)= 65.0
Ia (mm)= 8.30 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.39

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97

0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 2.466

PEAK FLOW (cms)= 3.167 (i)
TIME TO PEAK (hrs)= 14.833
RUNOFF VOLUME (mm)= 50.215
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.418

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0046)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT= 18.9 min	ID= 2 (0036):	154.31	3.17	14.83	50.22
	SHIFT ID= 1 (0046):	154.31	3.17	15.08	50.22

CALIB			
NASHYD (0037)	Area (ha)= 144.96	Curve Number (CN)= 60.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.56		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33

5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 3.549

PEAK FLOW (cms)= 3.630 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 44.524
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.371

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0045)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0037):	144.96	3.630	13.92	44.52
+ ID2= 2 (0043):	2270.44	28.021	25.25	45.25
ID = 3 (0045):	2415.40	28.329	25.25	45.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0045):	2415.40	28.329	25.25	45.21
+ ID2= 2 (0044):	244.28	5.241	15.83	49.15
ID = 1 (0045):	2659.68	29.107	25.25	45.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0045):	2659.68	29.107	25.25	45.57
+ ID2= 2 (0046):	154.31	3.167	15.08	50.22
ID = 3 (0045):	2813.99	29.575	25.25	45.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0047)
IN= 2---> OUT= 1
SHIFT= 73.6 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0045):	2813.99	29.58	25.25	45.83
SHIFT ID= 1 (0047):	2813.99	29.58	26.42	45.83

CALIB
NASHYD (0038)
ID= 1 DT= 5.0 min

Area (ha)= 137.16 Curve Number (CN)= 68.0
Ia (mm)= 7.70 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.25

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 4.191

PEAK FLOW (cms)= 5.063 (i)
TIME TO PEAK (hrs)= 13.500
RUNOFF VOLUME (mm)= 54.399
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.453

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0048)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0038):	137.16	5.063	13.50	54.40
+ ID2= 2 (0047):	2813.99	29.575	26.42	45.83
ID = 3 (0048):	2951.15	29.696	26.42	46.23

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
--------------------
| SHIFT HYD(  0049)|
| IN= 2---> OUT= 1 |
| SHIFT= 38.3 min  |
--------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0048):	2951.15	29.70	26.42	46.23
SHIFT ID= 1 (0049):	2951.15	29.70	27.00	46.23

```
--------------------
| CALIB            |
| NASHYD   (  0039)|   Area    (ha)=  86.88   Curve Number   (CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   9.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.25
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48
3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 2.655

PEAK FLOW (cms)= 2.990 (i)
TIME TO PEAK (hrs)= 13.500
RUNOFF VOLUME (mm)= 50.945
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.425

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| SHIFT HYD(  0051)|
| IN= 2---> OUT= 1 |
| SHIFT= 22.1 min  |
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```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0039):	86.88	2.99	13.50	50.95
SHIFT ID= 1 (0051):	86.88	2.99	13.83	50.95

```
--------------------
| CALIB            |
| NASHYD   (  0040)|   Area    (ha)=  30.96   Curve Number   (CN)= 69.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.30   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.85
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.13	12.250	129.80	18.33	2.12
0.167	0.00	6.250	2.13	12.333	20.58	18.42	2.12
0.250	0.00	6.333	2.19	12.417	20.56	18.50	2.12
0.333	1.22	6.417	2.19	12.500	20.56	18.58	2.05
0.417	1.22	6.500	2.19	12.583	14.00	18.67	2.05
0.500	1.22	6.583	2.25	12.667	14.00	18.75	2.05
0.583	1.25	6.667	2.25	12.750	14.00	18.83	1.97
0.667	1.25	6.750	2.25	12.833	9.63	18.92	1.97
0.750	1.25	6.833	2.31	12.917	9.63	19.00	1.97
0.833	1.27	6.917	2.31	13.000	9.63	19.08	1.90
0.917	1.27	7.000	2.31	13.083	8.13	19.17	1.90
1.000	1.27	7.083	2.37	13.167	8.13	19.25	1.90
1.083	1.30	7.167	2.37	13.250	8.13	19.33	1.82
1.167	1.30	7.250	2.37	13.333	6.88	19.42	1.82
1.250	1.30	7.333	2.43	13.417	6.88	19.50	1.82
1.333	1.34	7.417	2.43	13.500	6.88	19.58	1.75
1.417	1.34	7.500	2.43	13.583	6.08	19.67	1.75
1.500	1.34	7.583	2.49	13.667	6.08	19.75	1.75
1.583	1.37	7.667	2.49	13.750	6.08	19.83	1.67
1.667	1.37	7.750	2.49	13.833	5.33	19.92	1.67
1.750	1.37	7.833	2.55	13.917	5.33	20.00	1.67
1.833	1.39	7.917	2.55	14.000	5.33	20.08	1.60
1.917	1.39	8.000	2.55	14.083	4.75	20.17	1.60
2.000	1.39	8.083	2.61	14.167	4.75	20.25	1.60
2.083	1.42	8.167	2.61	14.250	4.75	20.33	1.55
2.167	1.42	8.250	2.61	14.333	4.33	20.42	1.55
2.250	1.42	8.333	2.80	14.417	4.33	20.50	1.55
2.333	1.46	8.417	2.80	14.500	4.33	20.58	1.54
2.417	1.46	8.500	2.80	14.583	4.13	20.67	1.54
2.500	1.46	8.583	3.08	14.667	4.13	20.75	1.54
2.583	1.49	8.667	3.08	14.750	4.13	20.83	1.52
2.667	1.49	8.750	3.08	14.833	3.91	20.92	1.52
2.750	1.49	8.833	3.40	14.917	3.91	21.00	1.52
2.833	1.51	8.917	3.40	15.000	3.91	21.08	1.51
2.917	1.51	9.000	3.40	15.083	3.71	21.17	1.51
3.000	1.51	9.083	3.68	15.167	3.71	21.25	1.51
3.083	1.54	9.167	3.68	15.250	3.71	21.33	1.49
3.167	1.54	9.250	3.68	15.333	3.49	21.42	1.49
3.250	1.54	9.333	3.84	15.417	3.49	21.50	1.49
3.333	1.58	9.417	3.84	15.500	3.49	21.58	1.48

3.417	1.58	9.500	3.84	15.583	3.29	21.67	1.48
3.500	1.58	9.583	3.84	15.667	3.29	21.75	1.48
3.583	1.61	9.667	3.84	15.750	3.29	21.83	1.46
3.667	1.61	9.750	3.84	15.833	3.07	21.92	1.46
3.750	1.61	9.833	4.09	15.917	3.07	22.00	1.46
3.833	1.63	9.917	4.09	16.000	3.07	22.08	1.45
3.917	1.63	10.000	4.09	16.083	2.87	22.17	1.45
4.000	1.63	10.083	4.55	16.167	2.87	22.25	1.45
4.083	1.66	10.167	4.55	16.250	2.87	22.33	1.43
4.167	1.66	10.250	4.55	16.333	2.72	22.42	1.43
4.250	1.66	10.333	5.17	16.417	2.72	22.50	1.43
4.333	1.71	10.417	5.17	16.500	2.72	22.58	1.42
4.417	1.71	10.500	5.17	16.583	2.65	22.67	1.42
4.500	1.71	10.583	5.87	16.667	2.65	22.75	1.42
4.583	1.77	10.667	5.87	16.750	2.65	22.83	1.40
4.667	1.77	10.750	5.87	16.833	2.57	22.92	1.40
4.750	1.77	10.833	6.86	16.917	2.57	23.00	1.40
4.833	1.83	10.917	6.86	17.000	2.57	23.08	1.39
4.917	1.83	11.000	6.86	17.083	2.50	23.17	1.39
5.000	1.83	11.083	8.02	17.167	2.50	23.25	1.39
5.083	1.89	11.167	8.02	17.250	2.50	23.33	1.37
5.167	1.89	11.250	8.02	17.333	2.42	23.42	1.37
5.250	1.89	11.333	10.14	17.417	2.42	23.50	1.37
5.333	1.95	11.417	10.14	17.500	2.42	23.58	1.36
5.417	1.95	11.500	10.14	17.583	2.35	23.67	1.36
5.500	1.95	11.583	12.90	17.667	2.35	23.75	1.36
5.583	2.01	11.667	12.90	17.750	2.35	23.83	1.34
5.667	2.01	11.750	12.90	17.833	2.27	23.92	1.34
5.750	2.01	11.833	52.59	17.917	2.27	24.00	1.34
5.833	2.07	11.917	52.60	18.000	2.27	24.08	1.33
5.917	2.07	12.000	52.60	18.083	2.20	24.17	1.33
6.000	2.07	12.083	129.79	18.167	2.20	24.25	1.33
6.083	2.13	12.167	129.80	18.250	2.20		

Unit Hyd Qpeak (cms)= 1.391

PEAK FLOW (cms)= 1.559 (i)
TIME TO PEAK (hrs)= 13.000
RUNOFF VOLUME (mm)= 55.252
TOTAL RAINFALL (mm)= 120.000
RUNOFF COEFFICIENT = 0.460

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0040):		30.96	1.559	13.00	55.25
+ ID2= 2 (0049):		2951.15	29.696	27.00	46.23
ID = 3 (0050):		2982.11	29.700	27.00	46.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0050)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0050):		2982.11	29.700	27.00	46.32
+ ID2= 2 (0051):		86.88	2.990	13.83	50.95
ID = 1 (0050):		3068.99	29.758	27.00	46.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
        V  V    I       SS  U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
Output filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\a18aa949-66fa
Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\a18aa949-66fa

DATE: 09/27/2024 TIME: 03:10:37

USER:

COMMENTS: _____

** SIMULATION : 5yr 24hr 15min SCS Type II **

READ STORM	Filename: C:\Users\jkoen\AppData\Local\Temp\249eaddd-ded7-4376-a422-9988b688ab1b\4e3aaace
Ptotal= 79.20 mm	Comments: 5yr 24hr 15min SCS Type II

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	1.45	12.50	9.24	18.75	1.30
0.25	0.80	6.50	1.48	12.75	6.36	19.00	1.25
0.50	0.82	6.75	1.53	13.00	5.37	19.25	1.20
0.75	0.84	7.00	1.56	13.25	4.54	19.50	1.15
1.00	0.86	7.25	1.60	13.50	4.01	19.75	1.10
1.25	0.88	7.50	1.64	13.75	3.52	20.00	1.05
1.50	0.90	7.75	1.68	14.00	3.14	20.25	1.02
1.75	0.92	8.00	1.72	14.25	2.86	20.50	1.02
2.00	0.94	8.25	1.85	14.50	2.73	20.75	1.00
2.25	0.96	8.50	2.04	14.75	2.58	21.00	0.99
2.50	0.98	8.75	2.24	15.00	2.45	21.25	0.99
2.75	1.00	9.00	2.43	15.25	2.30	21.50	0.98
3.00	1.02	9.25	2.53	15.50	2.17	21.75	0.96
3.25	1.04	9.50	2.53	15.75	2.03	22.00	0.96
3.50	1.06	9.75	2.70	16.00	1.89	22.25	0.95
3.75	1.08	10.00	3.00	16.25	1.80	22.50	0.94
4.00	1.10	10.25	3.42	16.50	1.75	22.75	0.93
4.25	1.13	10.50	3.87	16.75	1.70	23.00	0.92
4.50	1.17	10.75	4.53	17.00	1.65	23.25	0.91
4.75	1.21	11.00	5.29	17.25	1.60	23.50	0.90
5.00	1.25	11.25	6.69	17.50	1.55	23.75	0.89
5.25	1.29	11.50	8.52	17.75	1.50	24.00	0.88
5.50	1.33	11.75	34.71	18.00	1.45		
5.75	1.37	12.00	85.67	18.25	1.40		
6.00	1.41	12.25	13.57	18.50	1.35		

CALIB NASHYD (0001)	Area (ha)= 153.20	Curve Number (CN)= 56.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.86	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25

1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 3.146

PEAK FLOW (cms)= 1.373 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 18.814
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.238

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0015)				
IN= 2---> OUT= 1				
SHIFT=114.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0001):	153.20	1.37	14.33	18.81
SHIFT ID= 1 (0015):	153.20	1.37	16.17	18.81

CALIB			
NASHYD (0002)	Area (ha)= 230.56	Curve Number (CN)= 51.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.79		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 4.920

PEAK FLOW (cms)= 1.809 (i)
TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 16.121
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.204

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0016) / IN= 2---> OUT= 1 / SHIFT= 92.3 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0002):	230.56	1.81	14.25	16.12
SHIFT ID= 1 (0016):	230.56	1.81	15.75	16.12

CALIB NASHYD (0005) / ID= 1 DT= 5.0 min	Area (ha)= 199.08	Curve Number (CN)= 57.0
	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.99	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 3.821

PEAK FLOW (cms)= 1.730 (i)
TIME TO PEAK (hrs)= 14.500
RUNOFF VOLUME (mm)= 19.196
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.242

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0018) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0016):	230.56	1.809	15.75	16.12
+ ID2= 2 (0005):	199.08	1.730	14.50	19.20
ID = 3 (0018):	429.64	3.329	15.33	17.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0022) / IN= 2---> OUT= 1 / SHIFT=132.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0018):	429.64	3.33	15.33	17.55
SHIFT ID= 1 (0022):	429.64	3.33	17.50	17.55

CALIB NASHYD (0003) / ID= 1 DT= 5.0 min	Area (ha)= 51.28	Curve Number (CN)= 66.0
	Ia (mm)= 7.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.19	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15

1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 1.646

PEAK FLOW (cms)= 0.901 (i)
TIME TO PEAK (hrs)= 13.417
RUNOFF VOLUME (mm)= 25.673
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.324

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0017)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT= 38.7 min	ID= 2 (0003):	51.28	0.90	13.42	25.67
	SHIFT ID= 1 (0017):	51.28	0.90	14.00	25.67

CALIB NASHYD (0004)	Area (ha)= 271.60	Curve Number (CN)= 64.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.55	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 6.693

PEAK FLOW (cms)= 3.632 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 24.014

TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.303

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0019)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0017):	51.28	0.901	14.00	25.67
	+ ID2= 2 (0004):	271.60	3.632	13.92	24.01
	ID = 3 (0019):	322.88	4.527	13.92	24.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0021)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT= 58.8 min		(ha)	(cms)	(hrs)	(mm)
	ID= 2 (0019):	322.88	4.53	13.92	24.28
	SHIFT ID= 1 (0021):	322.88	4.53	14.83	24.28

CALIB		
NASHYD (0006)	Area (ha)= 300.52	Curve Number (CN)= 67.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.97	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 5.827

PEAK FLOW (cms)= 3.623 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 25.884
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.327

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0020)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0015):	153.20	1.373	16.17	18.81
	+ ID2= 2 (0021):	322.88	4.527	14.83	24.28
	ID = 3 (0020):	476.08	5.495	15.17	22.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0020):	476.08	5.495	15.17	22.52
	+ ID2= 2 (0022):	429.64	3.329	17.50	17.55
	ID = 1 (0020):	905.72	6.870	16.58	20.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0020):	905.72	6.870	16.58	20.16
	+ ID2= 2 (0006):	300.52	3.623	14.42	25.88
	ID = 3 (0020):	1206.24	9.915	15.33	21.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0023)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT=128.8 min		(ha)	(cms)	(hrs)	(mm)
	ID= 2 (0020):	1206.24	9.92	15.33	21.59
	SHIFT ID= 1 (0023):	1206.24	9.92	17.42	21.59

CALIB NASHYD (0007) ID= 1 DT= 5.0 min	Area (ha)= 128.72 Curve Number (CN)= 62.0 Ia (mm)= 7.90 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 1.98

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 2.483

PEAK FLOW (cms)= 1.324 (i)
TIME TO PEAK (hrs)= 14.417
RUNOFF VOLUME (mm)= 22.397
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.283

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0024) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0023):	1206.24	9.915	17.42	21.59
+ ID2= 2 (0007):	128.72	1.324	14.42	22.40
ID = 3 (0024):	1334.96	10.605	17.33	21.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0025) IN= 2---> OUT= 1 SHIFT=155.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0024):	1334.96	10.60	17.33	21.66
SHIFT ID= 1 (0025):	1334.96	10.60	19.92	21.66

CALIB NASHYD (0008) ID= 1 DT= 5.0 min	Area (ha)= 109.00 Curve Number (CN)= 55.0 Ia (mm)= 7.80 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 1.78

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99

3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 2.339

PEAK FLOW (cms)= 0.979 (i)
TIME TO PEAK (hrs)= 14.167
RUNOFF VOLUME (mm)= 18.258
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.231

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026) / IN= 2---> OUT= 1 / SHIFT= 95.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0008):	109.00	0.98	14.17	18.26
SHIFT ID= 1 (0026):	109.00	0.98	15.75	18.26

CALIB / NASHYD (0009) / ID= 1 DT= 5.0 min | Area (ha)= 110.92 | Curve Number (CN)= 55.0 | Ia (mm)= 7.90 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.89

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 2.242

PEAK FLOW (cms)= 0.949 (i)
TIME TO PEAK (hrs)= 14.333
RUNOFF VOLUME (mm)= 18.213
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.230

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029) / IN= 2---> OUT= 1 / SHIFT=116.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0009):	110.92	0.95	14.33	18.21
SHIFT ID= 1 (0029):	110.92	0.95	16.25	18.21

CALIB / NASHYD (0010) / ID= 1 DT= 5.0 min | Area (ha)= 86.84 | Curve Number (CN)= 55.0 | Ia (mm)= 8.20 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.84

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 1.803

PEAK FLOW (cms)= 0.752 (i)

TIME TO PEAK (hrs)= 14.250
RUNOFF VOLUME (mm)= 18.080
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.228

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0028)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1				
SHIFT= 98.7 min				
ID= 2 (0010):	86.84	0.75	14.25	18.08
SHIFT ID= 1 (0028):	86.84	0.75	15.83	18.08

CALIB NASHYD (0011) ID= 1 DT= 5.0 min					
	Area	(ha)=	25.76	Curve Number (CN)=	67.0
	Ia	(mm)=	7.10	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		1.07		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93

4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 0.920

PEAK FLOW (cms)= 0.505 (i)
TIME TO PEAK (hrs)= 13.333
RUNOFF VOLUME (mm)= 26.360
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.333

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
IN= 2---> OUT= 1					
SHIFT= 76.1 min	ID= 2 (0011):	25.76	0.51	13.33	26.36
	SHIFT ID= 1 (0027):	25.76	0.51	14.58	26.36

CALIB NASHYD (0012)			
ID= 1 DT= 5.0 min	Area (ha)= 229.28	Curve Number (CN)= 60.0	
	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.19		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 3.999

PEAK FLOW (cms)= 2.050 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 21.126
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.267

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0013)			
ID= 1 DT= 5.0 min	Area (ha)= 118.16	Curve Number (CN)= 69.0	
	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.14		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10

1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 2.109

PEAK FLOW (cms)= 1.425 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 27.480
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.347

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0031)				
IN= 2---> OUT= 1				
SHIFT= 56.8 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0013):	118.16	1.43	14.58	27.48
SHIFT ID= 1 (0031):	118.16	1.43	15.50	27.48

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	229.28	2.050	14.67	21.13
+ ID2= 2 (0025):	1334.96	10.605	19.92	21.66
ID = 3 (0030):	1564.24	11.271	19.92	21.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1564.24	11.271	19.92	21.59
+ ID2= 2 (0026):	109.00	0.979	15.75	18.26
ID = 1 (0030):	1673.24	11.603	19.83	21.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1673.24	11.603	19.83	21.37
+ ID2= 2 (0027):	25.76	0.505	14.58	26.36
ID = 3 (0030):	1699.00	11.673	19.83	21.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1699.00	11.673	19.83	21.44
+ ID2= 2 (0028):	86.84	0.752	15.83	18.08
ID = 1 (0030):	1785.84	11.947	19.83	21.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	1785.84	11.947	19.83	21.28
+ ID2= 2 (0029):	110.92	0.949	16.25	18.21
ID = 3 (0030):	1896.76	12.345	19.75	21.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	1896.76	12.345	19.75	21.10
+ ID2= 2 (0031):	118.16	1.425	15.50	27.48
ID = 1 (0030):	2014.92	12.898	19.75	21.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0032)				
IN= 2---> OUT= 1				
SHIFT=124.2 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0030):	2014.92	12.90	19.75	21.48
SHIFT ID= 1 (0032):	2014.92	12.90	21.75	21.48

CALIB			
NASHYD (0014)	Area (ha)= 134.04	Curve Number (CN)= 60.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.60	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 2.09		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40

0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 2.450

PEAK FLOW (cms)= 1.253 (i)
TIME TO PEAK (hrs)= 14.583
RUNOFF VOLUME (mm)= 21.278
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.269

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0033) | 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0014):	134.04	1.253	14.58	21.28
+ ID2= 2 (0032):	2014.92	12.898	21.75	21.48
ID = 3 (0033):	2148.96	13.161	21.75	21.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0041) | IN= 2---> OUT= 1 | SHIFT=126.1 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0033):	2148.96	13.16	21.75	21.46
SHIFT ID= 1 (0041):	2148.96	13.16	23.83	21.46

CALIB | NASHYD (0035) | ID= 1 DT= 5.0 min				
Area	(ha)= 121.48	Curve Number	(CN)= 63.0	
Ia	(mm)= 7.70	# of Linear Res.(N)= 3.00		
U.H. Tp(hrs)=	1.68			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95

4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 2.762

PEAK FLOW (cms)= 1.469 (i)
TIME TO PEAK (hrs)= 14.083
RUNOFF VOLUME (mm)= 23.166
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.293

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0042)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0035):		121.48	1.469	14.08	23.17
+ ID2= 2 (0041):		2148.96	13.161	23.83	21.46
ID = 3 (0042):		2270.44	13.345	23.83	21.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0043)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 94.5 min	ID= 2 (0042):	2270.44	13.34	23.83	21.55
	SHIFT ID= 1 (0043):	2270.44	13.34	25.33	21.55

CALIB					
NASHYD (0034)	Area	(ha)= 244.28	Curve Number	(CN)= 64.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.10	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.19				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 4.260

PEAK FLOW (cms)= 2.460 (i)
TIME TO PEAK (hrs)= 14.667
RUNOFF VOLUME (mm)= 23.625
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.298

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0044)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 78.3 min	ID= 2 (0034):	244.28	2.46	14.67	23.63
	SHIFT ID= 1 (0044):	244.28	2.46	15.92	23.63

CALIB					
NASHYD (0036)	Area	(ha)= 154.31	Curve Number	(CN)= 65.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 8.30	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 2.39				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 2.466

PEAK FLOW (cms)= 1.490 (i)
TIME TO PEAK (hrs)= 14.917
RUNOFF VOLUME (mm)= 24.206

TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.306

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0036):	154.31	1.49	14.92	24.21
SHIFT ID= 1 (0046):	154.31	1.49	15.17	24.21

SHIFT HYD(0046)
IN= 2---> OUT= 1
SHIFT= 18.9 min

CALIB
NASHYD (0037)
ID= 1 DT= 5.0 min

Area (ha)= 144.96 Curve Number (CN)= 60.0
Ia (mm)= 8.10 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.56

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93

4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 3.549

PEAK FLOW (cms)= 1.672 (i)
TIME TO PEAK (hrs)= 13.917
RUNOFF VOLUME (mm)= 21.025
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.265

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0045)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0037):		144.96	1.672	13.92	21.03
+ ID2= 2 (0043):		2270.44	13.345	25.33	21.55
ID = 3 (0045):		2415.40	13.500	25.33	21.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0045):		2415.40	13.500	25.33	21.52
+ ID2= 2 (0044):		244.28	2.460	15.92	23.63
ID = 1 (0045):		2659.68	13.910	25.25	21.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0045):		2659.68	13.910	25.25	21.72
+ ID2= 2 (0046):		154.31	1.490	15.17	24.21
ID = 3 (0045):		2813.99	14.159	25.25	21.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0047)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT= 73.6 min		(ha)	(cms)	(hrs)	(mm)
ID= 2 (0045):		2813.99	14.16	25.25	21.85
SHIFT ID= 1 (0047):		2813.99	14.16	26.42	21.85

CALIB				
NASHYD (0038)	Area	(ha)= 137.16	Curve Number	(CN)= 68.0
ID= 1 DT= 5.0 min	Ia	(mm)= 7.70	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.25			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.167	1.41	12.250	85.67	18.33	1.40
0.167	0.00	6.250	1.41	12.333	13.58	18.42	1.40
0.250	0.00	6.333	1.45	12.417	13.57	18.50	1.40
0.333	0.80	6.417	1.45	12.500	13.57	18.58	1.35
0.417	0.80	6.500	1.45	12.583	9.24	18.67	1.35
0.500	0.80	6.583	1.48	12.667	9.24	18.75	1.35
0.583	0.82	6.667	1.48	12.750	9.24	18.83	1.30
0.667	0.82	6.750	1.48	12.833	6.36	18.92	1.30
0.750	0.82	6.833	1.53	12.917	6.36	19.00	1.30
0.833	0.84	6.917	1.53	13.000	6.36	19.08	1.25
0.917	0.84	7.000	1.53	13.083	5.37	19.17	1.25
1.000	0.84	7.083	1.56	13.167	5.37	19.25	1.25
1.083	0.86	7.167	1.56	13.250	5.37	19.33	1.20
1.167	0.86	7.250	1.56	13.333	4.54	19.42	1.20
1.250	0.86	7.333	1.60	13.417	4.54	19.50	1.20
1.333	0.88	7.417	1.60	13.500	4.54	19.58	1.15
1.417	0.88	7.500	1.60	13.583	4.01	19.67	1.15
1.500	0.88	7.583	1.64	13.667	4.01	19.75	1.15
1.583	0.90	7.667	1.64	13.750	4.01	19.83	1.10
1.667	0.90	7.750	1.64	13.833	3.52	19.92	1.10
1.750	0.90	7.833	1.68	13.917	3.52	20.00	1.10
1.833	0.92	7.917	1.68	14.000	3.52	20.08	1.05
1.917	0.92	8.000	1.68	14.083	3.14	20.17	1.05
2.000	0.92	8.083	1.72	14.167	3.14	20.25	1.05
2.083	0.94	8.167	1.72	14.250	3.14	20.33	1.02
2.167	0.94	8.250	1.72	14.333	2.86	20.42	1.02
2.250	0.94	8.333	1.85	14.417	2.86	20.50	1.02
2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 4.191

PEAK FLOW (cms)= 2.430 (i)
TIME TO PEAK (hrs)= 13.500
RUNOFF VOLUME (mm)= 26.762
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.338

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0048)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 1 (  0038):   137.16   2.430    13.50    26.76
     + ID2= 2 (  0047):  2813.99  14.159    26.42    21.85
       ================================================
       ID = 3 (  0048):  2951.15  14.225    26.42    22.08

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------
| SHIFT HYD(  0049)|
| IN= 2---> OUT= 1 |
| SHIFT= 38.3 min  |      AREA      QPEAK      TPEAK       R.V.
--------------------      (ha)      (cms)      (hrs)       (mm)
         ID= 2 (  0048): 2951.15     14.22      26.42      22.08
   SHIFT ID= 1 (  0049): 2951.15     14.22      27.00      22.08

--------------------
| CALIB            |
| NASHYD   (  0039)|   Area    (ha)=  86.88   Curve Number   (CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   9.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.25

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    0.00 | 6.167    1.41 |12.250   85.67 | 18.33    1.40
0.167    0.00 | 6.250    1.41 |12.333   13.58 | 18.42    1.40
0.250    0.00 | 6.333    1.45 |12.417   13.57 | 18.50    1.40
0.333    0.80 | 6.417    1.45 |12.500   13.57 | 18.58    1.35
0.417    0.80 | 6.500    1.45 |12.583    9.24 | 18.67    1.35
0.500    0.80 | 6.583    1.48 |12.667    9.24 | 18.75    1.35
0.583    0.82 | 6.667    1.48 |12.750    9.24 | 18.83    1.30
0.667    0.82 | 6.750    1.48 |12.833    6.36 | 18.92    1.30
0.750    0.82 | 6.833    1.53 |12.917    6.36 | 19.00    1.30
0.833    0.84 | 6.917    1.53 |13.000    6.36 | 19.08    1.25
0.917    0.84 | 7.000    1.53 |13.083    5.37 | 19.17    1.25
1.000    0.84 | 7.083    1.56 |13.167    5.37 | 19.25    1.25
1.083    0.86 | 7.167    1.56 |13.250    5.37 | 19.33    1.20
1.167    0.86 | 7.250    1.56 |13.333    4.54 | 19.42    1.20
1.250    0.86 | 7.333    1.60 |13.417    4.54 | 19.50    1.20
1.333    0.88 | 7.417    1.60 |13.500    4.54 | 19.58    1.15
1.417    0.88 | 7.500    1.60 |13.583    4.01 | 19.67    1.15
1.500    0.88 | 7.583    1.64 |13.667    4.01 | 19.75    1.15
1.583    0.90 | 7.667    1.64 |13.750    4.01 | 19.83    1.10
1.667    0.90 | 7.750    1.64 |13.833    3.52 | 19.92    1.10
1.750    0.90 | 7.833    1.68 |13.917    3.52 | 20.00    1.10
1.833    0.92 | 7.917    1.68 |14.000    3.52 | 20.08    1.05
1.917    0.92 | 8.000    1.68 |14.083    3.14 | 20.17    1.05
2.000    0.92 | 8.083    1.72 |14.167    3.14 | 20.25    1.05
2.083    0.94 | 8.167    1.72 |14.250    3.14 | 20.33    1.02
2.167    0.94 | 8.250    1.72 |14.333    2.86 | 20.42    1.02
2.250    0.94 | 8.333    1.85 |14.417    2.86 | 20.50    1.02
2.333    0.96 | 8.417    1.85 |14.500    2.86 | 20.58    1.02
2.417    0.96 | 8.500    1.85 |14.583    2.73 | 20.67    1.02
2.500    0.96 | 8.583    2.04 |14.667    2.73 | 20.75    1.02
2.583    0.98 | 8.667    2.04 |14.750    2.73 | 20.83    1.00
2.667    0.98 | 8.750    2.04 |14.833    2.58 | 20.92    1.00
2.750    0.98 | 8.833    2.24 |14.917    2.58 | 21.00    1.00
2.833    1.00 | 8.917    2.24 |15.000    2.58 | 21.08    0.99
2.917    1.00 | 9.000    2.24 |15.083    2.45 | 21.17    0.99
3.000    1.00 | 9.083    2.43 |15.167    2.45 | 21.25    0.99
3.083    1.02 | 9.167    2.43 |15.250    2.45 | 21.33    0.99
3.167    1.02 | 9.250    2.43 |15.333    2.30 | 21.42    0.99
3.250    1.02 | 9.333    2.53 |15.417    2.30 | 21.50    0.99
3.333    1.04 | 9.417    2.53 |15.500    2.30 | 21.58    0.98
3.417    1.04 | 9.500    2.53 |15.583    2.17 | 21.67    0.98
3.500    1.04 | 9.583    2.53 |15.667    2.17 | 21.75    0.98
3.583    1.06 | 9.667    2.53 |15.750    2.17 | 21.83    0.96
3.667    1.06 | 9.750    2.53 |15.833    2.03 | 21.92    0.96
3.750    1.06 | 9.833    2.70 |15.917    2.03 | 22.00    0.96
3.833    1.08 | 9.917    2.70 |16.000    2.03 | 22.08    0.96
3.917    1.08 |10.000    2.70 |16.083    1.89 | 22.17    0.96
4.000    1.08 |10.083    3.00 |16.167    1.89 | 22.25    0.96
4.083    1.10 |10.167    3.00 |16.250    1.89 | 22.33    0.95
4.167    1.10 |10.250    3.00 |16.333    1.80 | 22.42    0.95
4.250    1.10 |10.333    3.42 |16.417    1.80 | 22.50    0.95
4.333    1.13 |10.417    3.42 |16.500    1.80 | 22.58    0.94
4.417    1.13 |10.500    3.42 |16.583    1.75 | 22.67    0.94
4.500    1.13 |10.583    3.87 |16.667    1.75 | 22.75    0.94
4.583    1.17 |10.667    3.87 |16.750    1.75 | 22.83    0.93
4.667    1.17 |10.750    3.87 |16.833    1.70 | 22.92    0.93
4.750    1.17 |10.833    4.53 |16.917    1.70 | 23.00    0.93
4.833    1.21 |10.917    4.53 |17.000    1.70 | 23.08    0.92
4.917    1.21 |11.000    4.53 |17.083    1.65 | 23.17    0.92
5.000    1.21 |11.083    5.29 |17.167    1.65 | 23.25    0.92
5.083    1.25 |11.167    5.29 |17.250    1.65 | 23.33    0.91
5.167    1.25 |11.250    5.29 |17.333    1.60 | 23.42    0.91
5.250    1.25 |11.333    6.69 |17.417    1.60 | 23.50    0.91
5.333    1.29 |11.417    6.69 |17.500    1.60 | 23.58    0.90
5.417    1.29 |11.500    6.69 |17.583    1.55 | 23.67    0.90
5.500    1.29 |11.583    8.52 |17.667    1.55 | 23.75    0.90
5.583    1.33 |11.667    8.52 |17.750    1.55 | 23.83    0.89
5.667    1.33 |11.750    8.52 |17.833    1.50 | 23.92    0.89
5.750    1.33 |11.833   34.71 |17.917    1.50 | 24.00    0.89
5.833    1.37 |11.917   34.71 |18.000    1.50 | 24.08    0.88
5.917    1.37 |12.000   34.71 |18.083    1.45 | 24.17    0.88
6.000    1.37 |12.083   85.66 |18.167    1.45 | 24.25    0.88
6.083    1.41 |12.167   85.67 |18.250    1.45 |

     Unit Hyd Qpeak  (cms)=   2.655

     PEAK FLOW       (cms)=   1.397 (i)
     TIME TO PEAK    (hrs)=  13.500
     RUNOFF VOLUME    (mm)=  24.512
     TOTAL RAINFALL   (mm)=  79.200
     RUNOFF COEFFICIENT   =   0.309

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------
| SHIFT HYD(  0051)|
| IN= 2---> OUT= 1 |
| SHIFT= 22.1 min  |      AREA      QPEAK      TPEAK       R.V.
--------------------      (ha)      (cms)      (hrs)       (mm)
         ID= 2 (  0039):   86.88      1.40      13.50      24.51
   SHIFT ID= 1 (  0051):   86.88      1.40      13.83      24.51

--------------------
| CALIB            |
| NASHYD   (  0040)|   Area    (ha)=  30.96   Curve Number   (CN)= 69.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.30   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.85

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    0.00 | 6.167    1.41 |12.250   85.67 | 18.33    1.40
0.167    0.00 | 6.250    1.41 |12.333   13.58 | 18.42    1.40
0.250    0.00 | 6.333    1.45 |12.417   13.57 | 18.50    1.40
0.333    0.80 | 6.417    1.45 |12.500   13.57 | 18.58    1.35
0.417    0.80 | 6.500    1.45 |12.583    9.24 | 18.67    1.35
0.500    0.80 | 6.583    1.48 |12.667    9.24 | 18.75    1.35
0.583    0.82 | 6.667    1.48 |12.750    9.24 | 18.83    1.30
0.667    0.82 | 6.750    1.48 |12.833    6.36 | 18.92    1.30
0.750    0.82 | 6.833    1.53 |12.917    6.36 | 19.00    1.30
0.833    0.84 | 6.917    1.53 |13.000    6.36 | 19.08    1.25
0.917    0.84 | 7.000    1.53 |13.083    5.37 | 19.17    1.25
1.000    0.84 | 7.083    1.56 |13.167    5.37 | 19.25    1.25
1.083    0.86 | 7.167    1.56 |13.250    5.37 | 19.33    1.20
1.167    0.86 | 7.250    1.56 |13.333    4.54 | 19.42    1.20
1.250    0.86 | 7.333    1.60 |13.417    4.54 | 19.50    1.20
1.333    0.88 | 7.417    1.60 |13.500    4.54 | 19.58    1.15
1.417    0.88 | 7.500    1.60 |13.583    4.01 | 19.67    1.15
1.500    0.88 | 7.583    1.64 |13.667    4.01 | 19.75    1.15
1.583    0.90 | 7.667    1.64 |13.750    4.01 | 19.83    1.10
1.667    0.90 | 7.750    1.64 |13.833    3.52 | 19.92    1.10
1.750    0.90 | 7.833    1.68 |13.917    3.52 | 20.00    1.10
1.833    0.92 | 7.917    1.68 |14.000    3.52 | 20.08    1.05
1.917    0.92 | 8.000    1.68 |14.083    3.14 | 20.17    1.05
2.000    0.92 | 8.083    1.72 |14.167    3.14 | 20.25    1.05
2.083    0.94 | 8.167    1.72 |14.250    3.14 | 20.33    1.02
2.167    0.94 | 8.250    1.72 |14.333    2.86 | 20.42    1.02
2.250    0.94 | 8.333    1.85 |14.417    2.86 | 20.50    1.02
```

2.333	0.96	8.417	1.85	14.500	2.86	20.58	1.02
2.417	0.96	8.500	1.85	14.583	2.73	20.67	1.02
2.500	0.96	8.583	2.04	14.667	2.73	20.75	1.02
2.583	0.98	8.667	2.04	14.750	2.73	20.83	1.00
2.667	0.98	8.750	2.04	14.833	2.58	20.92	1.00
2.750	0.98	8.833	2.24	14.917	2.58	21.00	1.00
2.833	1.00	8.917	2.24	15.000	2.58	21.08	0.99
2.917	1.00	9.000	2.24	15.083	2.45	21.17	0.99
3.000	1.00	9.083	2.43	15.167	2.45	21.25	0.99
3.083	1.02	9.167	2.43	15.250	2.45	21.33	0.99
3.167	1.02	9.250	2.43	15.333	2.30	21.42	0.99
3.250	1.02	9.333	2.53	15.417	2.30	21.50	0.99
3.333	1.04	9.417	2.53	15.500	2.30	21.58	0.98
3.417	1.04	9.500	2.53	15.583	2.17	21.67	0.98
3.500	1.04	9.583	2.53	15.667	2.17	21.75	0.98
3.583	1.06	9.667	2.53	15.750	2.17	21.83	0.96
3.667	1.06	9.750	2.53	15.833	2.03	21.92	0.96
3.750	1.06	9.833	2.70	15.917	2.03	22.00	0.96
3.833	1.08	9.917	2.70	16.000	2.03	22.08	0.96
3.917	1.08	10.000	2.70	16.083	1.89	22.17	0.96
4.000	1.08	10.083	3.00	16.167	1.89	22.25	0.96
4.083	1.10	10.167	3.00	16.250	1.89	22.33	0.95
4.167	1.10	10.250	3.00	16.333	1.80	22.42	0.95
4.250	1.10	10.333	3.42	16.417	1.80	22.50	0.95
4.333	1.13	10.417	3.42	16.500	1.80	22.58	0.94
4.417	1.13	10.500	3.42	16.583	1.75	22.67	0.94
4.500	1.13	10.583	3.87	16.667	1.75	22.75	0.94
4.583	1.17	10.667	3.87	16.750	1.75	22.83	0.93
4.667	1.17	10.750	3.87	16.833	1.70	22.92	0.93
4.750	1.17	10.833	4.53	16.917	1.70	23.00	0.93
4.833	1.21	10.917	4.53	17.000	1.70	23.08	0.92
4.917	1.21	11.000	4.53	17.083	1.65	23.17	0.92
5.000	1.21	11.083	5.29	17.167	1.65	23.25	0.92
5.083	1.25	11.167	5.29	17.250	1.65	23.33	0.91
5.167	1.25	11.250	5.29	17.333	1.60	23.42	0.91
5.250	1.25	11.333	6.69	17.417	1.60	23.50	0.91
5.333	1.29	11.417	6.69	17.500	1.60	23.58	0.90
5.417	1.29	11.500	6.69	17.583	1.55	23.67	0.90
5.500	1.29	11.583	8.52	17.667	1.55	23.75	0.90
5.583	1.33	11.667	8.52	17.750	1.55	23.83	0.89
5.667	1.33	11.750	8.52	17.833	1.50	23.92	0.89
5.750	1.33	11.833	34.71	17.917	1.50	24.00	0.89
5.833	1.37	11.917	34.71	18.000	1.50	24.08	0.88
5.917	1.37	12.000	34.71	18.083	1.45	24.17	0.88
6.000	1.37	12.083	85.66	18.167	1.45	24.25	0.88
6.083	1.41	12.167	85.67	18.250	1.45		

Unit Hyd Qpeak (cms)= 1.391

PEAK FLOW (cms)= 0.747 (i)
TIME TO PEAK (hrs)= 13.083
RUNOFF VOLUME (mm)= 27.169
TOTAL RAINFALL (mm)= 79.200
RUNOFF COEFFICIENT = 0.343

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0040):	30.96	0.747	13.08	27.17
+ ID2= 2 (0049):	2951.15	14.225	27.00	22.08
ID = 3 (0050):	2982.11	14.227	27.00	22.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0050)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0050):	2982.11	14.227	27.00	22.13
+ ID2= 2 (0051):	86.88	1.397	13.83	24.51
ID = 1 (0050):	3068.99	14.258	27.00	22.20

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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================================================================================================================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
         V  V   I       SS  U   U  A   A  L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M  M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\0efd8e52-4879
  Summary filename: C:\Users\jkoen\AppData\Local\Civica\VH5\7d995724-cf38-4bed-ae81-68911ac16b3f\0efd8e52-4879


DATE: 09/27/2024                          TIME: 03:07:20

USER:


COMMENTS: _____________________________________________________


----------------------------------------------------------------------------------------------------------------
  ***********************************************
  ** SIMULATION : Hzl12h15                     **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jkoen\AppD
|                  |              ata\Local\Temp\
|                  |              2259eca7-ec78-479b-9f45-dbe17dbe9217\e81c15b1
| Ptotal=212.00 mm |    Comments: Hzl12h15
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.00    6.00 |  3.00   13.00 |   6.00   23.00 |   9.00   53.00
               0.25    6.00 |  3.25   13.00 |   6.25   23.00 |   9.25   53.00
               0.50    6.00 |  3.50   13.00 |   6.50   23.00 |   9.50   53.00
               0.75    6.00 |  3.75   13.00 |   6.75   23.00 |   9.75   53.00
               1.00    4.00 |  4.00   17.00 |   7.00   13.00 |  10.00   38.00
               1.25    4.00 |  4.25   17.00 |   7.25   13.00 |  10.25   38.00
               1.50    4.00 |  4.50   17.00 |   7.50   13.00 |  10.50   38.00
               1.75    4.00 |  4.75   17.00 |   7.75   13.00 |  10.75   38.00
               2.00    6.00 |  5.00   13.00 |   8.00   13.00 |  11.00   13.00
               2.25    6.00 |  5.25   13.00 |   8.25   13.00 |  11.25   13.00
               2.50    6.00 |  5.50   13.00 |   8.50   13.00 |  11.50   13.00
               2.75    6.00 |  5.75   13.00 |   8.75   13.00 |  11.75   13.00

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| CALIB            |
| NASHYD   (  0001)|   Area    (ha)= 153.20   Curve Number   (CN)= 74.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.80   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.86

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
               0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
               0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
               0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
               0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
               0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
               0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
               0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
               0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
               0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
               0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
               1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
               1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
               1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
               1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
               1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
               1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
               1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
               1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
               1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
               1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
               1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
               1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
               2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
               2.083    6.00 | 5.083   13.00 | 8.083   13.00 | 11.08   13.00
               2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
               2.250    6.00 | 5.250   13.00 | 8.250   13.00 | 11.25   13.00
               2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
               2.417    6.00 | 5.417   13.00 | 8.417   13.00 | 11.42   13.00
               2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
               2.583    6.00 | 5.583   13.00 | 8.583   13.00 | 11.58   13.00
               2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
               2.750    6.00 | 5.750   13.00 | 8.750   13.00 | 11.75   13.00
               2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
               2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
               3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

     Unit Hyd Qpeak  (cms)=   3.146

     PEAK FLOW       (cms)=  10.808 (i)
     TIME TO PEAK    (hrs)=  11.917
     RUNOFF VOLUME    (mm)= 142.098
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.670

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| SHIFT HYD(  0015)|
| IN= 2---> OUT= 1 |
| SHIFT=114.8 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)      (cms)     (hrs)      (mm)
          ID= 2 (  0001):  153.20    10.81     11.92    142.10
    SHIFT ID= 1 (  0015):  153.20    10.81     13.75    142.10

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--------------------
| CALIB            |
| NASHYD   (  0002)|   Area    (ha)= 230.56   Curve Number   (CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.79

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
               0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
               0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
               0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
               0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
               0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
               0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
               0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
               0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
               0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
               0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
               1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
               1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
               1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
               1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
               1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
               1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
               1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
               1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
               1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
               1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
               1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
               1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
               2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
```

2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 4.920

PEAK FLOW (cms)= 15.753 (i)
TIME TO PEAK (hrs)= 11.917
RUNOFF VOLUME (mm)= 133.107
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.628

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0016)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 92.3 min	ID= 2 (0002):	230.56	15.75	11.92	133.11
	SHIFT ID= 1 (0016):	230.56	15.75	13.42	133.11

CALIB				
NASHYD (0005)	Area (ha)= 199.08	Curve Number (CN)= 76.0		
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.99			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 3.821

PEAK FLOW (cms)= 13.901 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 146.243
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.690

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0018)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0016):	230.56	15.753	13.42	133.11
	+ ID2= 2 (0005):	199.08	13.901	12.08	146.24
	ID = 3 (0018):	429.64	27.603	12.92	139.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0022)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=132.2 min	ID= 2 (0018):	429.64	27.60	12.92	139.19
	SHIFT ID= 1 (0022):	429.64	27.60	15.08	139.19

CALIB				
NASHYD (0003)	Area (ha)= 51.28	Curve Number (CN)= 82.0		
ID= 1 DT= 5.0 min	Ia (mm)= 7.00	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.19			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 1.646

PEAK FLOW (cms)= 4.802 (i)
TIME TO PEAK (hrs)= 11.333
RUNOFF VOLUME (mm)= 161.166

TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.760

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0017)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 38.7 min	ID= 2 (0003):	51.28	4.80	11.33	161.17
	SHIFT ID= 1 (0017):	51.28	4.80	11.92	161.17

CALIB			
NASHYD (0004)	Area (ha)= 271.60	Curve Number (CN)= 80.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.40	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.55		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 6.693

PEAK FLOW (cms)= 22.326 (i)
TIME TO PEAK (hrs)= 11.667
RUNOFF VOLUME (mm)= 156.140
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.737

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0019)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0017):	51.28	4.802	11.92	161.17
	+ ID2= 2 (0004):	271.60	22.326	11.67	156.14
	ID = 3 (0019):	322.88	27.051	11.67	156.94

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0021)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 58.8 min	ID= 2 (0019):	322.88	27.05	11.67	156.94
	SHIFT ID= 1 (0021):	322.88	27.05	12.58	156.94

CALIB			
NASHYD (0006)	Area (ha)= 300.52	Curve Number (CN)= 82.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.97		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 5.827

PEAK FLOW (cms)= 22.511 (i)
TIME TO PEAK (hrs)= 12.000
RUNOFF VOLUME (mm)= 160.307
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.756

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0020)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0015):	153.20	10.808	13.75	142.10
	+ ID2= 2 (0021):	322.88	27.051	12.58	156.94
	ID = 3 (0020):	476.08	36.020	12.92	152.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0020)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0020):   476.08  36.020    12.92   152.16
      + ID2= 2 (  0022):   429.64  27.603    15.08   139.19
        ================================================
        ID = 1 (  0020):   905.72  54.113    13.58   146.01

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0020):   905.72  54.113    13.58   146.01
      + ID2= 2 (  0006):   300.52  22.511    12.00   160.31
        ================================================
        ID = 3 (  0020):  1206.24  72.449    12.92   149.57

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0023)|
| IN= 2---> OUT= 1 |
| SHIFT=128.8 min  |       AREA      QPEAK      TPEAK       R.V.
-------------------          (ha)      (cms)      (hrs)       (mm)
          ID= 2 (  0020): 1206.24    72.45      12.92     149.57
     SHIFT ID= 1 (  0023): 1206.24    72.45      15.00     149.57

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| CALIB            |
| NASHYD   (  0007)|   Area    (ha)= 128.72   Curve Number   (CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.98

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
   TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
    hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
  0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
  0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
  0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
  0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
  0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
  0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
  0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
  0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
  0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
  0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
  0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
  1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
  1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
  1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
  1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
  1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
  1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
  1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
  1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
  1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
  1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
  1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
  1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
  2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
  2.083    6.00 | 5.083   13.00 | 8.083   13.00 | 11.08   13.00
  2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
  2.250    6.00 | 5.250   13.00 | 8.250   13.00 | 11.25   13.00
  2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
  2.417    6.00 | 5.417   13.00 | 8.417   13.00 | 11.42   13.00
  2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
  2.583    6.00 | 5.583   13.00 | 8.583   13.00 | 11.58   13.00
  2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
  2.750    6.00 | 5.750   13.00 | 8.750   13.00 | 11.75   13.00
  2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
  2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
  3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

    Unit Hyd Qpeak  (cms)=   2.483

    PEAK FLOW       (cms)=   9.324 (i)
    TIME TO PEAK    (hrs)=  12.000
    RUNOFF VOLUME    (mm)= 153.365
    TOTAL RAINFALL   (mm)= 212.000
    RUNOFF COEFFICIENT   =   0.723

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD  (  0024)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0023):  1206.24  72.449    15.00   149.57
      + ID2= 2 (  0007):   128.72   9.324    12.00   153.36
        ================================================
        ID = 3 (  0024):  1334.96  75.951    14.83   149.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0025)|
| IN= 2---> OUT= 1 |
| SHIFT=155.6 min  |       AREA      QPEAK      TPEAK       R.V.
-------------------          (ha)      (cms)      (hrs)       (mm)
          ID= 2 (  0024): 1334.96    75.95      14.83     149.94
     SHIFT ID= 1 (  0025): 1334.96    75.95      17.42     149.94

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| CALIB            |
| NASHYD   (  0008)|   Area    (ha)= 109.00   Curve Number   (CN)= 74.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.80   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.78

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
   TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
    hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
  0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
  0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
  0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
  0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
  0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
  0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
  0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
  0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
  0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
  0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
  0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
  1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
  1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
  1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
  1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
  1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
  1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
  1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
  1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
  1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
  1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
  1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
  1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
  2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
  2.083    6.00 | 5.083   13.00 | 8.083   13.00 | 11.08   13.00
  2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
  2.250    6.00 | 5.250   13.00 | 8.250   13.00 | 11.25   13.00
  2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
  2.417    6.00 | 5.417   13.00 | 8.417   13.00 | 11.42   13.00
  2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
  2.583    6.00 | 5.583   13.00 | 8.583   13.00 | 11.58   13.00
  2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
  2.750    6.00 | 5.750   13.00 | 8.750   13.00 | 11.75   13.00
  2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
  2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
  3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

    Unit Hyd Qpeak  (cms)=   2.339

    PEAK FLOW       (cms)=   7.855 (i)
    TIME TO PEAK    (hrs)=  11.833
    RUNOFF VOLUME    (mm)= 142.098
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TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.670

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0026)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 95.6 min	ID= 2 (0008):	109.00	7.86	11.83	142.10
	SHIFT ID= 1 (0026):	109.00	7.86	13.42	142.10

CALIB				
NASHYD (0009)	Area (ha)= 110.92	Curve Number (CN)= 74.0		
ID= 1 DT= 5.0 min	Ia (mm)= 7.90	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.89			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.242

PEAK FLOW (cms)= 7.763 (i)
TIME TO PEAK (hrs)= 12.000
RUNOFF VOLUME (mm)= 142.007
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.670

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0029)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT=116.6 min	ID= 2 (0009):	110.92	7.76	12.00	142.01
	SHIFT ID= 1 (0029):	110.92	7.76	13.92	142.01

CALIB				
NASHYD (0010)	Area (ha)= 86.84	Curve Number (CN)= 74.0		
ID= 1 DT= 5.0 min	Ia (mm)= 8.20	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.84			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 1.803

PEAK FLOW (cms)= 6.154 (i)
TIME TO PEAK (hrs)= 11.917
RUNOFF VOLUME (mm)= 141.735
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.669

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0028)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1		(ha)	(cms)	(hrs)	(mm)
SHIFT= 98.7 min	ID= 2 (0010):	86.84	6.15	11.92	141.73
	SHIFT ID= 1 (0028):	86.84	6.15	13.50	141.73

CALIB				
NASHYD (0011)	Area (ha)= 25.76	Curve Number (CN)= 82.0		
ID= 1 DT= 5.0 min	Ia (mm)= 7.10	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.07			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00

0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 0.920

PEAK FLOW (cms)= 2.506 (i)
TIME TO PEAK (hrs)= 11.250
RUNOFF VOLUME (mm)= 161.070
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.760

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0027)
IN= 2---> OUT= 1
SHIFT= 76.1 min

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0011):	25.76	2.51	11.25	161.07
SHIFT ID= 1 (0027):	25.76	2.51	12.50	161.07

CALIB
NASHYD (0012)
ID= 1 DT= 5.0 min

Area (ha)= 229.28 Curve Number (CN)= 77.0
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.19

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 3.999

PEAK FLOW (cms)= 15.434 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 148.790
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.702

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0013)
ID= 1 DT= 5.0 min

Area (ha)= 118.16 Curve Number (CN)= 84.0
Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 2.14

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.109

PEAK FLOW (cms)= 8.666 (i)
TIME TO PEAK (hrs)= 12.167
RUNOFF VOLUME (mm)= 165.086

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     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.779

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| SHIFT HYD(  0031)|
| IN= 2---> OUT= 1 |
| SHIFT= 56.8 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0013):  118.16      8.67     12.17    165.09
    SHIFT ID= 1 (  0031):  118.16      8.67     13.08    165.09

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--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0012):   229.28  15.434    12.25   148.79
     + ID2= 2 (  0025):  1334.96  75.951    17.42   149.94
       ================================================
       ID = 3 (  0030):  1564.24  77.757    17.33   149.77

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):  1564.24  77.757    17.33   149.77
     + ID2= 2 (  0026):   109.00   7.855    13.42   142.10
       ================================================
       ID = 1 (  0030):  1673.24  79.061    17.25   149.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0030):  1673.24  79.061    17.25   149.27
     + ID2= 2 (  0027):    25.76   2.506    12.50   161.07
       ================================================
       ID = 3 (  0030):  1699.00  79.086    17.25   149.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):  1699.00  79.086    17.25   149.45
     + ID2= 2 (  0028):    86.84   6.154    13.50   141.73
       ================================================
       ID = 1 (  0030):  1785.84  80.295    17.25   149.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0030):  1785.84  80.295    17.25   149.07
     + ID2= 2 (  0029):   110.92   7.763    13.92   142.01
       ================================================
       ID = 3 (  0030):  1896.76  82.437    17.17   148.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):  1896.76  82.437    17.17   148.66
     + ID2= 2 (  0031):   118.16   8.666    13.08   165.09
       ================================================
       ID = 1 (  0030):  2014.92  84.354    17.08   149.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| SHIFT HYD(  0032)|
| IN= 2---> OUT= 1 |
| SHIFT=124.2 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0030): 2014.92    84.35     17.08    149.62
    SHIFT ID= 1 (  0032): 2014.92    84.35     19.08    149.62

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0014)|   Area     (ha)= 134.04   Curve Number   (CN)= 78.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   7.60   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.09

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                              ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
              0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
              0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
              0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
              0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
              0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
              0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
              0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
              0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
              0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
              0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
              1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
              1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
              1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
              1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
              1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
              1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
              1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
              1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
              1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
              1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
              1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
              1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
              2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
              2.083    6.00 | 5.083   13.00 | 8.083   13.00 | 11.08   13.00
              2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
              2.250    6.00 | 5.250   13.00 | 8.250   13.00 | 11.25   13.00
              2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
              2.417    6.00 | 5.417   13.00 | 8.417   13.00 | 11.42   13.00
              2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
              2.583    6.00 | 5.583   13.00 | 8.583   13.00 | 11.58   13.00
              2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
              2.750    6.00 | 5.750   13.00 | 8.750   13.00 | 11.75   13.00
              2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
              2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
              3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

     Unit Hyd Qpeak  (cms)=   2.450

     PEAK FLOW       (cms)=   9.353 (i)
     TIME TO PEAK    (hrs)=  12.167
     RUNOFF VOLUME    (mm)= 151.352
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.714

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0033)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0014):   134.04   9.353    12.17   151.35
     + ID2= 2 (  0032):  2014.92  84.354    19.08   149.62
       ================================================
       ID = 3 (  0033):  2148.96  84.631    19.08   149.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
```

```
--------------------
| SHIFT HYD(  0041)|
| IN= 2---> OUT= 1 |
| SHIFT=126.1 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0033): 2148.96    84.63     19.08    149.73
    SHIFT ID= 1 (  0041): 2148.96    84.63     21.17    149.73
```

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--------------------
| CALIB            |
| NASHYD   (  0035)|   Area    (ha)= 121.48   Curve Number   (CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.70   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.68
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.762

PEAK FLOW (cms)= 9.524 (i)
TIME TO PEAK (hrs)= 11.750
RUNOFF VOLUME (mm)= 153.553
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.724

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
--------------------
| ADD HYD  (  0042)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0035):   121.48   9.524    11.75   153.55
     + ID2= 2 (  0041):  2148.96  84.631    21.17   149.73
       ================================================
       ID = 3 (  0042):  2270.44  84.639    21.17   149.94
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
--------------------
| SHIFT HYD(  0043)|
| IN= 2---> OUT= 1 |
| SHIFT= 94.5 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0042): 2270.44    84.64     21.17    149.94
    SHIFT ID= 1 (  0043): 2270.44    84.64     22.67    149.94
```

```
--------------------
| CALIB            |
| NASHYD   (  0034)|   Area    (ha)= 244.28   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.10   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.19
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 4.260

PEAK FLOW (cms)= 16.997 (i)
TIME TO PEAK (hrs)= 12.167
RUNOFF VOLUME (mm)= 155.480
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.733

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
--------------------
| SHIFT HYD(  0044)|
| IN= 2---> OUT= 1 |
| SHIFT= 78.3 min  |      AREA     QPEAK     TPEAK      R.V.
--------------------      (ha)     (cms)     (hrs)      (mm)
         ID= 2 (  0034):  244.28    17.00     12.17    155.48
    SHIFT ID= 1 (  0044):  244.28    17.00     13.42    155.48
```

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--------------------
| CALIB            |
| NASHYD   (  0036)|   Area    (ha)= 154.31   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.30   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   2.39
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.466

PEAK FLOW (cms)= 10.363 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 157.603
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.743

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0046) / IN= 2---> OUT= 1 / SHIFT= 18.9 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0036):	154.31	10.36	12.33	157.60
SHIFT ID= 1 (0046):	154.31	10.36	12.58	157.60

CALIB / NASHYD (0037) / ID= 1 DT= 5.0 min				
	Area	(ha)= 144.96	Curve Number	(CN)= 77.0
	Ia	(mm)= 8.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.56			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 3.549

PEAK FLOW (cms)= 11.505 (i)
TIME TO PEAK (hrs)= 11.667
RUNOFF VOLUME (mm)= 148.605
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.701

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0045) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0037):	144.96	11.505	11.67	148.60
+ ID2= 2 (0043):	2270.44	84.639	22.67	149.94
ID = 3 (0045):	2415.40	84.640	22.67	149.86

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045) / 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0045):	2415.40	84.640	22.67	149.86
+ ID2= 2 (0044):	244.28	16.997	13.42	155.48
ID = 1 (0045):	2659.68	84.768	22.58	150.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0045) / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0045):	2659.68	84.768	22.58	150.37
+ ID2= 2 (0046):	154.31	10.363	12.58	157.60
ID = 3 (0045):	2813.99	84.846	22.58	150.77

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0047) / IN= 2---> OUT= 1 / SHIFT= 73.6 min	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 2 (0045):	2813.99	84.85	22.58	150.77
SHIFT ID= 1 (0047):	2813.99	84.85	23.75	150.77

CALIB / NASHYD (0038)				
	Area	(ha)= 137.16	Curve Number	(CN)= 83.0

ID= 1 DT= 5.0 min	Ia (mm)= 7.70 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.25

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 4.191

PEAK FLOW (cms)= 12.703 (i)
TIME TO PEAK (hrs)= 11.333
RUNOFF VOLUME (mm)= 162.835
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.768

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0048)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0038):	137.16	12.703	11.33	162.83
	+ ID2= 2 (0047):	2813.99	84.846	23.75	150.77
	ID = 3 (0048):	2951.15	84.846	23.75	151.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

SHIFT HYD(0049)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT= 38.3 min		(ha)	(cms)	(hrs)	(mm)
	ID= 2 (0048):	2951.15	84.85	23.75	151.33
	SHIFT ID= 1 (0049):	2951.15	84.85	24.33	151.33

CALIB					
NASHYD (0039)	Area (ha)=	86.88	Curve Number (CN)=	82.0	
ID= 1 DT= 5.0 min	Ia (mm)=	9.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.25			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.655

PEAK FLOW (cms)= 7.965 (i)
TIME TO PEAK (hrs)= 11.333
RUNOFF VOLUME (mm)= 159.258
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.751

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

SHIFT HYD(0051)		AREA	QPEAK	TPEAK	R.V.
IN= 2---> OUT= 1					
SHIFT= 22.1 min		(ha)	(cms)	(hrs)	(mm)
	ID= 2 (0039):	86.88	7.96	11.33	159.26
	SHIFT ID= 1 (0051):	86.88	7.96	11.67	159.26

CALIB					
NASHYD (0040)	Area (ha)=	30.96	Curve Number (CN)=	83.0	
ID= 1 DT= 5.0 min	Ia (mm)=	8.30	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.85			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00

0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 1.391

PEAK FLOW (cms)= 3.240 (i)
TIME TO PEAK (hrs)= 11.000
RUNOFF VOLUME (mm)= 162.259
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.765

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0050)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0040):	30.96	3.240	11.00	162.26
	+ ID2= 2 (0049):	2951.15	84.846	24.33	151.33
	ID = 3 (0050):	2982.11	84.846	24.33	151.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0050)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0050):	2982.11	84.846	24.33	151.44
	+ ID2= 2 (0051):	86.88	7.965	11.67	159.26
	ID = 1 (0050):	3068.99	84.846	24.33	151.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH

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Appendix D

Hydraulic Modelling Outputs

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.2
Watershed: Grand River Conservation Authority
River: Speed River
Reach: -

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Exising Condition HEC-RAS Hydraulic Output Summary
Bridge 2-WG

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Speed River	367.13	2-Year	8.36	410.3	411.41		411.43	0.000342	0.5	21.05	42.24	0.17
Speed River	367.13	10-Year	15.12	410.3	411.6		411.62	0.000514	0.7	30.25	54.67	0.21
Speed River	367.13	25-Year	18.74	410.3	411.68		411.71	0.000588	0.78	34.73	59.94	0.23
Speed River	367.13	50-Year	21.51	410.3	411.73		411.76	0.00064	0.84	37.98	63.45	0.24
Speed River	367.13	100-Year	24.56	410.3	411.79		411.82	0.000689	0.9	41.48	67.03	0.25
Speed River	367.13	Regional	84.63	410.3	413.21		413.23	0.000234	0.85	178.01	123.99	0.16
Speed River	327.3	2-Year	8.36	410.7	411.36		411.39	0.002773	0.82	10.42	31.56	0.41
Speed River	327.3	10-Year	15.12	410.7	411.53		411.58	0.002505	1	17.16	44.22	0.42
Speed River	327.3	25-Year	18.74	410.7	411.61		411.66	0.002521	1.08	20.63	55	0.43
Speed River	327.3	50-Year	21.51	410.7	411.66		411.72	0.00247	1.12	23.51	58.95	0.43
Speed River	327.3	100-Year	24.56	410.7	411.71		411.77	0.002402	1.16	26.71	62.51	0.43
Speed River	327.3	Regional	84.63	410.7	413.21		413.22	0.000224	0.73	193.19	150.83	0.16
Speed River	299.18	2-Year	8.36	410.33	411.27		411.31	0.002919	1.24	12.1	35.57	0.46
Speed River	299.18	10-Year	15.12	410.33	411.45		411.5	0.003074	1.47	19.62	46.77	0.49
Speed River	299.18	25-Year	18.74	410.33	411.52		411.58	0.003181	1.58	23.14	51.29	0.51
Speed River	299.18	50-Year	21.51	410.33	411.57		411.64	0.003212	1.64	25.87	54.72	0.51
Speed River	299.18	100-Year	24.56	410.33	411.63		411.69	0.003178	1.69	28.98	58.22	0.52
Speed River	299.18	Regional	84.63	410.33	413.2		413.21	0.000312	0.96	181.83	131.65	0.19
Speed River	276.3	2-Year	8.36	410.31	411.14		411.22	0.005202	1.42	8.85	29.93	0.6
Speed River	276.3	10-Year	15.12	410.31	411.31		411.41	0.005511	1.73	14.39	39.18	0.64
Speed River	276.3	25-Year	18.74	410.31	411.38		411.49	0.005367	1.81	17.3	42.12	0.64
Speed River	276.3	50-Year	21.51	410.31	411.43		411.54	0.005062	1.84	19.76	44.36	0.63
Speed River	276.3	100-Year	24.56	410.31	411.5		411.6	0.004679	1.86	22.63	46.87	0.61
Speed River	276.3	Regional	84.63	410.31	413.19		413.21	0.000349	1.01	165.87	121.8	0.2
Speed River	262.84	2-Year	8.36	410.3	411.11		411.16	0.003252	1.09	11.22	34.49	0.47
Speed River	262.84	10-Year	15.12	410.3	411.28		411.34	0.003341	1.32	17.37	39.09	0.49
Speed River	262.84	25-Year	18.74	410.3	411.35		411.42	0.003603	1.45	20.07	42.82	0.52
Speed River	262.84	50-Year	21.51	410.3	411.4		411.48	0.003479	1.49	22.6	44.92	0.52
Speed River	262.84	100-Year	24.56	410.3	411.47		411.54	0.003276	1.52	25.57	47.29	0.51
Speed River	262.84	Regional	84.63	410.3	413.18		413.2	0.000302	0.94	169.6	118.1	0.18
Speed River	243.5	2-Year	8.36	410.3	411.06	410.89	411.1	0.002555	1.02	11.15	32.83	0.42
Speed River	243.5	10-Year	15.12	410.3	411.21	411.03	411.28	0.003131	1.31	16.48	37.7	0.48
Speed River	243.5	25-Year	18.74	410.3	411.27		411.35	0.003492	1.46	18.69	39.56	0.52
Speed River	243.5	50-Year	21.51	410.3	411.32		411.41	0.003548	1.53	20.89	43.45	0.53
Speed River	243.5	100-Year	24.56	410.3	411.39		411.48	0.003298	1.56	24.03	46.09	0.52
Speed River	243.5	Regional	84.63	410.3	413.18		413.2	0.000277	0.92	173.46	120.51	0.18
Speed River	226.68	2-Year	8.36	410.3	410.89	410.89	411.02	0.010254	1.63	6.53	31.53	0.8
Speed River	226.68	10-Year	15.12	410.3	411.02	411.02	411.18	0.010358	1.95	10.77	34.71	0.84
Speed River	226.68	25-Year	18.74	410.3	411.11	411.07	411.26	0.008126	1.91	14	36.92	0.76
Speed River	226.68	50-Year	21.51	410.3	411.22		411.33	0.00537	1.72	18.18	39.47	0.63
Speed River	226.68	100-Year	24.56	410.3	411.31		411.41	0.004397	1.68	21.81	43.19	0.59
Speed River	226.68	Regional	84.63	410.3	413.17		413.19	0.000277	0.92	175.18	123.76	0.18
Speed River	206.55	2-Year	8.36	409.45	410.77		410.79	0.00059	0.68	15.41	35.49	0.22
Speed River	206.55	10-Year	15.12	409.45	411.05		411.07	0.000627	0.83	26.26	42.13	0.23
Speed River	206.55	25-Year	18.74	409.45	411.16		411.19	0.00066	0.9	31.12	46.73	0.24
Speed River	206.55	50-Year	21.51	409.45	411.25		411.28	0.000646	0.93	35.48	50.06	0.24
Speed River	206.55	100-Year	24.56	409.45	411.33		411.37	0.000647	0.96	39.79	52.78	0.25
Speed River	206.55	Regional	84.63	409.45	413.17		413.19	0.000155	0.79	207.86	129.27	0.14
Speed River	200.91	2-Year	8.36	409.5	410.74		410.78	0.001564	0.93	11.91	33.39	0.34
Speed River	200.91	10-Year	15.12	409.5	411.03		411.07	0.001193	1.01	22.72	42.66	0.31
Speed River	200.91	25-Year	18.74	409.5	411.14		411.18	0.001166	1.06	28.07	52.29	0.31
Speed River	200.91	50-Year	21.51	409.5	411.24		411.28	0.001042	1.06	33.27	57.33	0.3
Speed River	200.91	100-Year	24.56	409.5	411.32		411.36	0.000959	1.06	38.33	58.96	0.29
Speed River	200.91	Regional	84.63	409.5	413.17		413.18	0.000157	0.76	213.72	132.22	0.14
Speed River	196.93	2-Year	8.36	409.34	410.72		410.77	0.002652	1.1	10.34	30.83	0.43
Speed River	196.93	10-Year	15.12	409.34	411.02		411.06	0.001688	1.12	21	43.33	0.36
Speed River	196.93	25-Year	18.74	409.34	411.13		411.18	0.00154	1.15	26.37	49.65	0.35
Speed River	196.93	50-Year	21.51	409.34	411.23		411.27	0.001401	1.16	31.47	59.27	0.34
Speed River	196.93	100-Year	24.56	409.34	411.31		411.36	0.001256	1.15	37.01	64.72	0.33
Speed River	196.93	Regional	84.63	409.34	413.17		413.18	0.000163	0.76	213.18	130.1	0.14

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.2
Watershed: Grand River Conservation Authority
River: Speed River
Reach: -

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Exising Condition HEC-RAS Hydraulic Output Summary
Bridge 2-WG

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Speed River	193.69	2-Year	8.36	409.3	410.73		410.76	0.001514	0.9	12.35	28.62	0.33
Speed River	193.69	10-Year	15.12	409.3	411.02		411.06	0.001249	1.02	22.09	39.35	0.32
Speed River	193.69	25-Year	18.74	409.3	411.13		411.17	0.001224	1.08	26.88	44.91	0.32
Speed River	193.69	50-Year	21.51	409.3	411.22		411.27	0.001178	1.11	31.35	54.05	0.32
Speed River	193.69	100-Year	24.56	409.3	411.31		411.35	0.001107	1.13	36.28	58.56	0.31
Speed River	193.69	Regional	84.63	409.3	413.17		413.18	0.000164	0.77	209.31	128.53	0.14
Speed River	191.17	2-Year	8.36	409.28	410.72	410.18	410.76	0.000979	0.84	10.58	14.66	0.28
Speed River	191.17	10-Year	15.12	409.28	410.98	410.41	411.04	0.001375	1.17	13.82	16.1	0.34
Speed River	191.17	25-Year	18.74	409.28	411.07	410.5	411.16	0.001636	1.34	14.97	19.56	0.38
Speed River	191.17	50-Year	21.51	409.28	411.14	410.57	411.25	0.001768	1.45	15.92	26.31	0.4
Speed River	191.17	100-Year	24.56	409.28	411.21	410.63	411.33	0.001972	1.58	16.71	29.44	0.42
Speed River	191.17	Regional	84.63	409.28	413.16	411.6	413.18	0.000186	0.86	196.67	126.5	0.15
Speed River	185.13		Bridge									
Speed River	177.86	2-Year	8.36	409.07	410.52	409.96	410.55	0.001029	0.86	10.36	18.18	0.28
Speed River	177.86	10-Year	15.12	409.07	410.76	410.21	410.83	0.001467	1.2	13.5	20.3	0.35
Speed River	177.86	25-Year	18.74	409.07	410.85	410.31	410.94	0.001772	1.38	14.56	24.27	0.39
Speed River	177.86	50-Year	21.51	409.07	410.92	410.38	411.03	0.001925	1.49	15.46	28.94	0.41
Speed River	177.86	100-Year	24.56	409.07	410.97	410.44	411.1	0.002173	1.63	16.17	34.49	0.44
Speed River	177.86	Regional	84.63	409.07	411.39	411.39	412.25	0.010303	4.22	21.48	67.98	1
Speed River	173.23	2-Year	8.36	409.28	410.48		410.54	0.002184	1.07	7.95	12.76	0.4
Speed River	173.23	10-Year	15.12	409.28	410.73		410.82	0.002326	1.35	14.42	36.69	0.43
Speed River	173.23	25-Year	18.74	409.28	410.84		410.93	0.002245	1.42	18.56	41.86	0.43
Speed River	173.23	50-Year	21.51	409.28	410.92		411.01	0.002106	1.44	22.04	45.23	0.42
Speed River	173.23	100-Year	24.56	409.28	410.98		411.07	0.002106	1.49	25.01	47.21	0.43
Speed River	173.23	Regional	84.63	409.28	411.69		411.85	0.0026	2.23	66.37	71.5	0.51
Speed River	169.75	2-Year	8.36	409.39	410.44		410.52	0.004604	1.32	6.44	12.93	0.54
Speed River	169.75	10-Year	15.12	409.39	410.67		410.8	0.004485	1.63	11.02	28.21	0.57
Speed River	169.75	25-Year	18.74	409.39	410.78		410.91	0.004167	1.7	14.46	37.61	0.56
Speed River	169.75	50-Year	21.51	409.39	410.87		410.99	0.00356	1.67	18.1	41.94	0.52
Speed River	169.75	100-Year	24.56	409.39	410.94		411.06	0.0034	1.7	21.05	44.54	0.52
Speed River	169.75	Regional	84.63	409.39	411.67		411.84	0.003158	2.31	63.4	71.51	0.54
Speed River	163.65	2-Year	8.36	409.42	410.4	410.19	410.49	0.005002	1.39	6.27	13	0.58
Speed River	163.65	10-Year	15.12	409.42	410.63	410.43	410.77	0.005002	1.72	9.96	23.86	0.61
Speed River	163.65	25-Year	18.74	409.42	410.72	410.52	410.88	0.005001	1.85	12.4	30.15	0.62
Speed River	163.65	50-Year	21.51	409.42	410.79	410.63	410.96	0.005002	1.94	14.56	33.45	0.63
Speed River	163.65	100-Year	24.56	409.42	410.85	410.71	411.03	0.005004	2.02	16.6	35.63	0.63
Speed River	163.65	Regional	84.63	409.42	411.54	411.46	411.8	0.005001	2.83	51.7	66.57	0.69

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.2
Watershed: Grand River Conservation Authority
River: Speed River
Reach: -

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Proposed Condition HEC-RAS Hydraulic Output Summary
Bridge 2-WG

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Speed River	367.13	2-Year	8.36	410.3	411.41		411.43	0.000342	0.5	21.05	42.24	0.17
Speed River	367.13	10-Year	15.12	410.3	411.6		411.62	0.000514	0.7	30.25	54.67	0.21
Speed River	367.13	25-Year	18.74	410.3	411.68		411.71	0.000588	0.78	34.73	59.94	0.23
Speed River	367.13	50-Year	21.51	410.3	411.73		411.76	0.00064	0.84	37.97	63.44	0.24
Speed River	367.13	100-Year	24.56	410.3	411.79		411.82	0.000691	0.9	41.43	66.98	0.25
Speed River	367.13	Regional	84.63	410.3	413.12		413.14	0.000278	0.91	166.59	120.67	0.18
Speed River	327.3	2-Year	8.36	410.7	411.36		411.39	0.002773	0.82	10.42	31.56	0.41
Speed River	327.3	10-Year	15.12	410.7	411.53		411.58	0.002505	1	17.16	44.22	0.42
Speed River	327.3	25-Year	18.74	410.7	411.61		411.66	0.002521	1.08	20.63	55	0.43
Speed River	327.3	50-Year	21.51	410.7	411.66		411.72	0.002473	1.12	23.5	58.94	0.43
Speed River	327.3	100-Year	24.56	410.7	411.71		411.77	0.002417	1.16	26.64	62.44	0.43
Speed River	327.3	Regional	84.63	410.7	413.11		413.13	0.000273	0.79	179.05	146.66	0.17
Speed River	299.18	2-Year	8.36	410.33	411.27		411.31	0.002919	1.24	12.1	35.57	0.46
Speed River	299.18	10-Year	15.12	410.33	411.45		411.5	0.003074	1.47	19.62	46.77	0.49
Speed River	299.18	25-Year	18.74	410.33	411.52		411.58	0.003182	1.58	23.14	51.29	0.51
Speed River	299.18	50-Year	21.51	410.33	411.57		411.64	0.00322	1.64	25.84	54.68	0.51
Speed River	299.18	100-Year	24.56	410.33	411.62		411.69	0.003211	1.69	28.86	58.07	0.52
Speed River	299.18	Regional	84.63	410.33	413.1		413.12	0.000378	1.03	169.32	127.61	0.2
Speed River	276.3	2-Year	8.36	410.31	411.14		411.22	0.005202	1.42	8.85	29.93	0.6
Speed River	276.3	10-Year	15.12	410.31	411.31		411.41	0.005511	1.73	14.39	39.18	0.64
Speed River	276.3	25-Year	18.74	410.31	411.38		411.49	0.005365	1.81	17.3	42.12	0.64
Speed River	276.3	50-Year	21.51	410.31	411.43		411.54	0.005127	1.85	19.66	44.27	0.63
Speed River	276.3	100-Year	24.56	410.31	411.49		411.6	0.004854	1.88	22.31	46.59	0.62
Speed River	276.3	Regional	84.63	410.31	413.09		413.11	0.000419	1.08	154.08	116.43	0.22
Speed River	262.84	2-Year	8.36	410.3	411.11		411.16	0.003252	1.09	11.22	34.49	0.47
Speed River	262.84	10-Year	15.12	410.3	411.28		411.34	0.003341	1.32	17.37	39.09	0.49
Speed River	262.84	25-Year	18.74	410.3	411.35		411.42	0.003602	1.45	20.08	42.82	0.52
Speed River	262.84	50-Year	21.51	410.3	411.4		411.47	0.00353	1.5	22.47	44.82	0.52
Speed River	262.84	100-Year	24.56	410.3	411.46		411.54	0.003414	1.54	25.17	46.98	0.52
Speed River	262.84	Regional	84.63	410.3	413.08		413.11	0.000365	1	158.02	114.59	0.2
Speed River	243.5	2-Year	8.36	410.3	411.06	410.89	411.1	0.002555	1.02	11.15	32.83	0.42
Speed River	243.5	10-Year	15.12	410.3	411.21	411.03	411.28	0.003131	1.31	16.48	37.7	0.48
Speed River	243.5	25-Year	18.74	410.3	411.27		411.35	0.00349	1.46	18.7	39.56	0.52
Speed River	243.5	50-Year	21.51	410.3	411.32		411.4	0.003644	1.55	20.66	43.25	0.53
Speed River	243.5	100-Year	24.56	410.3	411.38		411.47	0.003531	1.59	23.37	45.51	0.53
Speed River	243.5	Regional	84.63	410.3	413.08		413.1	0.000334	0.99	161.49	116.95	0.19
Speed River	226.68	2-Year	8.36	410.3	410.89	410.89	411.02	0.010254	1.63	6.53	31.53	0.8
Speed River	226.68	10-Year	15.12	410.3	411.02	411.02	411.18	0.010358	1.95	10.77	34.71	0.84
Speed River	226.68	25-Year	18.74	410.3	411.11	411.07	411.26	0.00821	1.92	13.95	36.88	0.76
Speed River	226.68	50-Year	21.51	410.3	411.2		411.32	0.005958	1.79	17.49	39.08	0.67
Speed River	226.68	100-Year	24.56	410.3	411.29		411.4	0.004782	1.72	20.94	40.94	0.61
Speed River	226.68	Regional	84.63	410.3	413.07		413.09	0.000336	0.99	162.76	120.31	0.2
Speed River	206.55	2-Year	8.36	409.45	410.77		410.79	0.000593	0.68	15.36	35.46	0.22
Speed River	206.55	10-Year	15.12	409.45	411.05		411.07	0.000627	0.83	26.26	42.13	0.23
Speed River	206.55	25-Year	18.74	409.45	411.16		411.19	0.000662	0.9	31.07	46.7	0.24
Speed River	206.55	50-Year	21.51	409.45	411.23		411.27	0.000676	0.94	34.78	49.55	0.25
Speed River	206.55	100-Year	24.56	409.45	411.31		411.35	0.000689	0.99	38.75	52.38	0.25
Speed River	206.55	Regional	84.63	409.45	413.07		413.09	0.000184	0.85	194.83	126.52	0.15
Speed River	200.91	2-Year	8.36	409.5	410.74		410.78	0.001577	0.94	11.86	33.35	0.34
Speed River	200.91	10-Year	15.12	409.5	411.03		411.07	0.001193	1.01	22.72	42.67	0.31
Speed River	200.91	25-Year	18.74	409.5	411.14		411.18	0.001171	1.06	28.01	52.22	0.31
Speed River	200.91	50-Year	21.51	409.5	411.22		411.26	0.00111	1.08	32.4	57.05	0.31
Speed River	200.91	100-Year	24.56	409.5	411.3		411.34	0.001041	1.09	37.09	58.56	0.3
Speed River	200.91	Regional	84.63	409.5	413.07		413.08	0.000187	0.81	200.42	129.07	0.15
Speed River	196.93	2-Year	8.36	409.34	410.72		410.77	0.002684	1.11	10.28	30.77	0.43
Speed River	196.93	10-Year	15.12	409.34	411.02		411.06	0.001687	1.12	21.01	43.33	0.36
Speed River	196.93	25-Year	18.74	409.34	411.13		411.18	0.001547	1.16	26.31	49.59	0.35
Speed River	196.93	50-Year	21.51	409.34	411.21		411.26	0.001497	1.19	30.54	57.92	0.35
Speed River	196.93	100-Year	24.56	409.34	411.29		411.34	0.001386	1.2	35.54	63.98	0.34
Speed River	196.93	Regional	84.63	409.34	413.07		413.08	0.000194	0.81	200.08	127.38	0.15
Speed River	193.69	2-Year	8.36	409.3	410.72		410.76	0.001528	0.9	12.3	28.57	0.33
Speed River	193.69	10-Year	15.12	409.3	411.02		411.06	0.001249	1.02	22.09	39.35	0.32
Speed River	193.69	25-Year	18.74	409.3	411.13		411.17	0.001229	1.08	26.83	44.86	0.32
Speed River	193.69	50-Year	21.51	409.3	411.21		411.25	0.001242	1.13	30.52	52.19	0.32
Speed River	193.69	100-Year	24.56	409.3	411.29		411.33	0.001203	1.16	34.98	57.52	0.32
Speed River	193.69	Regional	84.63	409.3	413.07		413.08	0.000195	0.82	196.36	125.5	0.15

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.2
Watershed: Grand River Conservation Authority
River: Speed River
Reach: -

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Proposed Condition HEC-RAS Hydraulic Output Summary
Bridge 2-WG

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Speed River	191.17	2-Year	8.36	409.28	410.72	410.18	410.76	0.000968	0.84	11	14.65	0.28
Speed River	191.17	10-Year	15.12	409.28	410.99	410.41	411.05	0.001298	1.14	15.04	16.18	0.33
Speed River	191.17	25-Year	18.74	409.28	411.08	410.5	411.16	0.001528	1.3	16.55	20.06	0.37
Speed River	191.17	50-Year	21.51	409.28	411.14	410.57	411.23	0.001682	1.41	17.63	26.19	0.39
Speed River	191.17	100-Year	24.56	409.28	411.2	410.64	411.31	0.001852	1.53	18.68	29.29	0.41
Speed River	191.17	Regional	84.63	409.28	413.06	411.57	413.08	0.000224	0.93	183.7	124.31	0.16
Speed River	185.13		Bridge									
Speed River	177.86	2-Year	8.36	409.07	410.52	409.96	410.55	0.000983	0.84	11.19	18.2	0.28
Speed River	177.86	10-Year	15.12	409.07	410.78	410.21	410.84	0.001285	1.13	15.48	20.9	0.33
Speed River	177.86	25-Year	18.74	409.07	410.87	410.32	410.94	0.001502	1.28	16.99	25.15	0.36
Speed River	177.86	50-Year	21.51	409.07	410.93	410.38	411.02	0.001656	1.39	18.04	29.83	0.38
Speed River	177.86	100-Year	24.56	409.07	410.99	410.47	411.09	0.001838	1.5	19.03	35.64	0.41
Speed River	177.86	Regional	84.63	409.07	411.51	411.33	412.06	0.006659	3.54	27.94	72.45	0.82
Speed River	173.23	2-Year	8.36	409.28	410.48		410.54	0.002184	1.07	7.95	12.76	0.4
Speed River	173.23	10-Year	15.12	409.28	410.73		410.82	0.002326	1.35	14.42	36.69	0.43
Speed River	173.23	25-Year	18.74	409.28	410.84		410.93	0.002245	1.42	18.56	41.86	0.43
Speed River	173.23	50-Year	21.51	409.28	410.92		411.01	0.002106	1.44	22.04	45.23	0.42
Speed River	173.23	100-Year	24.56	409.28	410.98		411.07	0.002106	1.49	25.01	47.21	0.43
Speed River	173.23	Regional	84.63	409.28	411.69		411.85	0.0026	2.23	66.37	71.5	0.51
Speed River	169.75	2-Year	8.36	409.39	410.44		410.52	0.004604	1.32	6.44	12.93	0.54
Speed River	169.75	10-Year	15.12	409.39	410.67		410.8	0.004485	1.63	11.02	28.21	0.57
Speed River	169.75	25-Year	18.74	409.39	410.78		410.91	0.004167	1.7	14.46	37.61	0.56
Speed River	169.75	50-Year	21.51	409.39	410.87		410.99	0.00356	1.67	18.1	41.94	0.52
Speed River	169.75	100-Year	24.56	409.39	410.94		411.06	0.0034	1.7	21.05	44.54	0.52
Speed River	169.75	Regional	84.63	409.39	411.67		411.84	0.003158	2.31	63.4	71.51	0.54
Speed River	163.65	2-Year	8.36	409.42	410.4	410.19	410.49	0.005002	1.39	6.27	13	0.58
Speed River	163.65	10-Year	15.12	409.42	410.63	410.43	410.77	0.005002	1.72	9.96	23.86	0.61
Speed River	163.65	25-Year	18.74	409.42	410.72	410.52	410.88	0.005001	1.85	12.4	30.15	0.62
Speed River	163.65	50-Year	21.51	409.42	410.79	410.63	410.96	0.005002	1.94	14.56	33.45	0.63
Speed River	163.65	100-Year	24.56	409.42	410.85	410.71	411.03	0.005004	2.02	16.6	35.63	0.63
Speed River	163.65	Regional	84.63	409.42	411.54	411.46	411.8	0.005001	2.83	51.7	66.57	0.69

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.2
Watershed: Grand River Conservation Authority
River: Speed River
Reach: -

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Project Title
HEC-RAS Hydraulic Output Summary- Water Surface Elevation Comparison Summary

Modelling Scenario **Bridge 2-WG**

EXISTING CONDITIONS
PROPOSED CONDITIONS

Standard HEC-RAS Outputs					EXISTING	PROPOSED	DIFFERENCE
Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	EXISTING W.S. Elev (m)	PROPOSED W.S. Elev (m)	W.S.E Diff (m)
Speed River	367.13	2-Year	8.36	410.30	411.41	411.41	0.00
Speed River	367.13	10-Year	15.12	410.30	411.60	411.60	0.00
Speed River	367.13	25-Year	18.74	410.30	411.68	411.68	0.00
Speed River	367.13	50-Year	21.51	410.30	411.73	411.73	0.00
Speed River	367.13	100-Year	24.56	410.30	411.79	411.79	0.00
Speed River	367.13	Regional	84.63	410.30	413.21	413.12	-0.09
Speed River	327.3	2-Year	8.36	410.70	411.36	411.36	0.00
Speed River	327.3	10-Year	15.12	410.70	411.53	411.53	0.00
Speed River	327.3	25-Year	18.74	410.70	411.61	411.61	0.00
Speed River	327.3	50-Year	21.51	410.70	411.66	411.66	0.00
Speed River	327.3	100-Year	24.56	410.70	411.71	411.71	0.00
Speed River	327.3	Regional	84.63	410.70	413.21	413.11	-0.10
Speed River	299.18	2-Year	8.36	410.33	411.27	411.27	0.00
Speed River	299.18	10-Year	15.12	410.33	411.45	411.45	0.00
Speed River	299.18	25-Year	18.74	410.33	411.52	411.52	0.00
Speed River	299.18	50-Year	21.51	410.33	411.57	411.57	0.00
Speed River	299.18	100-Year	24.56	410.33	411.63	411.62	-0.01
Speed River	299.18	Regional	84.63	410.33	413.20	413.10	-0.10
Speed River	276.3	2-Year	8.36	410.31	411.14	411.14	0.00
Speed River	276.3	10-Year	15.12	410.31	411.31	411.31	0.00
Speed River	276.3	25-Year	18.74	410.31	411.38	411.38	0.00
Speed River	276.3	50-Year	21.51	410.31	411.43	411.43	0.00
Speed River	276.3	100-Year	24.56	410.31	411.50	411.49	-0.01
Speed River	276.3	Regional	84.63	410.31	413.19	413.09	-0.10
Speed River	262.84	2-Year	8.36	410.30	411.11	411.11	0.00
Speed River	262.84	10-Year	15.12	410.30	411.28	411.28	0.00
Speed River	262.84	25-Year	18.74	410.30	411.35	411.35	0.00
Speed River	262.84	50-Year	21.51	410.30	411.40	411.40	0.00
Speed River	262.84	100-Year	24.56	410.30	411.47	411.46	-0.01
Speed River	262.84	Regional	84.63	410.30	413.18	413.08	-0.10
Speed River	243.5	2-Year	8.36	410.30	411.06	411.06	0.00
Speed River	243.5	10-Year	15.12	410.30	411.21	411.21	0.00
Speed River	243.5	25-Year	18.74	410.30	411.27	411.27	0.00
Speed River	243.5	50-Year	21.51	410.30	411.32	411.32	0.00
Speed River	243.5	100-Year	24.56	410.30	411.39	411.38	-0.01
Speed River	243.5	Regional	84.63	410.30	413.18	413.08	-0.10
Speed River	226.68	2-Year	8.36	410.30	410.89	410.89	0.00
Speed River	226.68	10-Year	15.12	410.30	411.02	411.02	0.00
Speed River	226.68	25-Year	18.74	410.30	411.11	411.11	0.00
Speed River	226.68	50-Year	21.51	410.30	411.22	411.20	-0.02
Speed River	226.68	100-Year	24.56	410.30	411.31	411.29	-0.02
Speed River	226.68	Regional	84.63	410.30	413.17	413.07	-0.10
Speed River	206.55	2-Year	8.36	409.45	410.77	410.77	0.00
Speed River	206.55	10-Year	15.12	409.45	411.05	411.05	0.00
Speed River	206.55	25-Year	18.74	409.45	411.16	411.16	0.00
Speed River	206.55	50-Year	21.51	409.45	411.25	411.23	-0.02
Speed River	206.55	100-Year	24.56	409.45	411.33	411.31	-0.02
Speed River	206.55	Regional	84.63	409.45	413.17	413.07	-0.10
Speed River	200.91	2-Year	8.36	409.50	410.74	410.74	0.00
Speed River	200.91	10-Year	15.12	409.50	411.03	411.03	0.00
Speed River	200.91	25-Year	18.74	409.50	411.14	411.14	0.00
Speed River	200.91	50-Year	21.51	409.50	411.24	411.22	-0.02
Speed River	200.91	100-Year	24.56	409.50	411.32	411.30	-0.02
Speed River	200.91	Regional	84.63	409.50	413.17	413.07	-0.10
Speed River	196.93	2-Year	8.36	409.34	410.72	410.72	0.00
Speed River	196.93	10-Year	15.12	409.34	411.02	411.02	0.00
Speed River	196.93	25-Year	18.74	409.34	411.13	411.13	0.00
Speed River	196.93	50-Year	21.51	409.34	411.23	411.21	-0.02
Speed River	196.93	100-Year	24.56	409.34	411.31	411.29	-0.02
Speed River	196.93	Regional	84.63	409.34	413.17	413.07	-0.10
Speed River	193.69	2-Year	8.36	409.30	410.73	410.72	-0.01
Speed River	193.69	10-Year	15.12	409.30	411.02	411.02	0.00
Speed River	193.69	25-Year	18.74	409.30	411.13	411.13	0.00
Speed River	193.69	50-Year	21.51	409.30	411.22	411.21	-0.01
Speed River	193.69	100-Year	24.56	409.30	411.31	411.29	-0.02
Speed River	193.69	Regional	84.63	409.30	413.17	413.07	-0.10

Standard HEC-RAS Outputs					EXISTING	PROPOSED	DIFFERENCE
Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	EXISTING W.S. Elev (m)	PROPOSED W.S. Elev (m)	W.S.E Diff (m)
Speed River	191.17	2-Year	8.36	409.28	410.72	410.72	0.00
Speed River	191.17	10-Year	15.12	409.28	410.98	410.99	0.01
Speed River	191.17	25-Year	18.74	409.28	411.07	411.08	0.01
Speed River	191.17	50-Year	21.51	409.28	411.14	411.14	0.00
Speed River	191.17	100-Year	24.56	409.28	411.21	411.20	-0.01
Speed River	191.17	Regional	84.63	409.28	413.16	413.06	-0.10
Speed River	185.13	0	Bridge	0.00	0.00	0.00	0.00
Speed River	177.86	2-Year	8.36	409.07	410.52	410.52	0.00
Speed River	177.86	10-Year	15.12	409.07	410.76	410.78	0.02
Speed River	177.86	25-Year	18.74	409.07	410.85	410.87	0.02
Speed River	177.86	50-Year	21.51	409.07	410.92	410.93	0.01
Speed River	177.86	100-Year	24.56	409.07	410.97	410.99	0.02
Speed River	177.86	Regional	84.63	409.07	411.39	411.51	0.12
Speed River	173.23	2-Year	8.36	409.28	410.48	410.48	0.00
Speed River	173.23	10-Year	15.12	409.28	410.73	410.73	0.00
Speed River	173.23	25-Year	18.74	409.28	410.84	410.84	0.00
Speed River	173.23	50-Year	21.51	409.28	410.92	410.92	0.00
Speed River	173.23	100-Year	24.56	409.28	410.98	410.98	0.00
Speed River	173.23	Regional	84.63	409.28	411.69	411.69	0.00
Speed River	169.75	2-Year	8.36	409.39	410.44	410.44	0.00
Speed River	169.75	10-Year	15.12	409.39	410.67	410.67	0.00
Speed River	169.75	25-Year	18.74	409.39	410.78	410.78	0.00
Speed River	169.75	50-Year	21.51	409.39	410.87	410.87	0.00
Speed River	169.75	100-Year	24.56	409.39	410.94	410.94	0.00
Speed River	169.75	Regional	84.63	409.39	411.67	411.67	0.00
Speed River	163.65	2-Year	8.36	409.42	410.40	410.40	0.00
Speed River	163.65	10-Year	15.12	409.42	410.63	410.63	0.00
Speed River	163.65	25-Year	18.74	409.42	410.72	410.72	0.00
Speed River	163.65	50-Year	21.51	409.42	410.79	410.79	0.00
Speed River	163.65	100-Year	24.56	409.42	410.85	410.85	0.00
Speed River	163.65	Regional	84.63	409.42	411.54	411.54	0.00

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.2
Watershed: Grand River Conservation Authority
River: Speed River
Reach: -

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Exising Condition HEC-RAS Hydraulic Output Summary
Bridge 3-E

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Speed River	439.1	2-Year	12.34	400.8	401.8		401.88	0.003602	1.38	13.32	46.93	0.52
Speed River	439.1	10-Year	20.86	400.8	401.98		402.07	0.003225	1.52	23.9	65.02	0.51
Speed River	439.1	25-Year	25.32	400.8	402.05		402.14	0.003147	1.57	28.58	70.67	0.51
Speed River	439.1	50-Year	28.67	400.8	402.1		402.18	0.003193	1.63	31.75	72.13	0.51
Speed River	439.1	100-Year	32.38	400.8	402.14		402.23	0.003145	1.67	35.12	72.98	0.51
Speed River	439.1	Regional	139.57	400.8	402.86		402.98	0.003181	2.36	124.69	167.2	0.56
Speed River	415.55	2-Year	12.34	400.71	401.74		401.81	0.002435	1.28	14.24	42.65	0.44
Speed River	415.55	10-Year	20.86	400.71	401.87		401.98	0.003567	1.7	21.02	64.97	0.54
Speed River	415.55	25-Year	25.32	400.71	401.93		402.05	0.003831	1.83	24.93	76.55	0.57
Speed River	415.55	50-Year	28.67	400.71	401.96	401.85	402.09	0.004068	1.92	27.7	80.6	0.59
Speed River	415.55	100-Year	32.38	400.71	402.01		402.14	0.004043	1.97	31.63	85.68	0.59
Speed River	415.55	Regional	139.57	400.71	402.81		402.9	0.002523	2.22	148.66	235.04	0.51
Speed River	390.46	2-Year	12.34	400.8	401.68	401.44	401.74	0.002697	1.22	14.84	54.72	0.45
Speed River	390.46	10-Year	20.86	400.8	401.78	401.69	401.89	0.003928	1.61	21.56	69.6	0.56
Speed River	390.46	25-Year	25.32	400.8	401.83	401.77	401.94	0.00441	1.76	24.71	73.71	0.59
Speed River	390.46	50-Year	28.67	400.8	401.86	401.79	401.98	0.004669	1.85	26.89	74.15	0.61
Speed River	390.46	100-Year	32.38	400.8	401.91	401.85	402.03	0.004583	1.9	30.52	79.56	0.61
Speed River	390.46	Regional	139.57	400.8	402.78	402.38	402.84	0.001585	1.71	178.54	220.49	0.4
Speed River	369.31	2-Year	12.34	400.72	401.42	401.42	401.62	0.012643	2.1	7.31	27.45	0.92
Speed River	369.31	10-Year	20.86	400.72	401.65	401.65	401.78	0.00636	1.89	19.89	77.6	0.69
Speed River	369.31	25-Year	25.32	400.72	401.7	401.7	401.83	0.006434	1.98	23.81	84.15	0.7
Speed River	369.31	50-Year	28.67	400.72	401.72	401.72	401.86	0.006687	2.07	26.12	85.84	0.72
Speed River	369.31	100-Year	32.38	400.72	401.85	401.75	401.93	0.003618	1.67	37.57	94.69	0.54
Speed River	369.31	Regional	139.57	400.72	402.78	402.21	402.81	0.000944	1.33	210.78	214.36	0.31
Speed River	342.62	2-Year	12.34	400.4	401.41	401.02	401.46	0.00153	0.97	17.31	62.54	0.34
Speed River	342.62	10-Year	20.86	400.4	401.57	401.28	401.62	0.001849	1.2	29.1	89.78	0.39
Speed River	342.62	25-Year	25.32	400.4	401.64	401.38	401.7	0.001766	1.23	35.92	93.08	0.38
Speed River	342.62	50-Year	28.67	400.4	401.69	401.44	401.75	0.001705	1.25	40.77	95.08	0.38
Speed River	342.62	100-Year	32.38	400.4	401.83	401.49	401.87	0.001098	1.08	54.38	101.63	0.31
Speed River	342.62	Regional	139.57	400.4	402.76	401.88	402.78	0.000581	1.14	253	243.26	0.25
Speed River	316.67	2-Year	12.34	400.4	401.37		401.41	0.001715	1	19.77	62.04	0.36
Speed River	316.67	10-Year	20.86	400.4	401.52		401.57	0.002022	1.22	29.82	73.98	0.4
Speed River	316.67	25-Year	25.32	400.4	401.6		401.65	0.001961	1.27	35.53	78.59	0.4
Speed River	316.67	50-Year	28.67	400.4	401.65		401.7	0.001923	1.3	39.71	82.16	0.4
Speed River	316.67	100-Year	32.38	400.4	401.8		401.84	0.001204	1.12	53.68	109.29	0.33
Speed River	316.67	Regional	139.57	400.4	402.74		402.77	0.00064	1.2	258.71	275.77	0.26
Speed River	295.87	2-Year	12.34	400.4	401.32		401.37	0.002571	1.27	18.97	66.16	0.44
Speed River	295.87	10-Year	20.86	400.4	401.47		401.53	0.002433	1.38	30.08	75.76	0.44
Speed River	295.87	25-Year	25.32	400.4	401.55		401.6	0.002434	1.45	36.6	95.29	0.45
Speed River	295.87	50-Year	28.67	400.4	401.61		401.66	0.002169	1.42	42.31	98.43	0.43
Speed River	295.87	100-Year	32.38	400.4	401.79		401.81	0.001094	1.11	61.11	112.6	0.31
Speed River	295.87	Regional	139.57	400.4	402.74		402.75	0.000558	1.15	279.11	289.64	0.24
Speed River	285.14	2-Year	12.34	400.36	401.31	400.98	401.34	0.00155	0.93	18.7	55.18	0.34
Speed River	285.14	10-Year	20.86	400.36	401.45	401.1	401.5	0.001893	1.15	28.26	74.98	0.39
Speed River	285.14	25-Year	25.32	400.36	401.52	401.2	401.58	0.001947	1.23	34.31	99.39	0.4
Speed River	285.14	50-Year	28.67	400.36	401.58	401.27	401.64	0.001789	1.23	40.27	103.03	0.39
Speed River	285.14	100-Year	32.38	400.36	401.77	401.34	401.8	0.000881	0.96	61.58	119.28	0.28
Speed River	285.14	Regional	139.57	400.36	402.73	401.94	402.75	0.000502	1.07	284.71	303.99	0.23
Speed River	274.02	2-Year	12.34	400.4	401.27	400.9	401.32	0.002296	1.17	16.23	47.16	0.42
Speed River	274.02	10-Year	20.86	400.4	401.4	401.23	401.47	0.003067	1.5	23.38	65.07	0.5
Speed River	274.02	25-Year	25.32	400.4	401.47	401.29	401.55	0.002939	1.55	29.45	83.55	0.49
Speed River	274.02	50-Year	28.67	400.4	401.54	401.33	401.61	0.002721	1.55	35.42	107.23	0.48
Speed River	274.02	100-Year	32.38	400.4	401.76	401.38	401.79	0.001023	1.08	61.56	125.83	0.3
Speed River	274.02	Regional	139.57	400.4	402.73	401.94	402.74	0.000457	1.04	313.35	338.09	0.22
Speed River	268.95	2-Year	12.34	400.4	401.27	401	401.3	0.001783	0.81	16.83	48.45	0.35
Speed River	268.95	10-Year	20.86	400.4	401.4	401.12	401.45	0.002277	1.05	24.22	69.31	0.41
Speed River	268.95	25-Year	25.32	400.4	401.48	401.18	401.53	0.002194	1.11	30.16	87.71	0.41
Speed River	268.95	50-Year	28.67	400.4	401.53	401.23	401.59	0.00205	1.13	36.36	117.35	0.4
Speed River	268.95	100-Year	32.38	400.4	401.76	401.28	401.78	0.000749	0.8	65.23	136.23	0.25
Speed River	268.95	Regional	139.57	400.4	402.72	401.89	402.74	0.000333	0.83	330.27	338.63	0.19

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.2
Watershed: Grand River Conservation Authority
River: Speed River
Reach: -

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Exising Condition HEC-RAS Hydraulic Output Summary
Bridge 3-E

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Speed River	259.45	2-Year	12.34	399.82	401.27	400.69	401.29	0.000617	0.68	22.41	47.58	0.22
Speed River	259.45	10-Year	20.86	399.82	401.39	400.87	401.44	0.001062	0.97	30.52	77	0.3
Speed River	259.45	25-Year	25.32	399.82	401.47	400.95	401.51	0.001135	1.05	37.2	105.63	0.31
Speed River	259.45	50-Year	28.67	399.82	401.52	400.99	401.57	0.001175	1.1	43.83	125.19	0.32
Speed River	259.45	100-Year	32.38	399.82	401.76	401.05	401.78	0.0005	0.81	75.26	142.73	0.22
Speed River	259.45	Regional	139.57	399.82	402.72	401.86	402.74	0.000284	0.86	353.52	345.89	0.18
Speed River	253.08	2-Year	12.34	399.58	401.27	400.35	401.29	0.000345	0.65	20.07	80.08	0.18
Speed River	253.08	10-Year	20.86	399.58	401.38	400.54	401.43	0.000751	1.01	21.82	88.66	0.26
Speed River	253.08	25-Year	25.32	399.58	401.43	400.63	401.5	0.000977	1.17	22.68	110.01	0.3
Speed River	253.08	50-Year	28.67	399.58	401.48	400.69	401.56	0.00114	1.29	23.34	117.8	0.33
Speed River	253.08	100-Year	32.38	399.58	401.68	400.76	401.76	0.000964	1.29	26.48	151.22	0.31
Speed River	253.08	Regional	139.57	399.58	402.01	402	402.57	0.006335	3.68	57.97	228.21	0.81
Speed River	238.87		Bridge									
Speed River	231.41	2-Year	12.34	399.26	401.24	400.26	401.27	0.000565	0.84	16.6	104.29	0.22
Speed River	231.41	10-Year	20.86	399.26	401.3	400.56	401.39	0.001369	1.34	17.61	108.89	0.35
Speed River	231.41	25-Year	25.32	399.26	401.32	400.69	401.44	0.001916	1.6	17.93	110.26	0.41
Speed River	231.41	50-Year	28.67	399.26	401.33	400.79	401.49	0.002388	1.79	18.11	110.97	0.46
Speed River	231.41	100-Year	32.38	399.26	401.34	400.89	401.54	0.002972	2.01	18.27	111.59	0.52
Speed River	231.41	Regional	139.57	399.26	402	401.9	402.08	0.001909	2.03	165.75	249.32	0.44
Speed River	227.71	2-Year	12.34	399.57	401.24	400.37	401.26	0.000368	0.66	35	104.24	0.18
Speed River	227.71	10-Year	20.86	399.57	401.33	400.62	401.36	0.000683	0.94	48.03	146.52	0.25
Speed River	227.71	25-Year	25.32	399.57	401.36	400.73	401.4	0.000829	1.05	53.17	149.11	0.27
Speed River	227.71	50-Year	28.67	399.57	401.38	400.82	401.43	0.000927	1.12	56.83	150.17	0.29
Speed River	227.71	100-Year	32.38	399.57	401.41	400.98	401.46	0.001025	1.2	60.85	152.08	0.31
Speed River	227.71	Regional	139.57	399.57	402	401.66	402.07	0.001657	1.88	173.32	251.86	0.41
Speed River	225.08	2-Year	12.34	399.69	401.24	400.46	401.26	0.000399	0.66	38.47	142.95	0.19
Speed River	225.08	10-Year	20.86	399.69	401.33	400.71	401.35	0.000678	0.89	50.47	146.04	0.25
Speed River	225.08	25-Year	25.32	399.69	401.36	400.84	401.39	0.000812	0.99	55.62	147.39	0.27
Speed River	225.08	50-Year	28.67	399.69	401.39	401.06	401.42	0.000904	1.06	59.25	148.27	0.29
Speed River	225.08	100-Year	32.38	399.69	401.41	401.15	401.45	0.000995	1.13	63.24	149.7	0.3
Speed River	225.08	Regional	139.57	399.69	402	401.63	402.06	0.001449	1.71	183.9	253.08	0.38
Speed River	217.2	2-Year	12.34	400.52	401.22	401.07	401.25	0.002244	0.91	25.09	133.34	0.39
Speed River	217.2	10-Year	20.86	400.52	401.31	401.19	401.34	0.002676	1.09	37.16	151.31	0.44
Speed River	217.2	25-Year	25.32	400.52	401.34	401.19	401.38	0.002735	1.15	42.9	152.46	0.45
Speed River	217.2	50-Year	28.67	400.52	401.37	401.19	401.41	0.00275	1.18	46.93	152.88	0.45
Speed River	217.2	100-Year	32.38	400.52	401.4	401.19	401.44	0.002735	1.21	51.34	153.36	0.45
Speed River	217.2	Regional	139.57	400.52	401.99	401.61	402.04	0.001875	1.49	178.16	291.38	0.41
Speed River	206.63	2-Year	12.34	400.59	401.16	401.1	401.21	0.00542	1.31	17.76	86.85	0.6
Speed River	206.63	10-Year	20.86	400.59	401.26	401.2	401.3	0.004624	1.37	33.03	144.51	0.57
Speed River	206.63	25-Year	25.32	400.59	401.3	401.2	401.34	0.004271	1.38	39.22	148.13	0.55
Speed River	206.63	50-Year	28.67	400.59	401.33	401.2	401.37	0.004037	1.38	43.67	149.56	0.54
Speed River	206.63	100-Year	32.38	400.59	401.36	401.2	401.4	0.003817	1.38	48.36	150.28	0.53
Speed River	206.63	Regional	139.57	400.59	401.97	401.58	402.02	0.002099	1.56	171.27	259.27	0.44
Speed River	184.19	2-Year	12.34	400.4	401.1	401.02	401.12	0.002619	1.03	27.52	135.5	0.43
Speed River	184.19	10-Year	20.86	400.4	401.2	401.09	401.22	0.00246	1.11	41.71	146.07	0.42
Speed River	184.19	25-Year	25.32	400.4	401.24	401.1	401.27	0.002347	1.13	48.39	147.6	0.42
Speed River	184.19	50-Year	28.67	400.4	401.27	401.13	401.3	0.002281	1.14	53.08	148.2	0.42
Speed River	184.19	100-Year	32.38	400.4	401.31	401.15	401.33	0.002229	1.16	57.97	151.61	0.41
Speed River	184.19	Regional	139.57	400.4	401.93	401.45	401.97	0.001726	1.5	179.46	233.96	0.4
Speed River	169.02	2-Year	12.34	400.3	401.06	400.98	401.08	0.00237	1.04	28.31	141.05	0.41
Speed River	169.02	10-Year	20.86	400.3	401.16	401.06	401.19	0.002085	1.08	43.54	145.29	0.4
Speed River	169.02	25-Year	25.32	400.3	401.21	401.08	401.23	0.002014	1.1	50.36	147.65	0.39
Speed River	169.02	50-Year	28.67	400.3	401.24	401.1	401.27	0.001972	1.12	55.18	149.37	0.39
Speed River	169.02	100-Year	32.38	400.3	401.28	401.11	401.3	0.001945	1.14	60.2	151.65	0.39
Speed River	169.02	Regional	139.57	400.3	401.91	401.42	401.95	0.001595	1.49	183.24	230.32	0.39
Speed River	151.72	2-Year	12.34	400.2	401.03	400.93	401.05	0.001538	0.87	32.03	135.65	0.33
Speed River	151.72	10-Year	20.86	400.2	401.14	400.99	401.16	0.001602	0.97	46.76	144.37	0.35
Speed River	151.72	25-Year	25.32	400.2	401.18	401.02	401.2	0.001606	1.01	53.56	146.87	0.35
Speed River	151.72	50-Year	28.67	400.2	401.21	401.03	401.24	0.001615	1.04	58.35	149.17	0.36
Speed River	151.72	100-Year	32.38	400.2	401.25	401.06	401.27	0.001617	1.07	63.34	150.27	0.36
Speed River	151.72	Regional	139.57	400.2	401.88	401.38	401.92	0.001449	1.44	185.88	222.54	0.37
Speed River	111.41	2-Year	12.34	400.1	400.96	400.84	400.98	0.00178	0.97	31.62	138.09	0.36
Speed River	111.41	10-Year	20.86	400.1	401.07	400.88	401.09	0.001757	1.05	46.7	149.43	0.37
Speed River	111.41	25-Year	25.32	400.1	401.11	400.96	401.13	0.001795	1.1	53.6	153.65	0.38
Speed River	111.41	50-Year	28.67	400.1	401.15	400.98	401.17	0.001768	1.12	58.69	155.39	0.37
Speed River	111.41	100-Year	32.38	400.1	401.18	400.99	401.2	0.001753	1.14	63.97	157.17	0.38
Speed River	111.41	Regional	139.57	400.1	401.82	401.3	401.86	0.001554	1.52	181.46	204.33	0.39
Speed River	82.44	2-Year	12.34	400.16	400.91	400.69	400.93	0.001923	0.8	29.22	133.51	0.36
Speed River	82.44	10-Year	20.86	400.16	401.01	400.79	401.03	0.001894	0.9	43.59	145.15	0.36
Speed River	82.44	25-Year	25.32	400.16	401.06	400.79	401.08	0.001876	0.94	50.25	148.92	0.37
Speed River	82.44	50-Year	28.67	400.16	401.09	400.79	401.11	0.001836	0.96	55.33	152.81	0.37
Speed River	82.44	100-Year	32.38	400.16	401.13	400.9	401.15	0.001836	0.99	60.55	158.23	0.37
Speed River	82.44	Regional	139.57	400.16	401.77	401.26	401.82	0.001527	1.38	171.87	182.81	0.37
Speed River	47.8	2-Year	12.34	400.2	400.77	400.7	400.82	0.005574	1.25	18.89	104.43	0.59
Speed River	47.8	10-Year	20.86	400.2	400.92	400.7	400.95	0.003052	1.12	36.49	129.15	0.46
Speed River	47.8	25-Year	25.32	400.2	400.97	400.7	401	0.002844	1.14	42.99	132.7	0.45
Speed River	47.8	50-Year	28.67	400.2	401.01	400.86	401.04	0.00271	1.15	47.94	135.84	0.44
Speed River	47.8	100-Year	32.38	400.2	401.04	400.88	401.07	0.002573	1.16	52.86	136.47	0.44
Speed River	47.8	Regional	139.57	400.2	401.71	401.22	401.76	0.001884	1.54	162.28	200.19	0.42
Speed River	7.66	2-Year	12.34	399.8	400.69	400.38	400.71	0.001501	0.83	27.29	91.29	0.33
Speed River	7.66	10-Year	20.86	399.8	400.84	400.51	400.87	0.001501	0.96	43.87	126.41	0.34
Speed River	7.66	25-Year	25.32	399.8	400.89	400.56	400.92	0.001501	1	50.43	129.51	0.34
Speed River	7.66	50-Year	28.67	399.8	400.93	400.59	400.96	0.001502	1.03	55.46	133.5	0.34
Speed River	7.66	100-Year	32.38	399.8	400.97	400.6	401	0.001501	1.05	60.49	135.2	0.35
Speed River	7.66	Regional	139.57	399.8	401.64	401.13	401.69	0.001503	1.51	170.11	178.9	0.38

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.2
Watershed: Grand River Conservation Authority
River: Speed River
Reach: -

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Proposed Condition HEC-RAS Hydraulic Output Summary
Bridge 3-E

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Speed River	439.1	2-Year	12.34	400.8	401.8		401.88	0.003602	1.38	13.32	46.93	0.52
Speed River	439.1	10-Year	20.86	400.8	401.98		402.07	0.003225	1.52	23.9	65.02	0.51
Speed River	439.1	25-Year	25.32	400.8	402.05		402.14	0.003147	1.57	28.58	70.67	0.51
Speed River	439.1	50-Year	28.67	400.8	402.1		402.18	0.003193	1.63	31.75	72.13	0.51
Speed River	439.1	100-Year	32.38	400.8	402.14		402.23	0.003197	1.68	34.9	72.93	0.52
Speed River	439.1	Regional	139.57	400.8	402.84		402.96	0.003441	2.43	121.06	165.62	0.58
Speed River	415.55	2-Year	12.34	400.71	401.74		401.81	0.002435	1.28	14.24	42.65	0.44
Speed River	415.55	10-Year	20.86	400.71	401.87		401.98	0.003567	1.7	21.02	64.97	0.54
Speed River	415.55	25-Year	25.32	400.71	401.93		402.05	0.003831	1.83	24.93	76.55	0.57
Speed River	415.55	50-Year	28.67	400.71	401.96	401.85	402.09	0.004068	1.92	27.7	80.6	0.59
Speed River	415.55	100-Year	32.38	400.71	402	401.93	402.14	0.004245	2.01	30.69	83.29	0.6
Speed River	415.55	Regional	139.57	400.71	402.78		402.88	0.00274	2.29	142.59	219.51	0.53
Speed River	390.46	2-Year	12.34	400.8	401.68	401.44	401.74	0.002697	1.22	14.84	54.72	0.45
Speed River	390.46	10-Year	20.86	400.8	401.78	401.69	401.89	0.003928	1.61	21.56	69.6	0.56
Speed River	390.46	25-Year	25.32	400.8	401.83	401.77	401.94	0.00441	1.76	24.71	73.71	0.59
Speed River	390.46	50-Year	28.67	400.8	401.86	401.79	401.98	0.004669	1.85	26.89	74.15	0.61
Speed River	390.46	100-Year	32.38	400.8	401.88	401.85	402.02	0.005047	1.96	28.85	74.54	0.64
Speed River	390.46	Regional	139.57	400.8	402.75	402.38	402.81	0.001773	1.79	171.83	219.59	0.42
Speed River	369.31	2-Year	12.34	400.72	401.42	401.42	401.62	0.012643	2.1	7.31	27.45	0.92
Speed River	369.31	10-Year	20.86	400.72	401.65	401.65	401.78	0.00636	1.89	19.89	77.6	0.69
Speed River	369.31	25-Year	25.32	400.72	401.7	401.7	401.83	0.006434	1.98	23.81	84.15	0.7
Speed River	369.31	50-Year	28.67	400.72	401.72	401.72	401.86	0.006687	2.07	26.12	85.84	0.72
Speed River	369.31	100-Year	32.38	400.72	401.76	401.75	401.9	0.006458	2.09	29.39	87.98	0.71
Speed River	369.31	Regional	139.57	400.72	402.74	402.21	402.78	0.00104	1.38	204.14	213.17	0.32
Speed River	342.62	2-Year	12.34	400.4	401.41	401.02	401.46	0.001534	0.97	17.29	62.46	0.34
Speed River	342.62	10-Year	20.86	400.4	401.56	401.28	401.62	0.001885	1.21	28.81	89.63	0.39
Speed River	342.62	25-Year	25.32	400.4	401.64	401.38	401.69	0.001819	1.24	35.43	92.88	0.39
Speed River	342.62	50-Year	28.67	400.4	401.68	401.44	401.74	0.001817	1.28	39.65	94.62	0.39
Speed River	342.62	100-Year	32.38	400.4	401.73	401.49	401.79	0.001759	1.3	44.69	96.97	0.39
Speed River	342.62	Regional	139.57	400.4	402.73	401.88	402.75	0.000639	1.19	245.04	242.32	0.26
Speed River	316.67	2-Year	12.34	400.4	401.37		401.41	0.001721	1.01	19.74	61.99	0.36
Speed River	316.67	10-Year	20.86	400.4	401.52		401.57	0.002076	1.24	29.49	73.73	0.41
Speed River	316.67	25-Year	25.32	400.4	401.59		401.64	0.002036	1.29	34.98	78.18	0.41
Speed River	316.67	50-Year	28.67	400.4	401.63		401.69	0.002088	1.34	38.43	81.53	0.42
Speed River	316.67	100-Year	32.38	400.4	401.69		401.74	0.002026	1.36	42.85	83.88	0.41
Speed River	316.67	Regional	139.57	400.4	402.71		402.74	0.000715	1.25	249.13	274.79	0.27
Speed River	295.87	2-Year	12.34	400.4	401.32		401.37	0.002598	1.27	18.88	66.12	0.45
Speed River	295.87	10-Year	20.86	400.4	401.47		401.52	0.002533	1.41	29.57	75.07	0.45
Speed River	295.87	25-Year	25.32	400.4	401.54		401.59	0.002655	1.5	35.34	94.69	0.47
Speed River	295.87	50-Year	28.67	400.4	401.59		401.64	0.002472	1.5	40.15	96.97	0.46
Speed River	295.87	100-Year	32.38	400.4	401.64		401.7	0.00224	1.48	46.01	100.97	0.44
Speed River	295.87	Regional	139.57	400.4	402.7		402.72	0.000626	1.2	268.73	288.85	0.26
Speed River	285.14	2-Year	12.34	400.36	401.31	400.98	401.34	0.001562	0.93	18.63	55.02	0.34
Speed River	285.14	10-Year	20.86	400.36	401.45	401.1	401.5	0.001974	1.17	27.7	74.14	0.4
Speed River	285.14	25-Year	25.32	400.36	401.51	401.2	401.57	0.002128	1.27	32.79	98.44	0.42
Speed River	285.14	50-Year	28.67	400.36	401.56	401.27	401.62	0.002071	1.3	37.59	101.41	0.41
Speed River	285.14	100-Year	32.38	400.36	401.62	401.34	401.67	0.001906	1.29	43.82	106.34	0.4
Speed River	285.14	Regional	139.57	400.36	402.69	401.94	402.71	0.000562	1.12	273.5	302.07	0.24
Speed River	274.02	2-Year	12.34	400.4	401.27	400.9	401.32	0.002321	1.18	16.15	47.02	0.42
Speed River	274.02	10-Year	20.86	400.4	401.39	401.23	401.47	0.003297	1.54	22.58	62.81	0.51
Speed River	274.02	25-Year	25.32	400.4	401.45	401.29	401.54	0.003479	1.65	27.1	81.22	0.53
Speed River	274.02	50-Year	28.67	400.4	401.5	401.33	401.59	0.003256	1.66	31.59	85.6	0.52
Speed River	274.02	100-Year	32.38	400.4	401.57	401.38	401.65	0.002847	1.62	39	108.99	0.49
Speed River	274.02	Regional	139.57	400.4	402.69	401.94	402.71	0.000516	1.1	300.75	337.4	0.24
Speed River	268.95	2-Year	12.34	400.4	401.27	401	401.3	0.001803	0.81	16.75	48.28	0.35
Speed River	268.95	10-Year	20.86	400.4	401.39	401.12	401.44	0.002426	1.07	23.45	63.9	0.42
Speed River	268.95	25-Year	25.32	400.4	401.45	401.18	401.51	0.002562	1.17	27.86	81.51	0.44
Speed River	268.95	50-Year	28.67	400.4	401.5	401.23	401.56	0.002441	1.19	32.39	91.69	0.43
Speed River	268.95	100-Year	32.38	400.4	401.57	401.28	401.63	0.002154	1.18	40.19	120.06	0.41
Speed River	268.95	Regional	139.57	400.4	402.69	401.89	402.7	0.000372	0.86	317.61	337.89	0.2
Speed River	259.45	2-Year	12.34	399.82	401.27	400.69	401.29	0.000621	0.68	22.33	47.4	0.22
Speed River	259.45	10-Year	20.86	399.82	401.38	400.87	401.43	0.001127	0.99	29.55	75.55	0.31
Speed River	259.45	25-Year	25.32	399.82	401.44	400.95	401.49	0.001289	1.1	34.43	90.8	0.33
Speed River	259.45	50-Year	28.67	399.82	401.49	400.99	401.55	0.001294	1.14	40.02	116.31	0.33
Speed River	259.45	100-Year	32.38	399.82	401.56	401.05	401.61	0.001286	1.17	47.8	128.93	0.34
Speed River	259.45	Regional	139.57	399.82	402.68	401.86	402.7	0.000316	0.89	340.54	343.61	0.19

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.2
Watershed: Grand River Conservation Authority
River: Speed River
Reach: -

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Proposed Condition HEC-RAS Hydraulic Output Summary
Bridge 3-E

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Speed River	253.08	2-Year	12.34	399.58	401.27	400.35	401.28	0.000291	0.59	23.3	80.24	0.16
Speed River	253.08	10-Year	20.86	399.58	401.38	400.55	401.42	0.000626	0.91	25.52	88.83	0.24
Speed River	253.08	25-Year	25.32	399.58	401.43	400.63	401.48	0.000809	1.06	26.6	109.84	0.28
Speed River	253.08	50-Year	28.67	399.58	401.47	400.71	401.54	0.000941	1.16	27.43	117.66	0.3
Speed River	253.08	100-Year	32.38	399.58	401.52	400.76	401.6	0.001077	1.27	28.38	131.45	0.32
Speed River	253.08	Regional	139.57	399.58	402.68	401.88	402.7	0.000239	0.86	371.1	342.43	0.17
Speed River	238.87		Bridge									
Speed River	231.41	2-Year	12.34	399.26	401.24	400.26	401.27	0.000535	0.81	18.05	104.37	0.22
Speed River	231.41	10-Year	20.86	399.26	401.31	400.56	401.38	0.001271	1.29	19.39	109.17	0.34
Speed River	231.41	25-Year	25.32	399.26	401.33	400.69	401.44	0.001762	1.54	19.85	110.64	0.4
Speed River	231.41	50-Year	28.67	399.26	401.34	400.8	401.48	0.00218	1.72	20.12	111.49	0.44
Speed River	231.41	100-Year	32.38	399.26	401.35	400.9	401.52	0.00269	1.92	20.37	112.28	0.49
Speed River	231.41	Regional	139.57	399.26	402.19	402.19	402.48	0.004149	3.17	93.53	260.15	0.65
Speed River	227.71	2-Year	12.34	399.57	401.24	400.37	401.26	0.000368	0.66	35	104.24	0.18
Speed River	227.71	10-Year	20.86	399.57	401.33	400.62	401.36	0.000683	0.94	48.03	146.52	0.25
Speed River	227.71	25-Year	25.32	399.57	401.36	400.73	401.4	0.000829	1.05	53.17	149.11	0.27
Speed River	227.71	50-Year	28.67	399.57	401.38	400.82	401.43	0.000927	1.12	56.83	150.17	0.29
Speed River	227.71	100-Year	32.38	399.57	401.41	400.98	401.46	0.001025	1.2	60.85	152.08	0.31
Speed River	227.71	Regional	139.57	399.57	402	401.66	402.07	0.001657	1.88	173.32	251.86	0.41
Speed River	225.08	2-Year	12.34	399.69	401.24	400.46	401.26	0.000399	0.66	38.47	142.95	0.19
Speed River	225.08	10-Year	20.86	399.69	401.33	400.71	401.35	0.000678	0.89	50.47	146.04	0.25
Speed River	225.08	25-Year	25.32	399.69	401.36	400.84	401.39	0.000812	0.99	55.62	147.39	0.27
Speed River	225.08	50-Year	28.67	399.69	401.39	401.06	401.42	0.000904	1.06	59.25	148.27	0.29
Speed River	225.08	100-Year	32.38	399.69	401.41	401.15	401.45	0.000995	1.13	63.24	149.7	0.3
Speed River	225.08	Regional	139.57	399.69	402	401.63	402.06	0.001449	1.71	183.9	253.08	0.38
Speed River	217.2	2-Year	12.34	400.52	401.22	401.07	401.25	0.002244	0.91	25.09	133.34	0.39
Speed River	217.2	10-Year	20.86	400.52	401.31	401.19	401.34	0.002676	1.09	37.16	151.31	0.44
Speed River	217.2	25-Year	25.32	400.52	401.34	401.19	401.38	0.002735	1.15	42.9	152.46	0.45
Speed River	217.2	50-Year	28.67	400.52	401.37	401.19	401.41	0.00275	1.18	46.93	152.88	0.45
Speed River	217.2	100-Year	32.38	400.52	401.4	401.19	401.44	0.002735	1.21	51.34	153.36	0.45
Speed River	217.2	Regional	139.57	400.52	401.99	401.61	402.04	0.001875	1.49	178.16	291.38	0.41
Speed River	206.63	2-Year	12.34	400.59	401.16	401.1	401.21	0.00542	1.31	17.76	86.85	0.6
Speed River	206.63	10-Year	20.86	400.59	401.26	401.2	401.3	0.004624	1.37	33.03	144.51	0.57
Speed River	206.63	25-Year	25.32	400.59	401.3	401.2	401.34	0.004271	1.38	39.22	148.13	0.55
Speed River	206.63	50-Year	28.67	400.59	401.33	401.2	401.37	0.004037	1.38	43.67	149.56	0.54
Speed River	206.63	100-Year	32.38	400.59	401.36	401.2	401.4	0.003817	1.38	48.36	150.28	0.53
Speed River	206.63	Regional	139.57	400.59	401.97	401.58	402.02	0.002099	1.56	171.27	259.27	0.44
Speed River	184.19	2-Year	12.34	400.4	401.1	401.02	401.12	0.002619	1.03	27.52	135.5	0.43
Speed River	184.19	10-Year	20.86	400.4	401.2	401.09	401.22	0.00246	1.11	41.71	146.07	0.42
Speed River	184.19	25-Year	25.32	400.4	401.24	401.1	401.27	0.002347	1.13	48.39	147.6	0.42
Speed River	184.19	50-Year	28.67	400.4	401.27	401.13	401.3	0.002281	1.14	53.08	148.2	0.42
Speed River	184.19	100-Year	32.38	400.4	401.31	401.15	401.33	0.002229	1.16	57.97	151.61	0.41
Speed River	184.19	Regional	139.57	400.4	401.93	401.45	401.97	0.001726	1.5	179.46	233.96	0.4
Speed River	169.02	2-Year	12.34	400.3	401.06	400.98	401.08	0.00237	1.04	28.31	141.05	0.41
Speed River	169.02	10-Year	20.86	400.3	401.16	401.06	401.19	0.002085	1.08	43.54	145.29	0.4
Speed River	169.02	25-Year	25.32	400.3	401.21	401.08	401.23	0.002014	1.1	50.36	147.65	0.39
Speed River	169.02	50-Year	28.67	400.3	401.24	401.1	401.27	0.001972	1.12	55.18	149.37	0.39
Speed River	169.02	100-Year	32.38	400.3	401.28	401.11	401.3	0.001945	1.14	60.2	151.65	0.39
Speed River	169.02	Regional	139.57	400.3	401.91	401.42	401.95	0.001595	1.49	183.24	230.32	0.39
Speed River	151.72	2-Year	12.34	400.2	401.03	400.93	401.05	0.001538	0.87	32.03	135.65	0.33
Speed River	151.72	10-Year	20.86	400.2	401.14	400.99	401.16	0.001602	0.97	46.76	144.37	0.35
Speed River	151.72	25-Year	25.32	400.2	401.18	401.02	401.2	0.001606	1.01	53.56	146.87	0.35
Speed River	151.72	50-Year	28.67	400.2	401.21	401.03	401.24	0.001615	1.04	58.35	149.17	0.36
Speed River	151.72	100-Year	32.38	400.2	401.25	401.06	401.27	0.001617	1.07	63.34	150.27	0.36
Speed River	151.72	Regional	139.57	400.2	401.88	401.38	401.92	0.001449	1.44	185.88	222.54	0.37
Speed River	111.41	2-Year	12.34	400.1	400.96	400.84	400.98	0.00178	0.97	31.62	138.09	0.36
Speed River	111.41	10-Year	20.86	400.1	401.07	400.88	401.09	0.001757	1.05	46.7	149.43	0.37
Speed River	111.41	25-Year	25.32	400.1	401.11	400.96	401.13	0.001795	1.1	53.6	153.65	0.38
Speed River	111.41	50-Year	28.67	400.1	401.15	400.98	401.17	0.001768	1.12	58.69	155.39	0.37
Speed River	111.41	100-Year	32.38	400.1	401.18	400.99	401.2	0.001753	1.14	63.97	157.17	0.38
Speed River	111.41	Regional	139.57	400.1	401.82	401.3	401.86	0.001554	1.52	181.46	204.33	0.39
Speed River	82.44	2-Year	12.34	400.16	400.91	400.69	400.93	0.001923	0.8	29.22	133.51	0.36
Speed River	82.44	10-Year	20.86	400.16	401.01	400.79	401.03	0.001894	0.9	43.59	145.15	0.36
Speed River	82.44	25-Year	25.32	400.16	401.06	400.79	401.08	0.001876	0.94	50.25	148.92	0.37
Speed River	82.44	50-Year	28.67	400.16	401.09	400.79	401.11	0.001836	0.96	55.33	152.81	0.37
Speed River	82.44	100-Year	32.38	400.16	401.13	400.9	401.15	0.001836	0.99	60.55	158.23	0.37
Speed River	82.44	Regional	139.57	400.16	401.77	401.26	401.82	0.001527	1.38	171.87	182.81	0.37
Speed River	47.8	2-Year	12.34	400.2	400.77	400.7	400.82	0.005574	1.25	18.89	104.43	0.59
Speed River	47.8	10-Year	20.86	400.2	400.92	400.7	400.95	0.003052	1.12	36.49	129.15	0.46
Speed River	47.8	25-Year	25.32	400.2	400.97	400.7	401	0.002844	1.14	42.99	132.7	0.45
Speed River	47.8	50-Year	28.67	400.2	401.01	400.86	401.04	0.00271	1.15	47.94	135.84	0.44
Speed River	47.8	100-Year	32.38	400.2	401.04	400.88	401.07	0.002573	1.16	52.86	136.47	0.44
Speed River	47.8	Regional	139.57	400.2	401.71	401.22	401.76	0.001884	1.54	162.28	200.19	0.42
Speed River	7.66	2-Year	12.34	399.8	400.69	400.38	400.71	0.001501	0.83	27.29	91.29	0.33
Speed River	7.66	10-Year	20.86	399.8	400.84	400.51	400.87	0.001501	0.96	43.87	126.41	0.34
Speed River	7.66	25-Year	25.32	399.8	400.89	400.56	400.92	0.001501	1	50.43	129.51	0.34
Speed River	7.66	50-Year	28.67	399.8	400.93	400.59	400.96	0.001502	1.03	55.46	133.5	0.34
Speed River	7.66	100-Year	32.38	399.8	400.97	400.6	401	0.001501	1.05	60.49	135.2	0.35
Speed River	7.66	Regional	139.57	399.8	401.64	401.13	401.69	0.001503	1.51	170.11	178.9	0.38

Project Name:	Centre Wellington 4 Bridges EA
Project No.:	300058117.2
Watershed:	Grand River Conservation Authority
River:	Speed River
Reach:	-

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Project Title
HEC-RAS Hydraulic Output Summary- Water Surface Elevation Comparison Summary

Modelling Scenario **Bridge 3-E**

EXISTING CONDITIONS
PROPOSED CONDITIONS

Standard HEC-RAS Outputs					EXISTING	PROPOSED	DIFFERENCE
Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	EXISTING W.S. Elev (m)	PROPOSED W.S. Elev (m)	W.S.E Diff (m)
Speed River	439.1	2-Year	12.34	400.80	401.80	401.80	0.00
Speed River	439.1	10-Year	20.86	400.80	401.98	401.98	0.00
Speed River	439.1	25-Year	25.32	400.80	402.05	402.05	0.00
Speed River	439.1	50-Year	28.67	400.80	402.10	402.10	0.00
Speed River	439.1	100-Year	32.38	400.80	402.14	402.14	0.00
Speed River	439.1	Regional	139.57	400.80	402.86	402.84	-0.02
Speed River	415.55	2-Year	12.34	400.71	401.74	401.74	0.00
Speed River	415.55	10-Year	20.86	400.71	401.87	401.87	0.00
Speed River	415.55	25-Year	25.32	400.71	401.93	401.93	0.00
Speed River	415.55	50-Year	28.67	400.71	401.96	401.96	0.00
Speed River	415.55	100-Year	32.38	400.71	402.01	402.00	-0.01
Speed River	415.55	Regional	139.57	400.71	402.81	402.78	-0.03
Speed River	390.46	2-Year	12.34	400.80	401.68	401.68	0.00
Speed River	390.46	10-Year	20.86	400.80	401.78	401.78	0.00
Speed River	390.46	25-Year	25.32	400.80	401.83	401.83	0.00
Speed River	390.46	50-Year	28.67	400.80	401.86	401.86	0.00
Speed River	390.46	100-Year	32.38	400.80	401.91	401.88	-0.03
Speed River	390.46	Regional	139.57	400.80	402.78	402.75	-0.03
Speed River	369.31	2-Year	12.34	400.72	401.42	401.42	0.00
Speed River	369.31	10-Year	20.86	400.72	401.65	401.65	0.00
Speed River	369.31	25-Year	25.32	400.72	401.70	401.70	0.00
Speed River	369.31	50-Year	28.67	400.72	401.72	401.72	0.00
Speed River	369.31	100-Year	32.38	400.72	401.85	401.76	-0.09
Speed River	369.31	Regional	139.57	400.72	402.78	402.74	-0.04
Speed River	342.62	2-Year	12.34	400.40	401.41	401.41	0.00
Speed River	342.62	10-Year	20.86	400.40	401.57	401.56	-0.01
Speed River	342.62	25-Year	25.32	400.40	401.64	401.64	0.00
Speed River	342.62	50-Year	28.67	400.40	401.69	401.68	-0.01
Speed River	342.62	100-Year	32.38	400.40	401.83	401.73	-0.10
Speed River	342.62	Regional	139.57	400.40	402.76	402.73	-0.03
Speed River	316.67	2-Year	12.34	400.40	401.37	401.37	0.00
Speed River	316.67	10-Year	20.86	400.40	401.52	401.52	0.00
Speed River	316.67	25-Year	25.32	400.40	401.60	401.59	-0.01
Speed River	316.67	50-Year	28.67	400.40	401.65	401.63	-0.02
Speed River	316.67	100-Year	32.38	400.40	401.80	401.69	-0.11
Speed River	316.67	Regional	139.57	400.40	402.74	402.71	-0.03
Speed River	295.87	2-Year	12.34	400.40	401.32	401.32	0.00
Speed River	295.87	10-Year	20.86	400.40	401.47	401.47	0.00
Speed River	295.87	25-Year	25.32	400.40	401.55	401.54	-0.01
Speed River	295.87	50-Year	28.67	400.40	401.61	401.59	-0.02
Speed River	295.87	100-Year	32.38	400.40	401.79	401.64	-0.15
Speed River	295.87	Regional	139.57	400.40	402.74	402.70	-0.04
Speed River	285.14	2-Year	12.34	400.36	401.31	401.31	0.00
Speed River	285.14	10-Year	20.86	400.36	401.45	401.45	0.00
Speed River	285.14	25-Year	25.32	400.36	401.52	401.51	-0.01
Speed River	285.14	50-Year	28.67	400.36	401.58	401.56	-0.02
Speed River	285.14	100-Year	32.38	400.36	401.77	401.62	-0.15
Speed River	285.14	Regional	139.57	400.36	402.73	402.69	-0.04
Speed River	274.02	2-Year	12.34	400.40	401.27	401.27	0.00
Speed River	274.02	10-Year	20.86	400.40	401.40	401.39	-0.01
Speed River	274.02	25-Year	25.32	400.40	401.47	401.45	-0.02
Speed River	274.02	50-Year	28.67	400.40	401.54	401.50	-0.04
Speed River	274.02	100-Year	32.38	400.40	401.76	401.57	-0.19
Speed River	274.02	Regional	139.57	400.40	402.73	402.69	-0.04
Speed River	268.95	2-Year	12.34	400.40	401.27	401.27	0.00
Speed River	268.95	10-Year	20.86	400.40	401.40	401.39	-0.01
Speed River	268.95	25-Year	25.32	400.40	401.48	401.45	-0.03
Speed River	268.95	50-Year	28.67	400.40	401.53	401.50	-0.03
Speed River	268.95	100-Year	32.38	400.40	401.76	401.57	-0.19
Speed River	268.95	Regional	139.57	400.40	402.72	402.69	-0.03
Speed River	259.45	2-Year	12.34	399.82	401.27	401.27	0.00
Speed River	259.45	10-Year	20.86	399.82	401.39	401.38	-0.01
Speed River	259.45	25-Year	25.32	399.82	401.47	401.44	-0.03
Speed River	259.45	50-Year	28.67	399.82	401.52	401.49	-0.03
Speed River	259.45	100-Year	32.38	399.82	401.76	401.56	-0.20
Speed River	259.45	Regional	139.57	399.82	402.72	402.68	-0.04

Standard HEC-RAS Outputs					EXISTING	PROPOSED	DIFFERENCE
Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	EXISTING W.S. Elev (m)	PROPOSED W.S. Elev (m)	W.S.E Diff (m)
Speed River	253.08	2-Year	12.34	399.58	401.27	401.27	0.00
Speed River	253.08	10-Year	20.86	399.58	401.38	401.38	0.00
Speed River	253.08	25-Year	25.32	399.58	401.43	401.43	0.00
Speed River	253.08	50-Year	28.67	399.58	401.48	401.47	-0.01
Speed River	253.08	100-Year	32.38	399.58	401.68	401.52	-0.16
Speed River	253.08	Regional	139.57	399.58	402.01	402.68	0.67
Speed River	238.87	0	Bridge	0.00	0.00	0.00	0.00
Speed River	231.41	2-Year	12.34	399.26	401.24	401.24	0.00
Speed River	231.41	10-Year	20.86	399.26	401.30	401.31	0.01
Speed River	231.41	25-Year	25.32	399.26	401.32	401.33	0.01
Speed River	231.41	50-Year	28.67	399.26	401.33	401.34	0.01
Speed River	231.41	100-Year	32.38	399.26	401.34	401.35	0.01
Speed River	231.41	Regional	139.57	399.26	402.00	402.19	0.19
Speed River	227.71	2-Year	12.34	399.57	401.24	401.24	0.00
Speed River	227.71	10-Year	20.86	399.57	401.33	401.33	0.00
Speed River	227.71	25-Year	25.32	399.57	401.36	401.36	0.00
Speed River	227.71	50-Year	28.67	399.57	401.38	401.38	0.00
Speed River	227.71	100-Year	32.38	399.57	401.41	401.41	0.00
Speed River	227.71	Regional	139.57	399.57	402.00	402.00	0.00
Speed River	225.08	2-Year	12.34	399.69	401.24	401.24	0.00
Speed River	225.08	10-Year	20.86	399.69	401.33	401.33	0.00
Speed River	225.08	25-Year	25.32	399.69	401.36	401.36	0.00
Speed River	225.08	50-Year	28.67	399.69	401.39	401.39	0.00
Speed River	225.08	100-Year	32.38	399.69	401.41	401.41	0.00
Speed River	225.08	Regional	139.57	399.69	402.00	402.00	0.00
Speed River	217.2	2-Year	12.34	400.52	401.22	401.22	0.00
Speed River	217.2	10-Year	20.86	400.52	401.31	401.31	0.00
Speed River	217.2	25-Year	25.32	400.52	401.34	401.34	0.00
Speed River	217.2	50-Year	28.67	400.52	401.37	401.37	0.00
Speed River	217.2	100-Year	32.38	400.52	401.40	401.40	0.00
Speed River	217.2	Regional	139.57	400.52	401.99	401.99	0.00
Speed River	206.63	2-Year	12.34	400.59	401.16	401.16	0.00
Speed River	206.63	10-Year	20.86	400.59	401.26	401.26	0.00
Speed River	206.63	25-Year	25.32	400.59	401.30	401.30	0.00
Speed River	206.63	50-Year	28.67	400.59	401.33	401.33	0.00
Speed River	206.63	100-Year	32.38	400.59	401.36	401.36	0.00
Speed River	206.63	Regional	139.57	400.59	401.97	401.97	0.00
Speed River	184.19	2-Year	12.34	400.40	401.10	401.10	0.00
Speed River	184.19	10-Year	20.86	400.40	401.20	401.20	0.00
Speed River	184.19	25-Year	25.32	400.40	401.24	401.24	0.00
Speed River	184.19	50-Year	28.67	400.40	401.27	401.27	0.00
Speed River	184.19	100-Year	32.38	400.40	401.31	401.31	0.00
Speed River	184.19	Regional	139.57	400.40	401.93	401.93	0.00
Speed River	169.02	2-Year	12.34	400.30	401.06	401.06	0.00
Speed River	169.02	10-Year	20.86	400.30	401.16	401.16	0.00
Speed River	169.02	25-Year	25.32	400.30	401.21	401.21	0.00
Speed River	169.02	50-Year	28.67	400.30	401.24	401.24	0.00
Speed River	169.02	100-Year	32.38	400.30	401.28	401.28	0.00
Speed River	169.02	Regional	139.57	400.30	401.91	401.91	0.00
Speed River	151.72	2-Year	12.34	400.20	401.03	401.03	0.00
Speed River	151.72	10-Year	20.86	400.20	401.14	401.14	0.00
Speed River	151.72	25-Year	25.32	400.20	401.18	401.18	0.00
Speed River	151.72	50-Year	28.67	400.20	401.21	401.21	0.00
Speed River	151.72	100-Year	32.38	400.20	401.25	401.25	0.00
Speed River	151.72	Regional	139.57	400.20	401.88	401.88	0.00
Speed River	111.41	2-Year	12.34	400.10	400.96	400.96	0.00
Speed River	111.41	10-Year	20.86	400.10	401.07	401.07	0.00
Speed River	111.41	25-Year	25.32	400.10	401.11	401.11	0.00
Speed River	111.41	50-Year	28.67	400.10	401.15	401.15	0.00
Speed River	111.41	100-Year	32.38	400.10	401.18	401.18	0.00
Speed River	111.41	Regional	139.57	400.10	401.82	401.82	0.00
Speed River	82.44	2-Year	12.34	400.16	400.91	400.91	0.00
Speed River	82.44	10-Year	20.86	400.16	401.01	401.01	0.00
Speed River	82.44	25-Year	25.32	400.16	401.06	401.06	0.00
Speed River	82.44	50-Year	28.67	400.16	401.09	401.09	0.00
Speed River	82.44	100-Year	32.38	400.16	401.13	401.13	0.00
Speed River	82.44	Regional	139.57	400.16	401.77	401.77	0.00
Speed River	47.8	2-Year	12.34	400.20	400.77	400.77	0.00
Speed River	47.8	10-Year	20.86	400.20	400.92	400.92	0.00
Speed River	47.8	25-Year	25.32	400.20	400.97	400.97	0.00
Speed River	47.8	50-Year	28.67	400.20	401.01	401.01	0.00
Speed River	47.8	100-Year	32.38	400.20	401.04	401.04	0.00
Speed River	47.8	Regional	139.57	400.20	401.71	401.71	0.00
Speed River	7.66	2-Year	12.34	399.80	400.69	400.69	0.00
Speed River	7.66	10-Year	20.86	399.80	400.84	400.84	0.00
Speed River	7.66	25-Year	25.32	399.80	400.89	400.89	0.00
Speed River	7.66	50-Year	28.67	399.80	400.93	400.93	0.00
Speed River	7.66	100-Year	32.38	399.80	400.97	400.97	0.00
Speed River	7.66	Regional	139.57	399.80	401.64	401.64	0.00

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.2
Watershed: Grand River Conservation Authority
River: Speed River
Reach: -

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Exising Condition HEC-RAS Hydraulic Output Summary
Bridge 5-E

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Speed River	1027.82	2-Year	14.82	392.65	394.07		394.07	0.001996	0.15	47.68	63.37	0.04
Speed River	1027.82	10-Year	25.2	392.65	394.41		394.42	0.001588	0.16	70.68	71.13	0.04
Speed River	1027.82	25-Year	30.65	392.65	394.56		394.57	0.00148	0.16	81.84	74.88	0.04
Speed River	1027.82	50-Year	34.75	392.65	394.67		394.68	0.001521	0.17	90.12	81.79	0.04
Speed River	1027.82	100-Year	39.3	392.65	394.77		394.78	0.001546	0.18	99.04	88.67	0.04
Speed River	1027.82	Regional	140.4	392.65	395.95		395.97	0.001927	0.27	237.23	159.96	0.05
Speed River	931.89	2-Year	14.82	392.43	393.86		393.87	0.002292	0.16	45.54	49.38	0.05
Speed River	931.89	10-Year	25.2	392.43	394.23		394.24	0.002071	0.18	65.27	56.76	0.05
Speed River	931.89	25-Year	30.65	392.43	394.39		394.4	0.002056	0.19	74.64	61.6	0.05
Speed River	931.89	50-Year	34.75	392.43	394.49		394.51	0.002111	0.2	81.08	66.38	0.05
Speed River	931.89	100-Year	39.3	392.43	394.59		394.61	0.002188	0.22	87.93	72.29	0.05
Speed River	931.89	Regional	140.4	392.43	395.68		395.72	0.003626	0.37	198.49	143.96	0.07
Speed River	858.82	2-Year	14.82	392.1	393.68		393.69	0.00248	0.18	47.34	48.2	0.05
Speed River	858.82	10-Year	25.2	392.1	394.07		394.08	0.002476	0.21	68.48	64.13	0.05
Speed River	858.82	25-Year	30.65	392.1	394.23		394.24	0.002443	0.22	79.68	74.41	0.05
Speed River	858.82	50-Year	34.75	392.1	394.33		394.34	0.002433	0.23	87.41	80.7	0.05
Speed River	858.82	100-Year	39.3	392.1	394.43		394.44	0.002403	0.24	95.55	86.12	0.05
Speed River	858.82	Regional	140.4	392.1	395.46		395.49	0.002665	0.32	221.46	151.8	0.06
Speed River	793.74	2-Year	14.82	392.05	393.49		393.5	0.0035	0.2	42.62	45.77	0.06
Speed River	793.74	10-Year	25.2	392.05	393.87		393.89	0.003515	0.24	62.48	64.31	0.06
Speed River	793.74	25-Year	30.65	392.05	394.05		394.06	0.003107	0.24	74.59	73.94	0.06
Speed River	793.74	50-Year	34.75	392.05	394.15		394.16	0.003046	0.25	82.5	80.67	0.06
Speed River	793.74	100-Year	39.3	392.05	394.25		394.26	0.003087	0.26	90.82	89.16	0.06
Speed River	793.74	Regional	140.4	392.05	395.29		395.32	0.002656	0.32	228.35	163.71	0.06
Speed River	728.2	2-Year	14.82	391.75	393.29		393.3	0.002833	0.19	43.1	45.51	0.05
Speed River	728.2	10-Year	25.2	391.75	393.68		393.69	0.002559	0.21	62.59	55.03	0.05
Speed River	728.2	25-Year	30.65	391.75	393.86		393.87	0.002714	0.23	73.53	67.75	0.05
Speed River	728.2	50-Year	34.75	391.75	393.96		393.98	0.002675	0.24	80.96	73.38	0.05
Speed River	728.2	100-Year	39.3	391.75	394.06		394.07	0.002646	0.25	88.29	77.71	0.05
Speed River	728.2	Regional	140.4	391.75	395.08		395.11	0.00364	0.37	197.49	155.92	0.07
Speed River	656.32	2-Year	14.82	391.46	393.13		393.14	0.001718	0.15	53.87	51.79	0.04
Speed River	656.32	10-Year	25.2	391.46	393.53		393.54	0.001682	0.18	79.25	72.79	0.04
Speed River	656.32	25-Year	30.65	391.46	393.72		393.73	0.001486	0.18	93.26	78.22	0.04
Speed River	656.32	50-Year	34.75	391.46	393.83		393.84	0.001448	0.18	101.9	81.54	0.04
Speed River	656.32	100-Year	39.3	391.46	393.92		393.93	0.001469	0.19	109.91	84.75	0.04
Speed River	656.32	Regional	140.4	391.46	394.84		394.87	0.003063	0.34	210.58	135.39	0.06
Speed River	611.71	2-Year	14.82	391.47	393.07		393.08	0.001148	0.12	58.95	63.39	0.03
Speed River	611.71	10-Year	25.2	391.47	393.48		393.49	0.000971	0.14	86.81	73.84	0.03
Speed River	611.71	25-Year	30.65	391.47	393.67		393.67	0.000986	0.15	101.7	85.91	0.03
Speed River	611.71	50-Year	34.75	391.47	393.78		393.78	0.001004	0.15	111.37	93.02	0.03
Speed River	611.71	100-Year	39.3	391.47	393.87		393.88	0.001062	0.16	120.53	100.6	0.03
Speed River	611.71	Regional	140.4	391.47	394.73		394.75	0.002218	0.29	241.49	174.28	0.05
Speed River	589.18	2-Year	14.82	391.44	393.04		393.05	0.001231	0.13	58.71	63.71	0.03
Speed River	589.18	10-Year	25.2	391.44	393.46		393.46	0.001128	0.15	88.74	85.57	0.03
Speed River	589.18	25-Year	30.65	391.44	393.65		393.65	0.001028	0.15	106.15	98.39	0.03
Speed River	589.18	50-Year	34.75	391.44	393.75		393.76	0.001006	0.15	117.22	105.73	0.03
Speed River	589.18	100-Year	39.3	391.44	393.85		393.85	0.001015	0.16	127.41	111.63	0.03
Speed River	589.18	Regional	140.4	391.44	394.68		394.7	0.002112	0.28	245.29	174.68	0.05
Speed River	572.95	2-Year	14.82	390.59	393.03		393.04	0.000448	0.1	73.5	73.15	0.02
Speed River	572.95	10-Year	25.2	390.59	393.45		393.45	0.000447	0.11	107.42	91.78	0.02
Speed River	572.95	25-Year	30.65	390.59	393.64		393.64	0.000436	0.12	125.77	102.65	0.02
Speed River	572.95	50-Year	34.75	390.59	393.74		393.75	0.000448	0.12	137.28	109.8	0.02
Speed River	572.95	100-Year	39.3	390.59	393.84		393.84	0.00047	0.13	147.8	115.32	0.02
Speed River	572.95	Regional	140.4	390.59	394.66		394.67	0.00141	0.26	263.14	179.36	0.04
Speed River	559.87	2-Year	14.82	390.42	393.03		393.03	0.000741	0.14	66.84	59.67	0.03
Speed River	559.87	10-Year	25.2	390.42	393.44		393.44	0.000858	0.16	97.93	94.15	0.03
Speed River	559.87	25-Year	30.65	390.42	393.63		393.63	0.000753	0.16	116.9	105.17	0.03
Speed River	559.87	50-Year	34.75	390.42	393.74		393.74	0.000733	0.16	128.65	111.8	0.03
Speed River	559.87	100-Year	39.3	390.42	393.83		393.83	0.000743	0.16	139.34	117.42	0.03
Speed River	559.87	Regional	140.4	390.42	394.64		394.65	0.001801	0.3	255.87	180.7	0.05
Speed River	551.04	2-Year	14.82	390.3	393.02		393.02	0.000476	0.11	78.95	61.2	0.02
Speed River	551.04	10-Year	25.2	390.3	393.43		393.44	0.000676	0.15	107.43	89.66	0.03
Speed River	551.04	25-Year	30.65	390.3	393.62		393.63	0.000659	0.15	126.36	106.61	0.03
Speed River	551.04	50-Year	34.75	390.3	393.73		393.73	0.000657	0.15	138.32	114.07	0.03
Speed River	551.04	100-Year	39.3	390.3	393.82		393.83	0.000684	0.16	149.28	121.46	0.03
Speed River	551.04	Regional	140.4	390.3	394.62		394.64	0.00167	0.29	268.16	181.03	0.05
Speed River	547.93	2-Year	14.82	390.15	393.02		393.02	0.000442	0.11	76.92	64.73	0.02
Speed River	547.93	10-Year	25.2	390.15	393.43		393.43	0.000557	0.14	111.02	102.63	0.03
Speed River	547.93	25-Year	30.65	390.15	393.62		393.62	0.000547	0.14	132.28	118.82	0.03
Speed River	547.93	50-Year	34.75	390.15	393.73		393.73	0.000542	0.14	145.51	124.04	0.03
Speed River	547.93	100-Year	39.3	390.15	393.82		393.83	0.000552	0.15	157.24	126.98	0.03
Speed River	547.93	Regional	140.4	390.15	394.62		394.63	0.001391	0.27	277.24	180.43	0.04
Speed River	545.68	2-Year	14.82	390.04	392.99	390.93	393.02	0.004012	0.34	34.96	76.31	0.07
Speed River	545.68	10-Year	25.2	390.04	393.43	391.17	393.43	0.0006	0.14	116.01	120.61	0.03
Speed River	545.68	25-Year	30.65	390.04	393.62	391.3	393.62	0.000487	0.14	139.89	129.11	0.02
Speed River	545.68	50-Year	34.75	390.04	393.73	391.37	393.73	0.000465	0.14	154.27	135.85	0.02
Speed River	545.68	100-Year	39.3	390.04	393.82	391.4	393.82	0.000465	0.14	167.19	142.47	0.02
Speed River	545.68	Regional	140.4	390.04	394.62	393.27	394.63	0.001085	0.24	297.98	186.9	0.04
Speed River	540.48		Bridge									

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.2
Watershed: Grand River Conservation Authority
River: Speed River
Reach: -

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Exising Condition HEC-RAS Hydraulic Output Summary
Bridge 5-E

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Speed River	532.89	2-Year	14.82	390.38	392.98	391.24	393.01	0.004969	0.34	29.71	60.37	0.07
Speed River	532.89	10-Year	25.2	390.38	393.32	391.56	393.33	0.000802	0.15	90.59	82.99	0.03
Speed River	532.89	25-Year	30.65	390.38	393.46	391.61	393.47	0.000903	0.17	103.18	96.94	0.03
Speed River	532.89	50-Year	34.75	390.38	393.54	391.64	393.54	0.000936	0.17	110.73	102.01	0.03
Speed River	532.89	100-Year	39.3	390.38	393.61	391.67	393.62	0.000979	0.18	118.4	107.07	0.03
Speed River	532.89	Regional	140.4	390.38	394.49	393.2	394.51	0.001991	0.3	241.14	176.51	0.05
Speed River	525.32	2-Year	14.82	390.33	392.98		392.98	0.000721	0.14	70.84	70.92	0.03
Speed River	525.32	10-Year	25.2	390.33	393.32		393.32	0.000809	0.16	97.46	88.93	0.03
Speed River	525.32	25-Year	30.65	390.33	393.46		393.46	0.00084	0.17	110.34	97.28	0.03
Speed River	525.32	50-Year	34.75	390.33	393.53		393.54	0.000895	0.18	117.89	101.74	0.03
Speed River	525.32	100-Year	39.3	390.33	393.6		393.61	0.000961	0.19	125.48	106.24	0.03
Speed River	525.32	Regional	140.4	390.33	394.47		394.49	0.002044	0.32	245.89	177.89	0.05
Speed River	521.41	2-Year	14.82	390.24	392.98		392.98	0.000702	0.14	70.56	71.6	0.03
Speed River	521.41	10-Year	25.2	390.24	393.31		393.32	0.000776	0.16	97.28	88.59	0.03
Speed River	521.41	25-Year	30.65	390.24	393.45		393.46	0.000813	0.17	110.11	97.23	0.03
Speed River	521.41	50-Year	34.75	390.24	393.53		393.53	0.000878	0.18	117.66	102.58	0.03
Speed River	521.41	100-Year	39.3	390.24	393.6		393.61	0.000958	0.19	125.33	108.41	0.03
Speed River	521.41	Regional	140.4	390.24	394.46		394.48	0.002037	0.32	245.19	178.93	0.05
Speed River	507.31	2-Year	14.82	391.43	392.96		392.97	0.001884	0.15	54.24	67.16	0.04
Speed River	507.31	10-Year	25.2	391.43	393.29		393.3	0.001737	0.17	79.74	86.51	0.04
Speed River	507.31	25-Year	30.65	391.43	393.43		393.44	0.001707	0.17	92.34	96.28	0.04
Speed River	507.31	50-Year	34.75	391.43	393.51		393.52	0.001778	0.18	99.73	102.02	0.04
Speed River	507.31	100-Year	39.3	391.43	393.58		393.59	0.00186	0.19	107.19	107.09	0.04
Speed River	507.31	Regional	140.4	391.43	394.42		394.45	0.003261	0.32	222.11	178.39	0.06
Speed River	495.32	2-Year	14.82	391.55	392.92		392.93	0.005513	0.24	51.32	61.34	0.07
Speed River	495.32	10-Year	25.2	391.55	393.26		393.27	0.00462	0.26	74.72	79.53	0.07
Speed River	495.32	25-Year	30.65	391.55	393.4		393.41	0.004309	0.26	86.49	89.87	0.07
Speed River	495.32	50-Year	34.75	391.55	393.47		393.48	0.004356	0.27	93.27	95.32	0.07
Speed River	495.32	100-Year	39.3	391.55	393.54		393.55	0.004434	0.28	100.09	100.21	0.07
Speed River	495.32	Regional	140.4	391.55	394.36		394.39	0.006421	0.43	203.47	175.85	0.09
Speed River	464.64	2-Year	14.82	391.15	392.8		392.81	0.002722	0.2	45.89	47.26	0.05
Speed River	464.64	10-Year	25.2	391.15	393.13		393.15	0.003507	0.25	64.23	71.07	0.06
Speed River	464.64	25-Year	30.65	391.15	393.28		393.29	0.003369	0.26	75.68	85.35	0.06
Speed River	464.64	50-Year	34.75	391.15	393.35		393.36	0.00347	0.27	81.94	91.89	0.06
Speed River	464.64	100-Year	39.3	391.15	393.42		393.43	0.003553	0.28	88.28	96.87	0.06
Speed River	464.64	Regional	140.4	391.15	394.17		394.21	0.005215	0.42	181.28	161.31	0.08
Speed River	431.88	2-Year	14.82	391.15	392.68		392.69	0.005642	0.26	38.63	42.89	0.07
Speed River	431.88	10-Year	25.2	391.15	392.98		392.99	0.006441	0.32	52.88	55.36	0.08
Speed River	431.88	25-Year	30.65	391.15	393.11		393.13	0.008128	0.38	62.27	87.03	0.09
Speed River	431.88	50-Year	34.75	391.15	393.18		393.2	0.008158	0.39	68.6	98.52	0.09
Speed River	431.88	100-Year	39.3	391.15	393.25		393.27	0.008009	0.39	75.51	108.99	0.09
Speed River	431.88	Regional	140.4	391.15	393.98		394.02	0.006527	0.44	177.1	161.12	0.09
Speed River	395.06	2-Year	14.82	391.13	392.52		392.53	0.003333	0.19	42.24	53.21	0.05
Speed River	395.06	10-Year	25.2	391.13	392.79		392.81	0.004162	0.24	58.69	72.73	0.06
Speed River	395.06	25-Year	30.65	391.13	392.89		392.91	0.004643	0.27	66.88	86.23	0.07
Speed River	395.06	50-Year	34.75	391.13	392.96		392.97	0.004808	0.28	72.44	92.67	0.07
Speed River	395.06	100-Year	39.3	391.13	393.02		393.04	0.004978	0.29	78.46	99.78	0.07
Speed River	395.06	Regional	140.4	391.13	393.76		393.8	0.005471	0.39	175.24	149.47	0.08
Speed River	326.67	2-Year	14.82	390.55	392.27		392.28	0.004255	0.24	39.8	70.58	0.06
Speed River	326.67	10-Year	25.2	390.55	392.48		392.49	0.005208	0.29	58.52	96.82	0.07
Speed River	326.67	25-Year	30.65	390.55	392.56		392.57	0.005254	0.3	66.71	103.69	0.07
Speed River	326.67	50-Year	34.75	390.55	392.62		392.63	0.005228	0.31	72.78	108.87	0.07
Speed River	326.67	100-Year	39.3	390.55	392.67		392.69	0.005166	0.31	79.26	113.73	0.07
Speed River	326.67	Regional	140.4	390.55	393.41		393.44	0.005059	0.39	182.53	164.33	0.08
Speed River	289.56	2-Year	14.82	390.63	392.08		392.09	0.006386	0.26	43.03	77.96	0.08
Speed River	289.56	10-Year	25.2	390.63	392.27		392.28	0.006365	0.29	58.5	87.9	0.08
Speed River	289.56	25-Year	30.65	390.63	392.34		392.36	0.006382	0.3	65.66	92.53	0.08
Speed River	289.56	50-Year	34.75	390.63	392.4		392.42	0.006441	0.31	71	97.35	0.08
Speed River	289.56	100-Year	39.3	390.63	392.46		392.48	0.006517	0.32	76.79	103.01	0.08
Speed River	289.56	Regional	140.4	390.63	393.19		393.23	0.006587	0.41	174.15	158.11	0.09
Speed River	239.82	2-Year	14.82	390.35	391.8		391.8	0.005108	0.24	42.71	80.64	0.07
Speed River	239.82	10-Year	25.2	390.35	391.98		391.99	0.005351	0.27	58.8	94.73	0.07
Speed River	239.82	25-Year	30.65	390.35	392.06		392.07	0.005432	0.28	66.42	101.49	0.07
Speed River	239.82	50-Year	34.75	390.35	392.11		392.13	0.005489	0.29	72.02	106.93	0.07
Speed River	239.82	100-Year	39.3	390.35	392.17		392.18	0.005493	0.29	78.17	112.41	0.07
Speed River	239.82	Regional	140.4	390.35	392.91		392.95	0.005094	0.36	180.32	157.77	0.08
Speed River	135.66	2-Year	14.82	390.15	391.27	390.83	391.28	0.005002	0.2	38.89	84.06	0.06
Speed River	135.66	10-Year	25.2	390.15	391.44	390.96	391.45	0.005006	0.22	54.34	95.36	0.07
Speed River	135.66	25-Year	30.65	390.15	391.51	391.01	391.53	0.005007	0.23	61.49	99.36	0.07
Speed River	135.66	50-Year	34.75	390.15	391.56	391.05	391.58	0.005007	0.24	66.62	102.12	0.07
Speed River	135.66	100-Year	39.3	390.15	391.62	391.08	391.63	0.005006	0.24	72.12	105.03	0.07
Speed River	135.66	Regional	140.4	390.15	392.38	391.53	392.42	0.005002	0.33	176.51	166.5	0.07

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.2
Watershed: Grand River Conservation Authority
River: Speed River
Reach: -

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Proposed Condition HEC-RAS Hydraulic Output Summary
Bridge 5-E

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Speed River	1027.82	2-Year	14.82	392.65	394.07		394.07	0.001997	0.15	47.67	63.36	0.04
Speed River	1027.82	10-Year	25.2	392.65	394.41		394.41	0.001601	0.16	70.49	71.07	0.04
Speed River	1027.82	25-Year	30.65	392.65	394.56		394.57	0.001498	0.16	81.52	74.75	0.04
Speed River	1027.82	50-Year	34.75	392.65	394.66		394.67	0.001536	0.17	89.74	81.46	0.04
Speed River	1027.82	100-Year	39.3	392.65	394.77		394.78	0.001554	0.18	98.86	88.58	0.04
Speed River	1027.82	Regional	140.4	392.65	395.95		395.97	0.001911	0.27	237.91	160.17	0.05
Speed River	931.89	2-Year	14.82	392.43	393.86		393.87	0.002296	0.16	45.51	49.37	0.05
Speed River	931.89	10-Year	25.2	392.43	394.23		394.24	0.002095	0.18	65.02	56.67	0.05
Speed River	931.89	25-Year	30.65	392.43	394.38		394.4	0.002087	0.2	74.24	61.33	0.05
Speed River	931.89	50-Year	34.75	392.43	394.48		394.5	0.002141	0.21	80.63	66	0.05
Speed River	931.89	100-Year	39.3	392.43	394.59		394.6	0.002202	0.22	87.7	72.08	0.05
Speed River	931.89	Regional	140.4	392.43	395.69		395.72	0.003596	0.37	199.45	144.81	0.07
Speed River	858.82	2-Year	14.82	392.1	393.68		393.69	0.002487	0.18	47.3	48.17	0.05
Speed River	858.82	10-Year	25.2	392.1	394.06		394.07	0.002514	0.22	68.06	63.69	0.05
Speed River	858.82	25-Year	30.65	392.1	394.22		394.23	0.002506	0.23	78.96	73.83	0.05
Speed River	858.82	50-Year	34.75	392.1	394.32		394.33	0.002496	0.23	86.6	80.04	0.05
Speed River	858.82	100-Year	39.3	392.1	394.42		394.43	0.002432	0.24	95.15	85.85	0.05
Speed River	858.82	Regional	140.4	392.1	395.47		395.5	0.00261	0.32	222.98	152.27	0.06
Speed River	793.74	2-Year	14.82	392.05	393.49		393.5	0.00352	0.21	42.55	45.74	0.06
Speed River	793.74	10-Year	25.2	392.05	393.86		393.88	0.003621	0.25	61.81	63.63	0.06
Speed River	793.74	25-Year	30.65	392.05	394.03		394.04	0.003265	0.25	73.37	73.14	0.06
Speed River	793.74	50-Year	34.75	392.05	394.13		394.15	0.003183	0.25	81.18	79.6	0.06
Speed River	793.74	100-Year	39.3	392.05	394.24		394.25	0.003143	0.26	90.17	88.5	0.06
Speed River	793.74	Regional	140.4	392.05	395.31		395.33	0.002569	0.31	230.76	164.35	0.06
Speed River	728.2	2-Year	14.82	391.75	393.28		393.29	0.002869	0.19	42.94	45.44	0.05
Speed River	728.2	10-Year	25.2	391.75	393.66		393.67	0.002649	0.22	61.66	54.19	0.05
Speed River	728.2	25-Year	30.65	391.75	393.83		393.84	0.002874	0.24	71.69	65.73	0.05
Speed River	728.2	50-Year	34.75	391.75	393.93		393.95	0.002879	0.25	78.91	72	0.06
Speed River	728.2	100-Year	39.3	391.75	394.05		394.06	0.002735	0.25	87.34	77.21	0.05
Speed River	728.2	Regional	140.4	391.75	395.1		395.13	0.003479	0.37	201.13	159.26	0.07
Speed River	656.32	2-Year	14.82	391.46	393.13		393.13	0.001751	0.15	53.55	51.67	0.04
Speed River	656.32	10-Year	25.2	391.46	393.51		393.52	0.001814	0.18	77.4	72.1	0.04
Speed River	656.32	25-Year	30.65	391.46	393.68		393.69	0.001652	0.19	90.17	77.01	0.04
Speed River	656.32	50-Year	34.75	391.46	393.79		393.8	0.001607	0.19	98.56	80.27	0.04
Speed River	656.32	100-Year	39.3	391.46	393.91		393.92	0.00153	0.19	108.42	84.09	0.04
Speed River	656.32	Regional	140.4	391.46	394.88		394.9	0.00289	0.34	215.61	147.14	0.06
Speed River	611.71	2-Year	14.82	391.47	393.06		393.07	0.00118	0.13	58.47	63.22	0.03
Speed River	611.71	10-Year	25.2	391.47	393.45		393.46	0.001048	0.14	84.62	72.89	0.03
Speed River	611.71	25-Year	30.65	391.47	393.62		393.63	0.001082	0.15	97.87	82.77	0.03
Speed River	611.71	50-Year	34.75	391.47	393.73		393.74	0.001107	0.16	107.09	89.68	0.03
Speed River	611.71	100-Year	39.3	391.47	393.85		393.86	0.001107	0.16	118.53	99.1	0.03
Speed River	611.71	Regional	140.4	391.47	394.78		394.8	0.002031	0.28	249.17	177.49	0.05
Speed River	589.18	2-Year	14.82	391.44	393.04		393.04	0.001267	0.13	58.18	63.45	0.03
Speed River	589.18	10-Year	25.2	391.44	393.42		393.43	0.001225	0.15	86.04	83.52	0.04
Speed River	589.18	25-Year	30.65	391.44	393.6		393.6	0.001162	0.15	101.51	95.14	0.03
Speed River	589.18	50-Year	34.75	391.44	393.7		393.71	0.001139	0.16	112.06	102.38	0.03
Speed River	589.18	100-Year	39.3	391.44	393.83		393.83	0.001069	0.16	125.08	110.29	0.03
Speed River	589.18	Regional	140.4	391.44	394.73		394.75	0.001919	0.27	253.78	178.19	0.05
Speed River	572.95	2-Year	14.82	390.59	393.03		393.03	0.000459	0.1	72.87	72.81	0.02
Speed River	572.95	10-Year	25.2	390.59	393.41		393.42	0.000484	0.12	104.45	90.32	0.02
Speed River	572.95	25-Year	30.65	390.59	393.59		393.59	0.000484	0.12	120.82	99.58	0.02
Speed River	572.95	50-Year	34.75	390.59	393.69		393.7	0.000497	0.13	131.8	106.42	0.02
Speed River	572.95	100-Year	39.3	390.59	393.82		393.82	0.000491	0.13	145.34	114.07	0.02
Speed River	572.95	Regional	140.4	390.59	394.71		394.72	0.001294	0.25	272.27	184	0.04
Speed River	559.87	2-Year	14.82	390.42	393.02		393.02	0.000757	0.14	66.31	59.24	0.03
Speed River	559.87	10-Year	25.2	390.42	393.4		393.41	0.000944	0.17	94.81	92.16	0.03
Speed River	559.87	25-Year	30.65	390.42	393.58		393.58	0.000861	0.17	111.71	102.34	0.03
Speed River	559.87	50-Year	34.75	390.42	393.68		393.69	0.000835	0.17	122.95	108.56	0.03
Speed River	559.87	100-Year	39.3	390.42	393.81		393.81	0.000784	0.17	136.78	116.12	0.03
Speed River	559.87	Regional	140.4	390.42	394.69		394.71	0.001627	0.29	265.44	185.02	0.05
Speed River	551.04	2-Year	14.82	390.3	393.01		393.02	0.000449	0.11	78.42	60.93	0.02
Speed River	551.04	10-Year	25.2	390.3	393.4		393.4	0.000677	0.15	104.56	81.94	0.03
Speed River	551.04	25-Year	30.65	390.3	393.57		393.58	0.000741	0.16	121.04	102.54	0.03
Speed River	551.04	50-Year	34.75	390.3	393.68		393.68	0.000741	0.16	132.42	110.27	0.03
Speed River	551.04	100-Year	39.3	390.3	393.8		393.81	0.000719	0.16	146.59	119.69	0.03
Speed River	551.04	Regional	140.4	390.3	394.68		394.69	0.001506	0.28	278	184.98	0.04
Speed River	547.93	2-Year	14.82	390.15	393.01		393.01	0.000452	0.11	76.36	64.33	0.02
Speed River	547.93	10-Year	25.2	390.15	393.4		393.4	0.000608	0.14	107.62	98.82	0.03
Speed River	547.93	25-Year	30.65	390.15	393.57		393.57	0.000636	0.15	126.32	114.63	0.03
Speed River	547.93	50-Year	34.75	390.15	393.68		393.68	0.000631	0.15	139.02	122.14	0.03
Speed River	547.93	100-Year	39.3	390.15	393.8		393.8	0.00059	0.15	154.41	126.78	0.03
Speed River	547.93	Regional	140.4	390.15	394.67		394.69	0.001263	0.26	287.11	185.01	0.04
Speed River	545.68	2-Year	14.82	390.04	392.99	390.93	393.01	0.002626	0.27	38.63	76.1	0.05
Speed River	545.68	10-Year	25.2	390.04	393.34	391.17	393.39	0.00441	0.38	44.63	116.5	0.07
Speed River	545.68	25-Year	30.65	390.04	393.5	391.3	393.56	0.005269	0.43	47.26	124	0.08
Speed River	545.68	50-Year	34.75	390.04	393.59	391.37	393.66	0.006008	0.47	48.81	127.88	0.08
Speed River	545.68	100-Year	39.3	390.04	393.8	391.42	393.8	0.000493	0.14	164.02	140.48	0.02
Speed River	545.68	Regional	140.4	390.04	394.67	393.08	394.68	0.000985	0.23	308.2	190.08	0.04
Speed River	540.48		Bridge									

Project Name: Centre Wellington 4 Bridges EA
Project No.: 300058117.2
Watershed: Grand River Conservation Authority
River: Speed River
Reach: -

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Proposed Condition HEC-RAS Hydraulic Output Summary
Bridge 5-E

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Speed River	532.89	2-Year	14.82	390.38	392.98	391.24	393	0.00283	0.26	33.89	60.49	0.05
Speed River	532.89	10-Year	25.2	390.38	393.31	391.57	393.36	0.00466	0.36	39.39	81.92	0.07
Speed River	532.89	25-Year	30.65	390.38	393.44	391.61	393.51	0.005627	0.41	41.61	94.94	0.08
Speed River	532.89	50-Year	34.75	390.38	393.51	391.64	393.59	0.006525	0.45	42.79	99.41	0.09
Speed River	532.89	100-Year	39.3	390.38	393.61	391.66	393.63	0.002355	0.28	75.9	106.82	0.05
Speed River	532.89	Regional	140.4	390.38	394.49	393.62	394.51	0.001991	0.3	241.14	176.51	0.05
Speed River	525.32	2-Year	14.82	390.33	392.98		392.98	0.000721	0.14	70.84	70.92	0.03
Speed River	525.32	10-Year	25.2	390.33	393.32		393.32	0.000809	0.16	97.46	88.93	0.03
Speed River	525.32	25-Year	30.65	390.33	393.46		393.46	0.00084	0.17	110.34	97.28	0.03
Speed River	525.32	50-Year	34.75	390.33	393.53		393.54	0.000895	0.18	117.89	101.74	0.03
Speed River	525.32	100-Year	39.3	390.33	393.6		393.61	0.000961	0.19	125.48	106.24	0.03
Speed River	525.32	Regional	140.4	390.33	394.47		394.49	0.002044	0.32	245.89	177.89	0.05
Speed River	521.41	2-Year	14.82	390.24	392.98		392.98	0.000702	0.14	70.56	71.6	0.03
Speed River	521.41	10-Year	25.2	390.24	393.31		393.32	0.000776	0.16	97.28	88.59	0.03
Speed River	521.41	25-Year	30.65	390.24	393.45		393.46	0.000813	0.17	110.11	97.23	0.03
Speed River	521.41	50-Year	34.75	390.24	393.53		393.53	0.000878	0.18	117.66	102.58	0.03
Speed River	521.41	100-Year	39.3	390.24	393.6		393.61	0.000958	0.19	125.33	108.41	0.03
Speed River	521.41	Regional	140.4	390.24	394.46		394.48	0.002037	0.32	245.19	178.93	0.05
Speed River	507.31	2-Year	14.82	391.43	392.96		392.97	0.001884	0.15	54.24	67.16	0.04
Speed River	507.31	10-Year	25.2	391.43	393.29		393.3	0.001737	0.17	79.74	86.51	0.04
Speed River	507.31	25-Year	30.65	391.43	393.43		393.44	0.001707	0.17	92.34	96.28	0.04
Speed River	507.31	50-Year	34.75	391.43	393.51		393.52	0.001778	0.18	99.73	102.02	0.04
Speed River	507.31	100-Year	39.3	391.43	393.58		393.59	0.00186	0.19	107.19	107.09	0.04
Speed River	507.31	Regional	140.4	391.43	394.42		394.45	0.003261	0.32	222.11	178.39	0.06
Speed River	495.32	2-Year	14.82	391.55	392.92		392.93	0.005513	0.24	51.32	61.34	0.07
Speed River	495.32	10-Year	25.2	391.55	393.26		393.27	0.00462	0.26	74.72	79.53	0.07
Speed River	495.32	25-Year	30.65	391.55	393.4		393.41	0.004309	0.26	86.49	89.87	0.07
Speed River	495.32	50-Year	34.75	391.55	393.47		393.48	0.004356	0.27	93.27	95.32	0.07
Speed River	495.32	100-Year	39.3	391.55	393.54		393.55	0.004434	0.28	100.09	100.21	0.07
Speed River	495.32	Regional	140.4	391.55	394.36		394.39	0.006421	0.43	203.47	175.85	0.09
Speed River	464.64	2-Year	14.82	391.15	392.8		392.81	0.002722	0.2	45.89	47.26	0.05
Speed River	464.64	10-Year	25.2	391.15	393.13		393.15	0.003507	0.25	64.23	71.07	0.06
Speed River	464.64	25-Year	30.65	391.15	393.28		393.29	0.003369	0.26	75.68	85.35	0.06
Speed River	464.64	50-Year	34.75	391.15	393.35		393.36	0.00347	0.27	81.94	91.89	0.06
Speed River	464.64	100-Year	39.3	391.15	393.42		393.43	0.003553	0.28	88.28	96.87	0.06
Speed River	464.64	Regional	140.4	391.15	394.17		394.21	0.005215	0.42	181.28	161.31	0.08
Speed River	431.88	2-Year	14.82	391.15	392.68		392.69	0.005642	0.26	38.63	42.89	0.07
Speed River	431.88	10-Year	25.2	391.15	392.98		392.99	0.006441	0.32	52.88	55.36	0.08
Speed River	431.88	25-Year	30.65	391.15	393.11		393.13	0.008128	0.38	62.27	87.03	0.09
Speed River	431.88	50-Year	34.75	391.15	393.18		393.2	0.008158	0.39	68.6	98.52	0.09
Speed River	431.88	100-Year	39.3	391.15	393.25		393.27	0.008009	0.39	75.51	108.99	0.09
Speed River	431.88	Regional	140.4	391.15	393.98		394.02	0.006527	0.44	177.1	161.12	0.09
Speed River	395.06	2-Year	14.82	391.13	392.52		392.53	0.003333	0.19	42.24	53.21	0.05
Speed River	395.06	10-Year	25.2	391.13	392.79		392.81	0.004162	0.24	58.69	72.73	0.06
Speed River	395.06	25-Year	30.65	391.13	392.89		392.91	0.004643	0.27	66.88	86.23	0.07
Speed River	395.06	50-Year	34.75	391.13	392.96		392.97	0.004808	0.28	72.44	92.67	0.07
Speed River	395.06	100-Year	39.3	391.13	393.02		393.04	0.004978	0.29	78.46	99.78	0.07
Speed River	395.06	Regional	140.4	391.13	393.76		393.8	0.005471	0.39	175.24	149.47	0.08
Speed River	326.67	2-Year	14.82	390.55	392.27		392.28	0.004255	0.24	39.8	70.58	0.06
Speed River	326.67	10-Year	25.2	390.55	392.48		392.49	0.005208	0.29	58.52	96.82	0.07
Speed River	326.67	25-Year	30.65	390.55	392.56		392.57	0.005254	0.3	66.71	103.69	0.07
Speed River	326.67	50-Year	34.75	390.55	392.62		392.63	0.005228	0.31	72.78	108.87	0.07
Speed River	326.67	100-Year	39.3	390.55	392.67		392.69	0.005166	0.31	79.26	113.73	0.07
Speed River	326.67	Regional	140.4	390.55	393.41		393.44	0.005059	0.39	182.53	164.33	0.08
Speed River	289.56	2-Year	14.82	390.63	392.08		392.09	0.006386	0.26	43.03	77.96	0.08
Speed River	289.56	10-Year	25.2	390.63	392.27		392.28	0.006365	0.29	58.5	87.9	0.08
Speed River	289.56	25-Year	30.65	390.63	392.34		392.36	0.006382	0.3	65.66	92.53	0.08
Speed River	289.56	50-Year	34.75	390.63	392.4		392.42	0.006441	0.31	71	97.35	0.08
Speed River	289.56	100-Year	39.3	390.63	392.46		392.48	0.006517	0.32	76.79	103.01	0.08
Speed River	289.56	Regional	140.4	390.63	393.19		393.23	0.006587	0.41	174.15	158.11	0.09
Speed River	239.82	2-Year	14.82	390.35	391.8		391.8	0.005108	0.24	42.71	80.64	0.07
Speed River	239.82	10-Year	25.2	390.35	391.98		391.99	0.005351	0.27	58.8	94.73	0.07
Speed River	239.82	25-Year	30.65	390.35	392.06		392.07	0.005432	0.28	66.42	101.49	0.07
Speed River	239.82	50-Year	34.75	390.35	392.11		392.13	0.005489	0.29	72.02	106.93	0.07
Speed River	239.82	100-Year	39.3	390.35	392.17		392.18	0.005493	0.29	78.17	112.41	0.07
Speed River	239.82	Regional	140.4	390.35	392.91		392.95	0.005094	0.36	180.32	157.77	0.08
Speed River	135.66	2-Year	14.82	390.15	391.27	390.83	391.28	0.005002	0.2	38.89	84.06	0.06
Speed River	135.66	10-Year	25.2	390.15	391.44	390.96	391.45	0.005006	0.22	54.34	95.36	0.07
Speed River	135.66	25-Year	30.65	390.15	391.51	391.01	391.53	0.005007	0.23	61.49	99.36	0.07
Speed River	135.66	50-Year	34.75	390.15	391.56	391.05	391.58	0.005007	0.24	66.62	102.12	0.07
Speed River	135.66	100-Year	39.3	390.15	391.62	391.08	391.63	0.005006	0.24	72.12	105.03	0.07
Speed River	135.66	Regional	140.4	390.15	392.38	391.53	392.42	0.005002	0.33	176.51	166.5	0.07

Project Name:	Centre Wellington 4 Bridges EA
Project No.:	300058117.2
Watershed:	Grand River Conservation Authority
River:	Speed River
Reach:	-

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Project Title
HEC-RAS Hydraulic Output Summary- Water Surface Elevation Comparison Summary

Modelling Scenario **Bridge 5-E**

EXISTING CONDITIONS
PROPOSED CONDITIONS

Standard HEC-RAS Outputs					EXISTING	PROPOSED	DIFFERENCE
Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	EXISTING W.S. Elev (m)	PROPOSED W.S. Elev (m)	W.S.E Diff (m)
Speed River	1027.82	2-Year	14.82	392.65	394.07	394.07	0.00
Speed River	1027.82	10-Year	25.20	392.65	394.41	394.41	0.00
Speed River	1027.82	25-Year	30.65	392.65	394.56	394.56	0.00
Speed River	1027.82	50-Year	34.75	392.65	394.67	394.66	-0.01
Speed River	1027.82	100-Year	39.30	392.65	394.77	394.77	0.00
Speed River	1027.82	Regional	140.40	392.65	395.95	395.95	0.00
Speed River	931.89	2-Year	14.82	392.43	393.86	393.86	0.00
Speed River	931.89	10-Year	25.20	392.43	394.23	394.23	0.00
Speed River	931.89	25-Year	30.65	392.43	394.39	394.38	-0.01
Speed River	931.89	50-Year	34.75	392.43	394.49	394.48	-0.01
Speed River	931.89	100-Year	39.30	392.43	394.59	394.59	0.00
Speed River	931.89	Regional	140.40	392.43	395.68	395.69	0.01
Speed River	858.82	2-Year	14.82	392.10	393.68	393.68	0.00
Speed River	858.82	10-Year	25.20	392.10	394.07	394.06	-0.01
Speed River	858.82	25-Year	30.65	392.10	394.23	394.22	-0.01
Speed River	858.82	50-Year	34.75	392.10	394.33	394.32	-0.01
Speed River	858.82	100-Year	39.30	392.10	394.43	394.42	-0.01
Speed River	858.82	Regional	140.40	392.10	395.46	395.47	0.01
Speed River	793.74	2-Year	14.82	392.05	393.49	393.49	0.00
Speed River	793.74	10-Year	25.20	392.05	393.87	393.86	-0.01
Speed River	793.74	25-Year	30.65	392.05	394.05	394.03	-0.02
Speed River	793.74	50-Year	34.75	392.05	394.15	394.13	-0.02
Speed River	793.74	100-Year	39.30	392.05	394.25	394.24	-0.01
Speed River	793.74	Regional	140.40	392.05	395.29	395.31	0.02
Speed River	728.2	2-Year	14.82	391.75	393.29	393.28	-0.01
Speed River	728.2	10-Year	25.20	391.75	393.68	393.66	-0.02
Speed River	728.2	25-Year	30.65	391.75	393.86	393.83	-0.03
Speed River	728.2	50-Year	34.75	391.75	393.96	393.93	-0.03
Speed River	728.2	100-Year	39.30	391.75	394.06	394.05	-0.01
Speed River	728.2	Regional	140.40	391.75	395.08	395.10	0.02
Speed River	656.32	2-Year	14.82	391.46	393.13	393.13	0.00
Speed River	656.32	10-Year	25.20	391.46	393.53	393.51	-0.02
Speed River	656.32	25-Year	30.65	391.46	393.72	393.68	-0.04
Speed River	656.32	50-Year	34.75	391.46	393.83	393.79	-0.04
Speed River	656.32	100-Year	39.30	391.46	393.92	393.91	-0.01
Speed River	656.32	Regional	140.40	391.46	394.84	394.88	0.04
Speed River	611.71	2-Year	14.82	391.47	393.07	393.06	-0.01
Speed River	611.71	10-Year	25.20	391.47	393.48	393.45	-0.03
Speed River	611.71	25-Year	30.65	391.47	393.67	393.62	-0.05
Speed River	611.71	50-Year	34.75	391.47	393.78	393.73	-0.05
Speed River	611.71	100-Year	39.30	391.47	393.87	393.85	-0.02
Speed River	611.71	Regional	140.40	391.47	394.73	394.78	0.05
Speed River	589.18	2-Year	14.82	391.44	393.04	393.04	0.00
Speed River	589.18	10-Year	25.20	391.44	393.46	393.42	-0.04
Speed River	589.18	25-Year	30.65	391.44	393.65	393.60	-0.05
Speed River	589.18	50-Year	34.75	391.44	393.75	393.70	-0.05
Speed River	589.18	100-Year	39.30	391.44	393.85	393.83	-0.02
Speed River	589.18	Regional	140.40	391.44	394.68	394.73	0.05
Speed River	572.95	2-Year	14.82	390.59	393.03	393.03	0.00
Speed River	572.95	10-Year	25.20	390.59	393.45	393.41	-0.04
Speed River	572.95	25-Year	30.65	390.59	393.64	393.59	-0.05
Speed River	572.95	50-Year	34.75	390.59	393.74	393.69	-0.05
Speed River	572.95	100-Year	39.30	390.59	393.84	393.82	-0.02
Speed River	572.95	Regional	140.40	390.59	394.66	394.71	0.05
Speed River	559.87	2-Year	14.82	390.42	393.03	393.02	-0.01
Speed River	559.87	10-Year	25.20	390.42	393.44	393.40	-0.04
Speed River	559.87	25-Year	30.65	390.42	393.63	393.58	-0.05
Speed River	559.87	50-Year	34.75	390.42	393.74	393.68	-0.06
Speed River	559.87	100-Year	39.30	390.42	393.83	393.81	-0.02
Speed River	559.87	Regional	140.40	390.42	394.64	394.69	0.05
Speed River	551.04	2-Year	14.82	390.30	393.02	393.01	-0.01
Speed River	551.04	10-Year	25.20	390.30	393.43	393.40	-0.03
Speed River	551.04	25-Year	30.65	390.30	393.62	393.57	-0.05
Speed River	551.04	50-Year	34.75	390.30	393.73	393.68	-0.05
Speed River	551.04	100-Year	39.30	390.30	393.82	393.80	-0.02
Speed River	551.04	Regional	140.40	390.30	394.62	394.68	0.06
Speed River	547.93	2-Year	14.82	390.15	393.02	393.01	-0.01
Speed River	547.93	10-Year	25.20	390.15	393.43	393.40	-0.03
Speed River	547.93	25-Year	30.65	390.15	393.62	393.57	-0.05
Speed River	547.93	50-Year	34.75	390.15	393.73	393.68	-0.05
Speed River	547.93	100-Year	39.30	390.15	393.82	393.80	-0.02
Speed River	547.93	Regional	140.40	390.15	394.62	394.67	0.05
Speed River	545.68	2-Year	14.82	390.04	392.99	392.99	0.00
Speed River	545.68	10-Year	25.20	390.04	393.43	393.34	-0.09
Speed River	545.68	25-Year	30.65	390.04	393.62	393.50	-0.12
Speed River	545.68	50-Year	34.75	390.04	393.73	393.59	-0.14
Speed River	545.68	100-Year	39.30	390.04	393.82	393.80	-0.02
Speed River	545.68	Regional	140.40	390.04	394.62	394.67	0.05
Speed River	540.48	0	Bridge	0.00	0.00	0.00	0.00

Standard HEC-RAS Outputs					EXISTING	PROPOSED	DIFFERENCE
Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	EXISTING W.S. Elev (m)	PROPOSED W.S. Elev (m)	W.S.E Diff (m)
Speed River	532.89	2-Year	14.82	390.38	392.98	392.98	0.00
Speed River	532.89	10-Year	25.20	390.38	393.32	393.31	-0.01
Speed River	532.89	25-Year	30.65	390.38	393.46	393.44	-0.02
Speed River	532.89	50-Year	34.75	390.38	393.54	393.51	-0.03
Speed River	532.89	100-Year	39.30	390.38	393.61	393.61	0.00
Speed River	532.89	Regional	140.40	390.38	394.49	394.49	0.00
Speed River	525.32	2-Year	14.82	390.33	392.98	392.98	0.00
Speed River	525.32	10-Year	25.20	390.33	393.32	393.32	0.00
Speed River	525.32	25-Year	30.65	390.33	393.46	393.46	0.00
Speed River	525.32	50-Year	34.75	390.33	393.53	393.53	0.00
Speed River	525.32	100-Year	39.30	390.33	393.60	393.60	0.00
Speed River	525.32	Regional	140.40	390.33	394.47	394.47	0.00
Speed River	521.41	2-Year	14.82	390.24	392.98	392.98	0.00
Speed River	521.41	10-Year	25.20	390.24	393.31	393.31	0.00
Speed River	521.41	25-Year	30.65	390.24	393.45	393.45	0.00
Speed River	521.41	50-Year	34.75	390.24	393.53	393.53	0.00
Speed River	521.41	100-Year	39.30	390.24	393.60	393.60	0.00
Speed River	521.41	Regional	140.40	390.24	394.46	394.46	0.00
Speed River	507.31	2-Year	14.82	391.43	392.96	392.96	0.00
Speed River	507.31	10-Year	25.20	391.43	393.29	393.29	0.00
Speed River	507.31	25-Year	30.65	391.43	393.43	393.43	0.00
Speed River	507.31	50-Year	34.75	391.43	393.51	393.51	0.00
Speed River	507.31	100-Year	39.30	391.43	393.58	393.58	0.00
Speed River	507.31	Regional	140.40	391.43	394.42	394.42	0.00
Speed River	495.32	2-Year	14.82	391.55	392.92	392.92	0.00
Speed River	495.32	10-Year	25.20	391.55	393.26	393.26	0.00
Speed River	495.32	25-Year	30.65	391.55	393.40	393.40	0.00
Speed River	495.32	50-Year	34.75	391.55	393.47	393.47	0.00
Speed River	495.32	100-Year	39.30	391.55	393.54	393.54	0.00
Speed River	495.32	Regional	140.40	391.55	394.36	394.36	0.00
Speed River	464.64	2-Year	14.82	391.15	392.80	392.80	0.00
Speed River	464.64	10-Year	25.20	391.15	393.13	393.13	0.00
Speed River	464.64	25-Year	30.65	391.15	393.28	393.28	0.00
Speed River	464.64	50-Year	34.75	391.15	393.35	393.35	0.00
Speed River	464.64	100-Year	39.30	391.15	393.42	393.42	0.00
Speed River	464.64	Regional	140.40	391.15	394.17	394.17	0.00
Speed River	431.88	2-Year	14.82	391.15	392.68	392.68	0.00
Speed River	431.88	10-Year	25.20	391.15	392.98	392.98	0.00
Speed River	431.88	25-Year	30.65	391.15	393.11	393.11	0.00
Speed River	431.88	50-Year	34.75	391.15	393.18	393.18	0.00
Speed River	431.88	100-Year	39.30	391.15	393.25	393.25	0.00
Speed River	431.88	Regional	140.40	391.15	393.98	393.98	0.00
Speed River	395.06	2-Year	14.82	391.13	392.52	392.52	0.00
Speed River	395.06	10-Year	25.20	391.13	392.79	392.79	0.00
Speed River	395.06	25-Year	30.65	391.13	392.89	392.89	0.00
Speed River	395.06	50-Year	34.75	391.13	392.96	392.96	0.00
Speed River	395.06	100-Year	39.30	391.13	393.02	393.02	0.00
Speed River	395.06	Regional	140.40	391.13	393.76	393.76	0.00
Speed River	326.67	2-Year	14.82	390.55	392.27	392.27	0.00
Speed River	326.67	10-Year	25.20	390.55	392.48	392.48	0.00
Speed River	326.67	25-Year	30.65	390.55	392.56	392.56	0.00
Speed River	326.67	50-Year	34.75	390.55	392.62	392.62	0.00
Speed River	326.67	100-Year	39.30	390.55	392.67	392.67	0.00
Speed River	326.67	Regional	140.40	390.55	393.41	393.41	0.00
Speed River	289.56	2-Year	14.82	390.63	392.08	392.08	0.00
Speed River	289.56	10-Year	25.20	390.63	392.27	392.27	0.00
Speed River	289.56	25-Year	30.65	390.63	392.34	392.34	0.00
Speed River	289.56	50-Year	34.75	390.63	392.40	392.40	0.00
Speed River	289.56	100-Year	39.30	390.63	392.46	392.46	0.00
Speed River	289.56	Regional	140.40	390.63	393.19	393.19	0.00
Speed River	239.82	2-Year	14.82	390.35	391.80	391.80	0.00
Speed River	239.82	10-Year	25.20	390.35	391.98	391.98	0.00
Speed River	239.82	25-Year	30.65	390.35	392.06	392.06	0.00
Speed River	239.82	50-Year	34.75	390.35	392.11	392.11	0.00
Speed River	239.82	100-Year	39.30	390.35	392.17	392.17	0.00
Speed River	239.82	Regional	140.40	390.35	392.91	392.91	0.00
Speed River	135.66	2-Year	14.82	390.15	391.27	391.27	0.00
Speed River	135.66	10-Year	25.20	390.15	391.44	391.44	0.00
Speed River	135.66	25-Year	30.65	390.15	391.51	391.51	0.00
Speed River	135.66	50-Year	34.75	390.15	391.56	391.56	0.00
Speed River	135.66	100-Year	39.30	390.15	391.62	391.62	0.00
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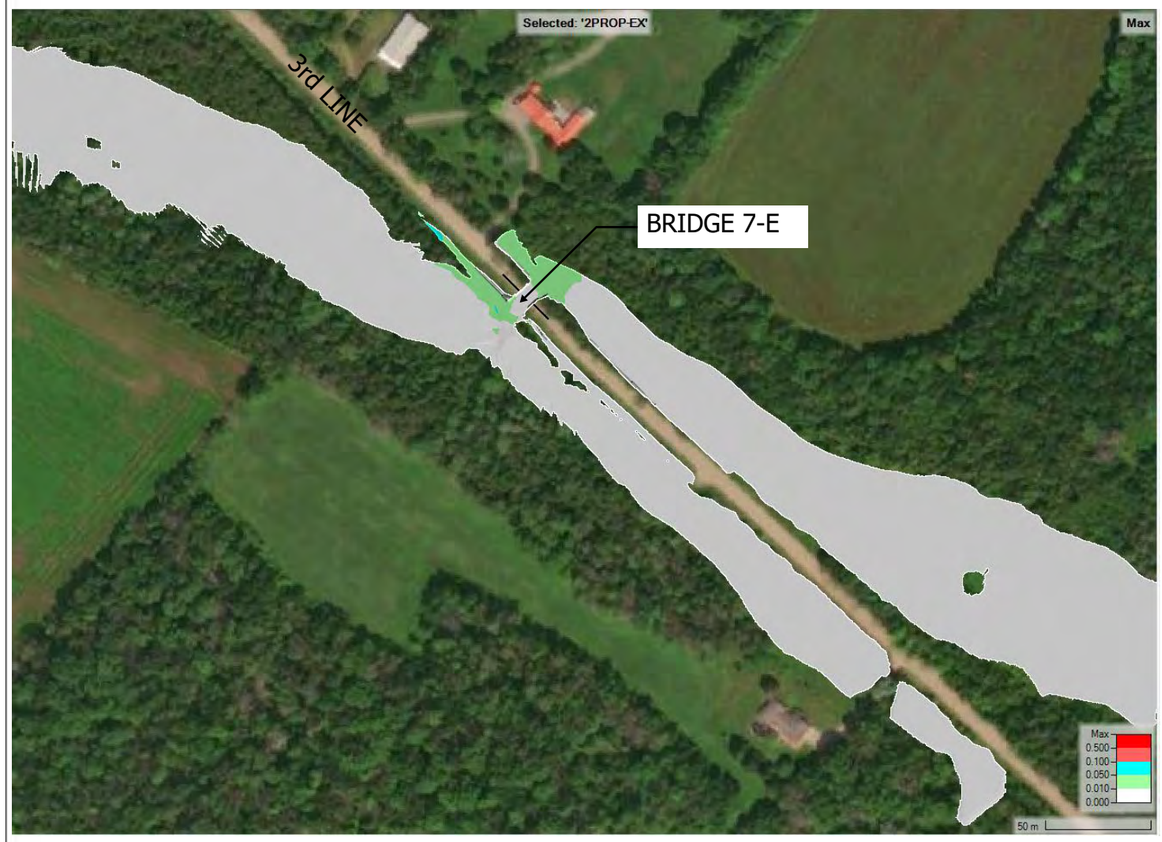

2-YEAR PROPOSED-EXISTING WSE



10-YEAR PROPOSED-EXISTING WSE

Datum:	
Coord. System:	
Projection:	
Central Meridian:	
False Easting: m	False Northing: m
Page Orientation: °	Scale Factor:

N
Grid North

PROPOSED - EXISTING
WATER SURFACE
ELEVATION (m)

Max
0.500
0.100
0.050
0.010
0.000

BURNSIDE

Client
TOWNSHIP OF CENTRE WELLINGTON

Figure Title
BRIDGE 7-E
EXISTING VS. PROPOSED WATER SURFACE ELEVATION

Drawn	Checked	Date	Figure No.
RW	AD	2024/12/24	1
Scale		Project No.	
NTS		300058117	

File Path: C:\Users\RWalton\OneDrive - RJB\WellingtonBridgeE7\WellingtonBridgeE7.aprx Print Date: 2024/12/24 Time: 05:26 AM



25-YEAR PROPOSED-EXISTING WSE



50-YEAR PROPOSED-EXISTING WSE

Datum:	
Coord. System:	
Projection:	
Central Meridian:	
False Easting, m	False Northing, m
Page Orientation: °	Scale Factor:

N
Grid North

PROPOSED - EXISTING
WATER SURFACE
ELEVATION (m)

Max
0.500
0.100
0.050
0.010
0.000

BURNSIDE

Client
TOWNSHIP OF CENTRE WELLINGTON

Figure Title
BRIDGE 7-E
EXISTING VS. PROPOSED WATER SURFACE ELEVATION

Drawn	Checked	Date	Figure No.
RW	AD	2024/12/24	2
Scale		Project No.	
NTS		300058117	

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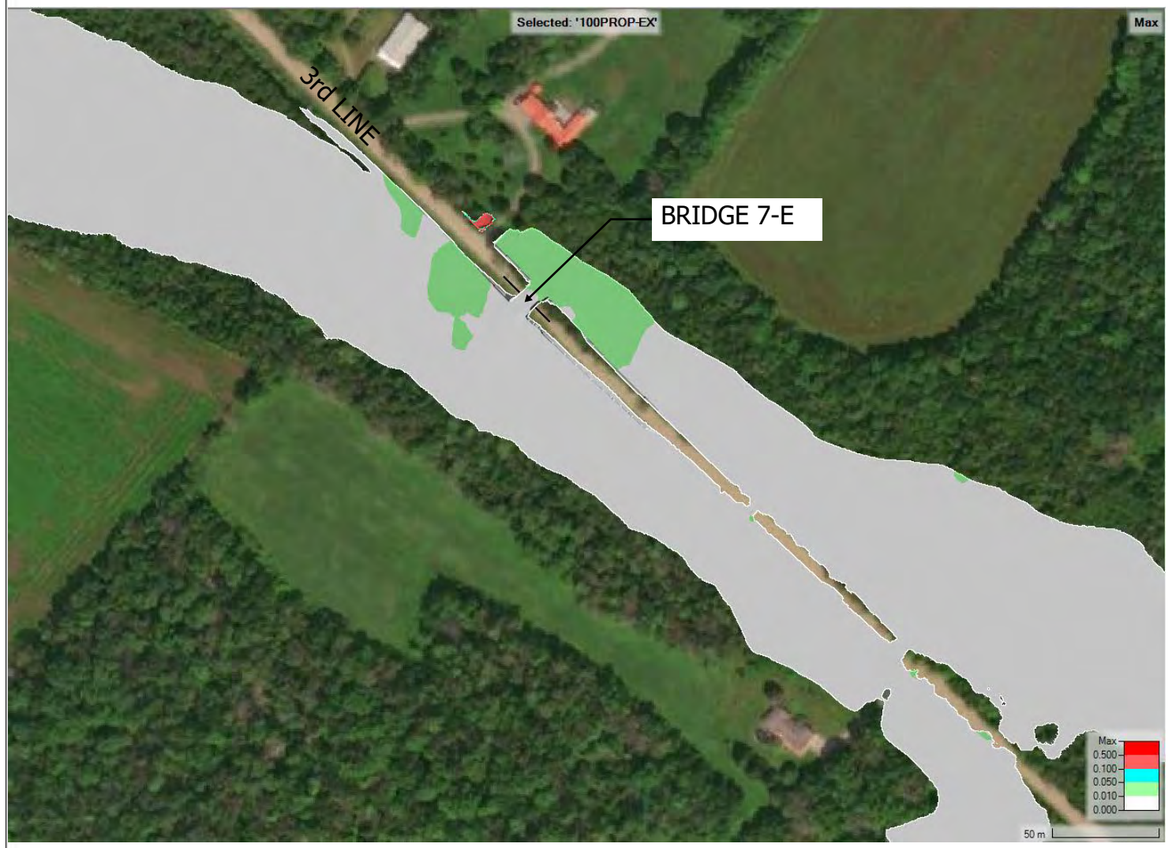

100-YEAR PROPOSED-EXISTING WSE



REGIONAL PROPOSED-EXISTING WSE

Datum:	
Coord. System:	
Projection:	
Central Meridian:	
False Easting, m	False Northing, m
Page Orientation: °	Scale Factor:

N
Grid North

PROPOSED - EXISTING
WATER SURFACE
ELEVATION (m)

Max
0.500
0.100
0.050
0.010
0.000

BURNSIDE

Client
TOWNSHIP OF CENTRE WELLINGTON

Figure Title
BRIDGE 7-E
EXISTING VS. PROPOSED WATER SURFACE ELEVATION

Drawn	Checked	Date	Figure No.
RW	AD	2024/12/24	3
Scale		Project No.	
NTS		300058117	

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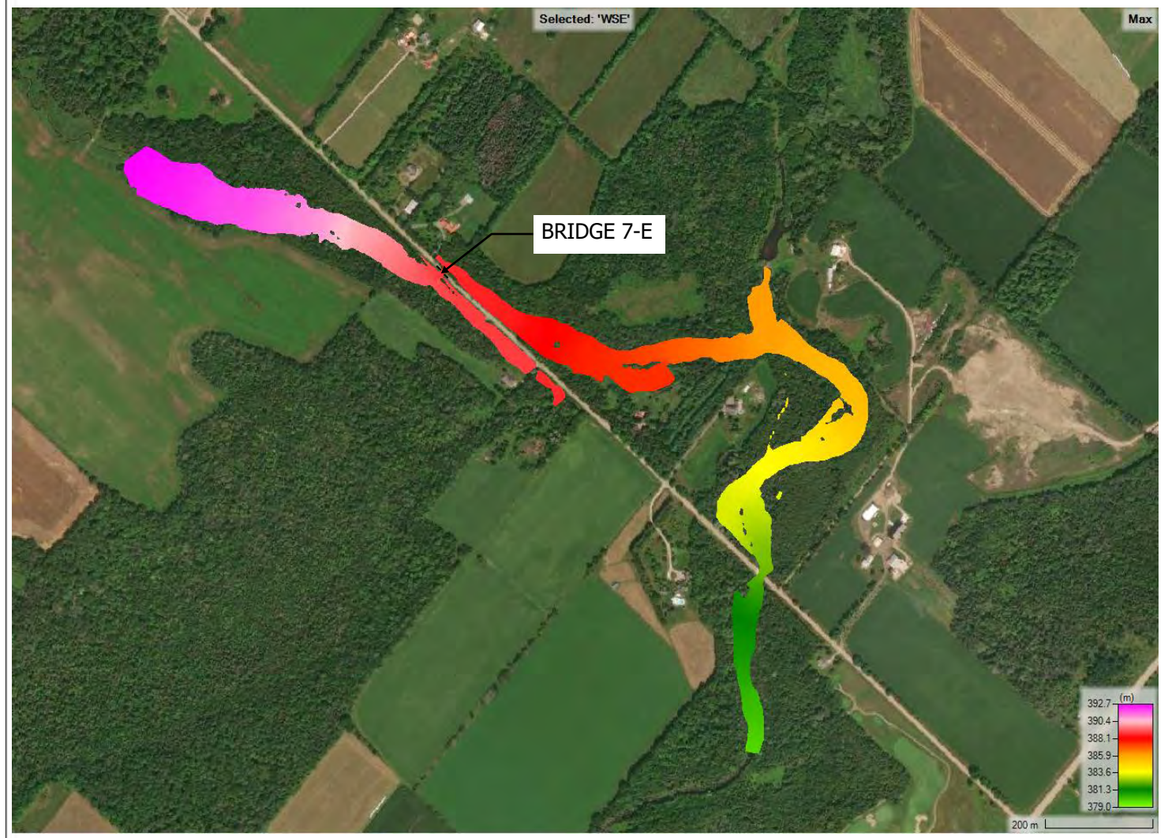

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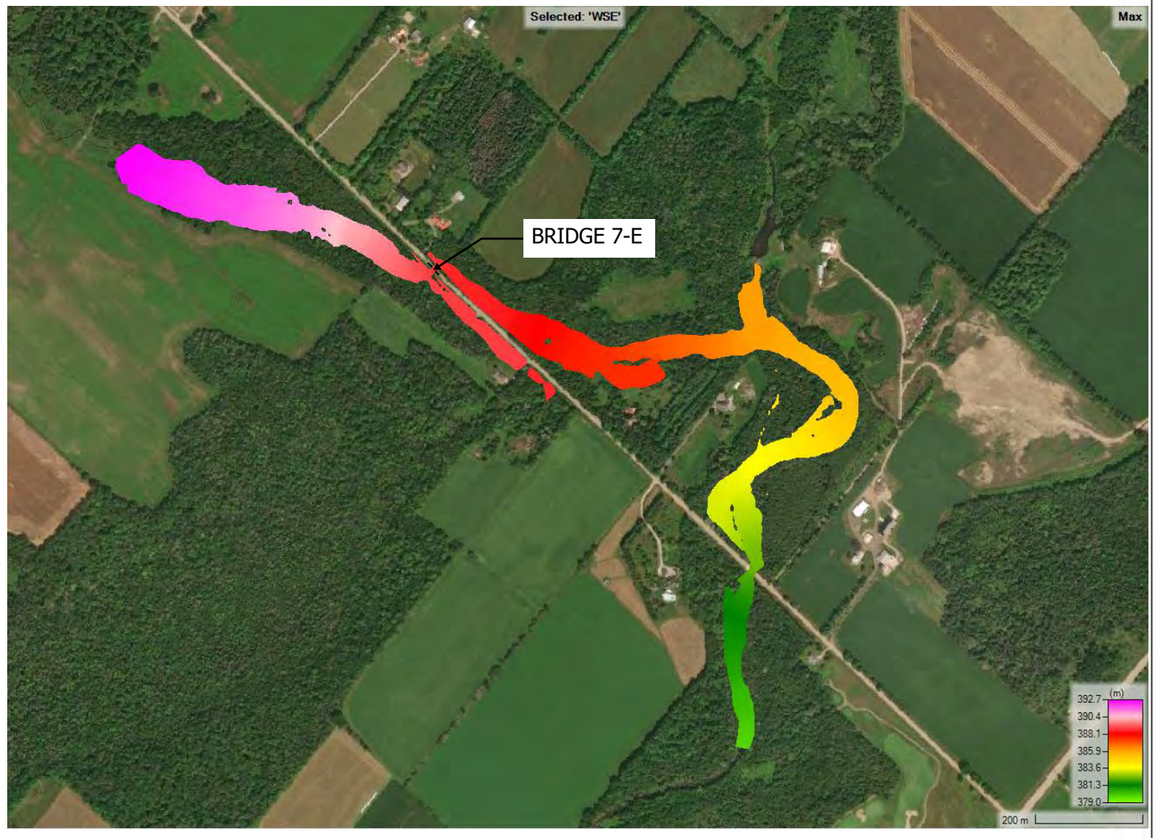
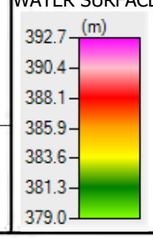


2-YEAR PROPOSED WSE

Datum:	
Coord. System:	
Projection:	
Central Meridian:	
False Easting, m	False Northing: m
Page Orientation: °	Scale Factor:

N
Grid North

WATER SURFACE ELEVATION (m)



BURNSIDE

Client
TOWNSHIP OF CENTRE WELLINGTON

Figure Title
BRIDGE 7-E
2-YEAR WATER SURFACE ELEVATION

Drawn	Checked	Date	Figure No.
RW	AD	2024/12/24	4
Scale: NTS		Project No.: 300058117	

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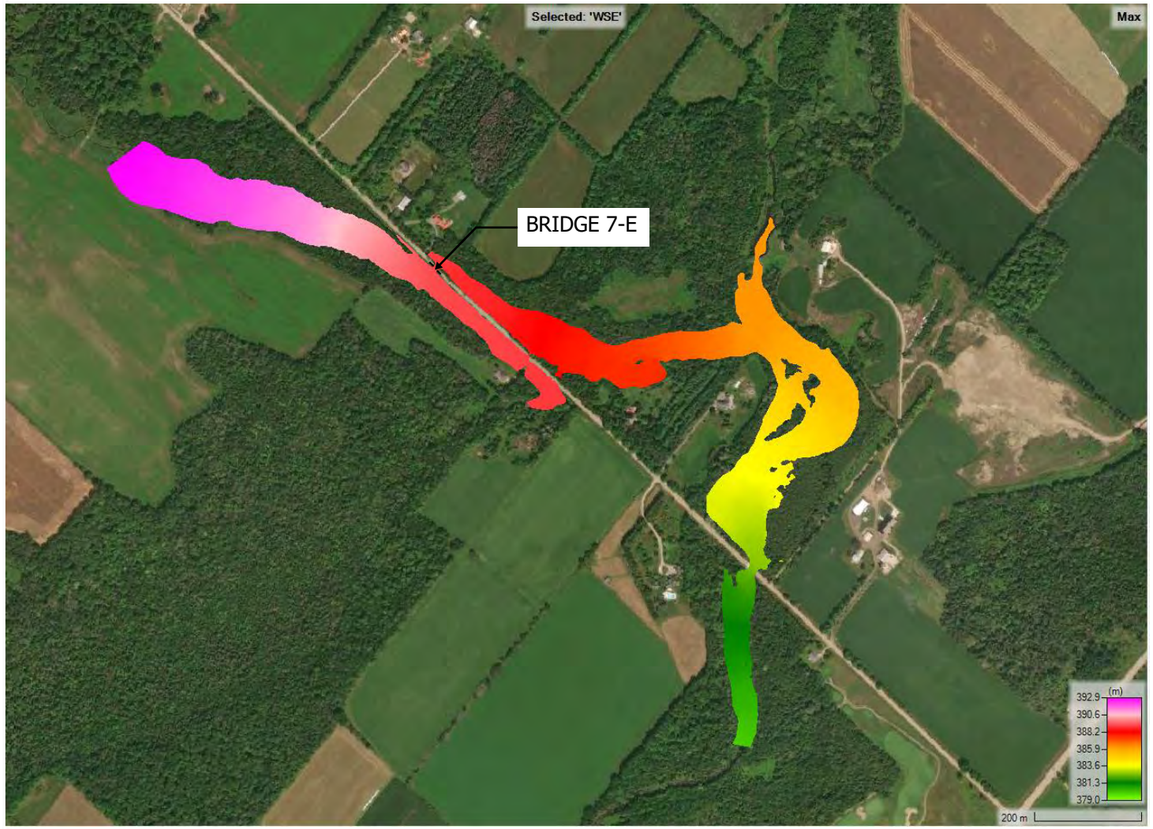
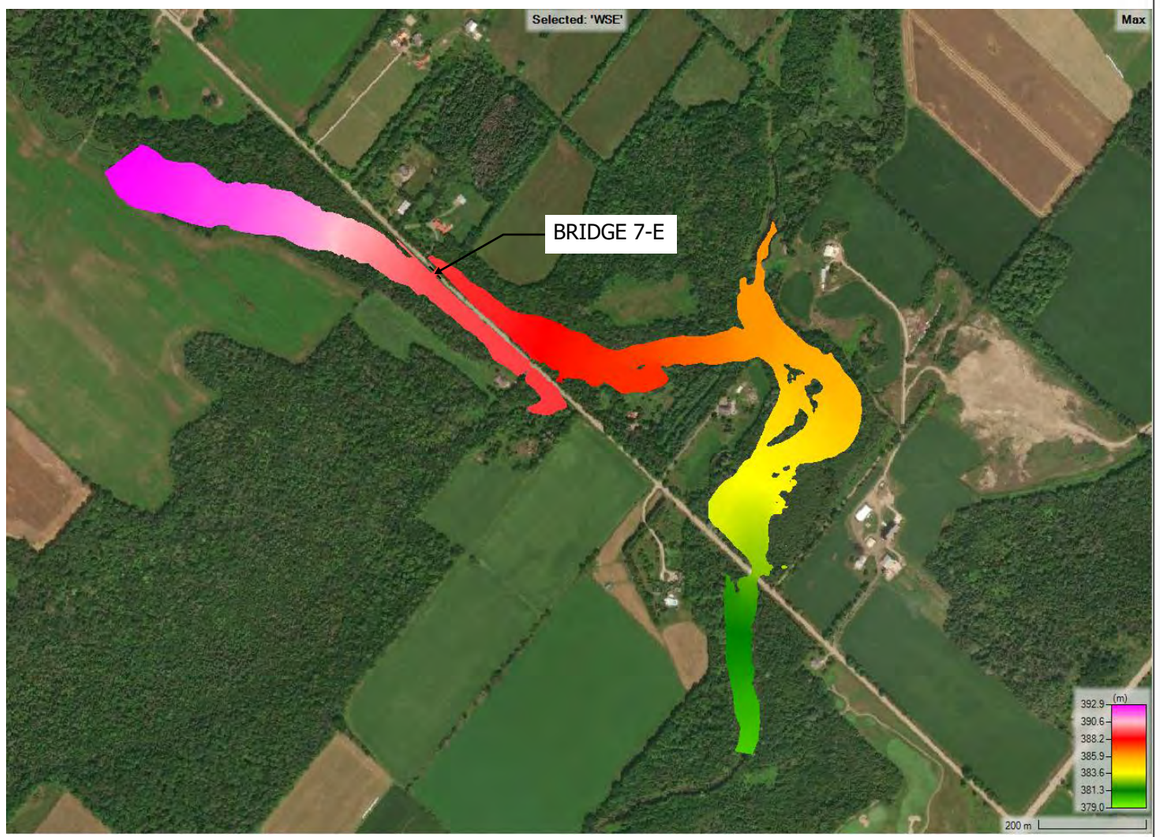


10-YEAR EXISTING WSE

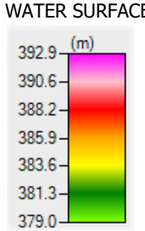


10-YEAR PROPOSED WSE

Datum:	
Coord. System:	
Projection:	
Central Meridian:	
False Easting, m	False Northing: m
Page Orientation: °	Scale Factor:

N
Grid North

WATER SURFACE ELEVATION (m)



BURNSIDE

Client
TOWNSHIP OF CENTRE WELLINGTON

Figure Title
BRIDGE 7-E
10-YEAR WATER SURFACE ELEVATION

Drawn	Checked	Date	Figure No.
RW	AD	2024/12/24	5
Scale		Project No.	
NTS		300058117	

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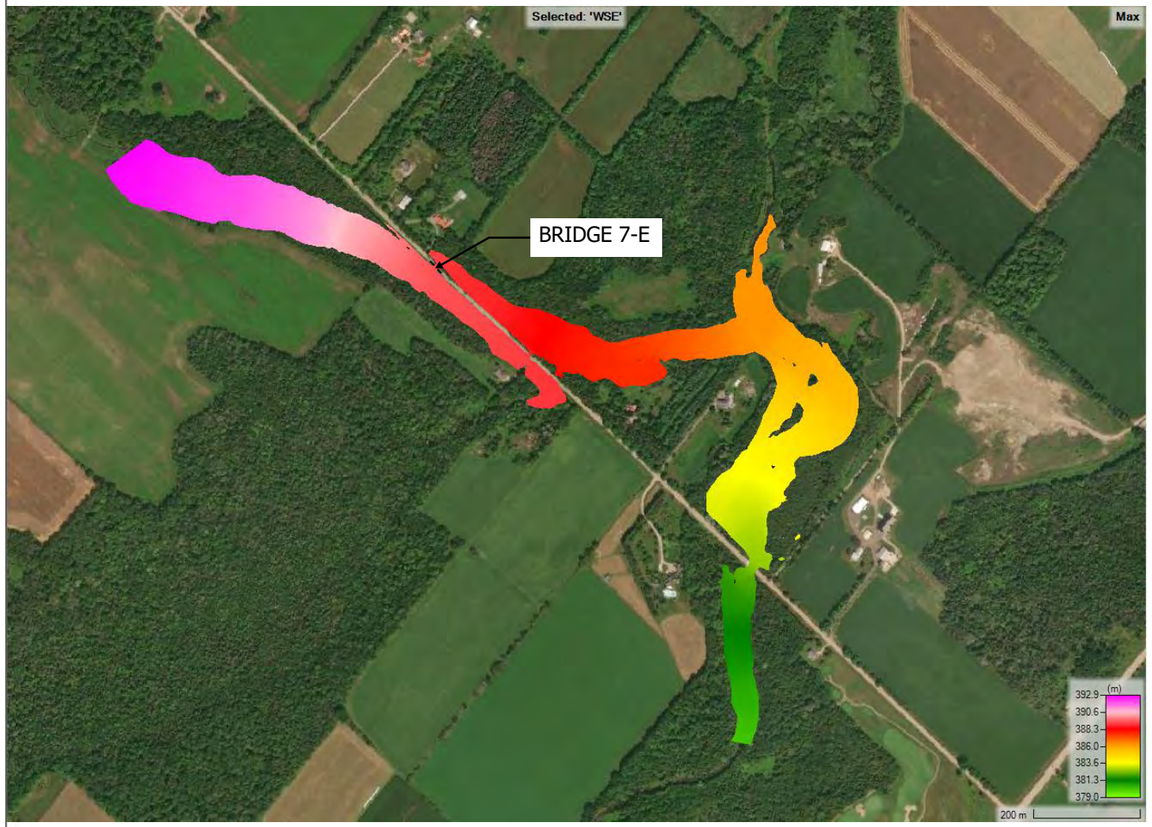
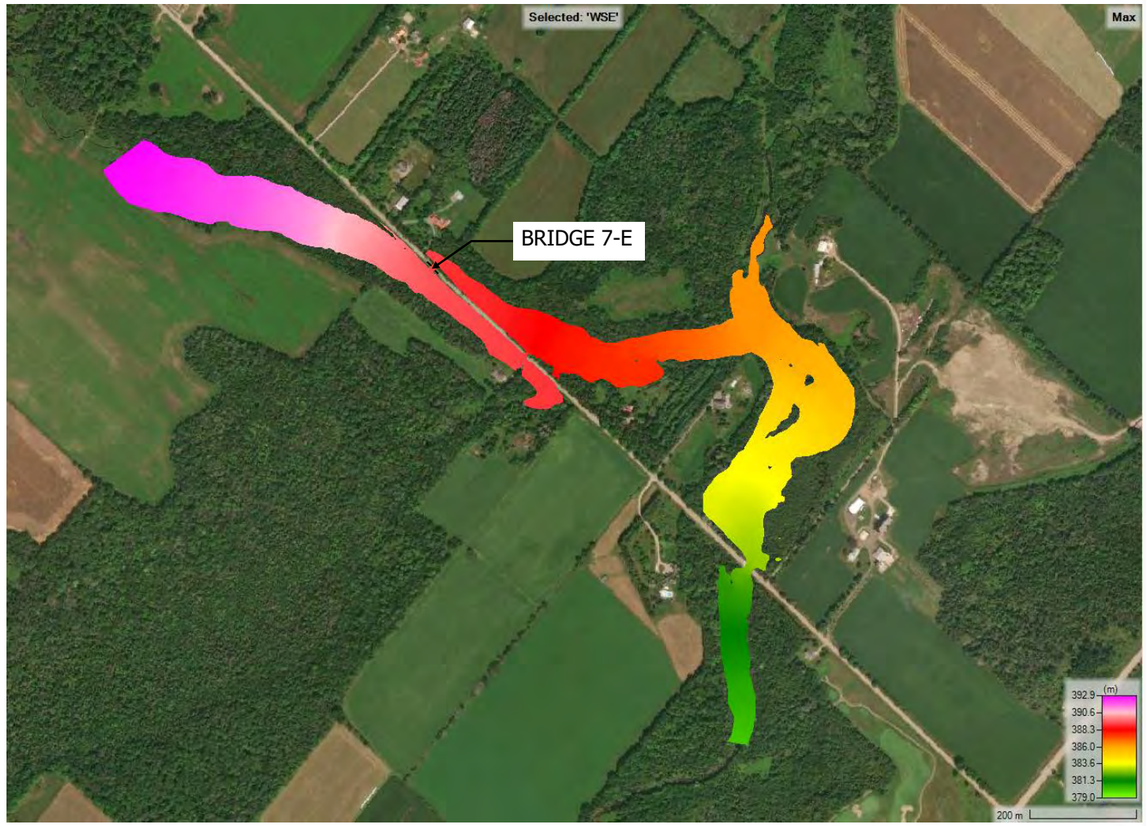


25-YEAR EXISTING WSE



25-YEAR PROPOSED WSE

Datum:	
Coord. System:	
Projection:	
Central Meridian:	
False Easting, m	False Northing, m
Page Orientation, °	Scale Factor:

N

Grid North

WATER SURFACE ELEVATION (m)

(m)
392.9
390.6
388.2
385.9
383.6
381.3
379.0

BURNSIDE

Client:
TOWNSHIP OF CENTRE WELLINGTON

Figure Title:
BRIDGE 7-E
25-YEAR WATER SURFACE ELEVATION

Drawn	Checked	Date	Figure No.
RW	AD	2024/12/24	6
Scale: NTS		Project No.: 300058117	

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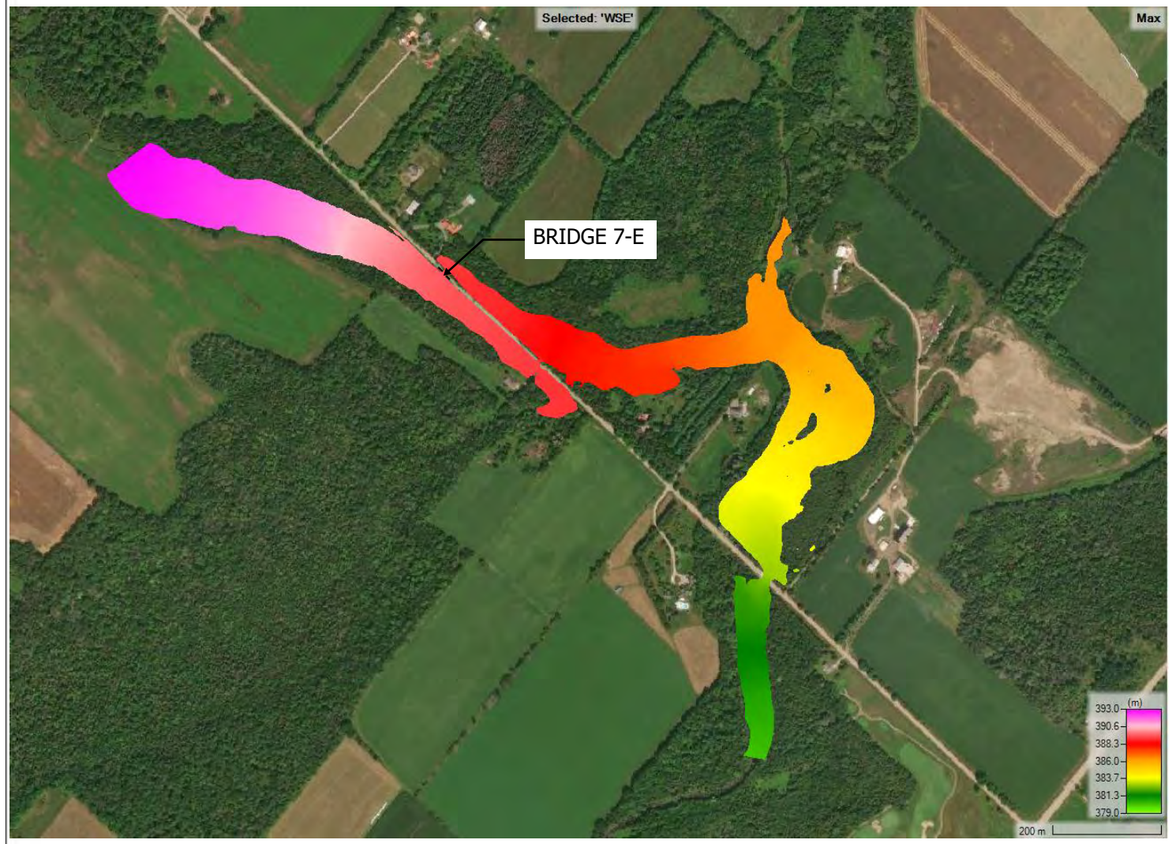
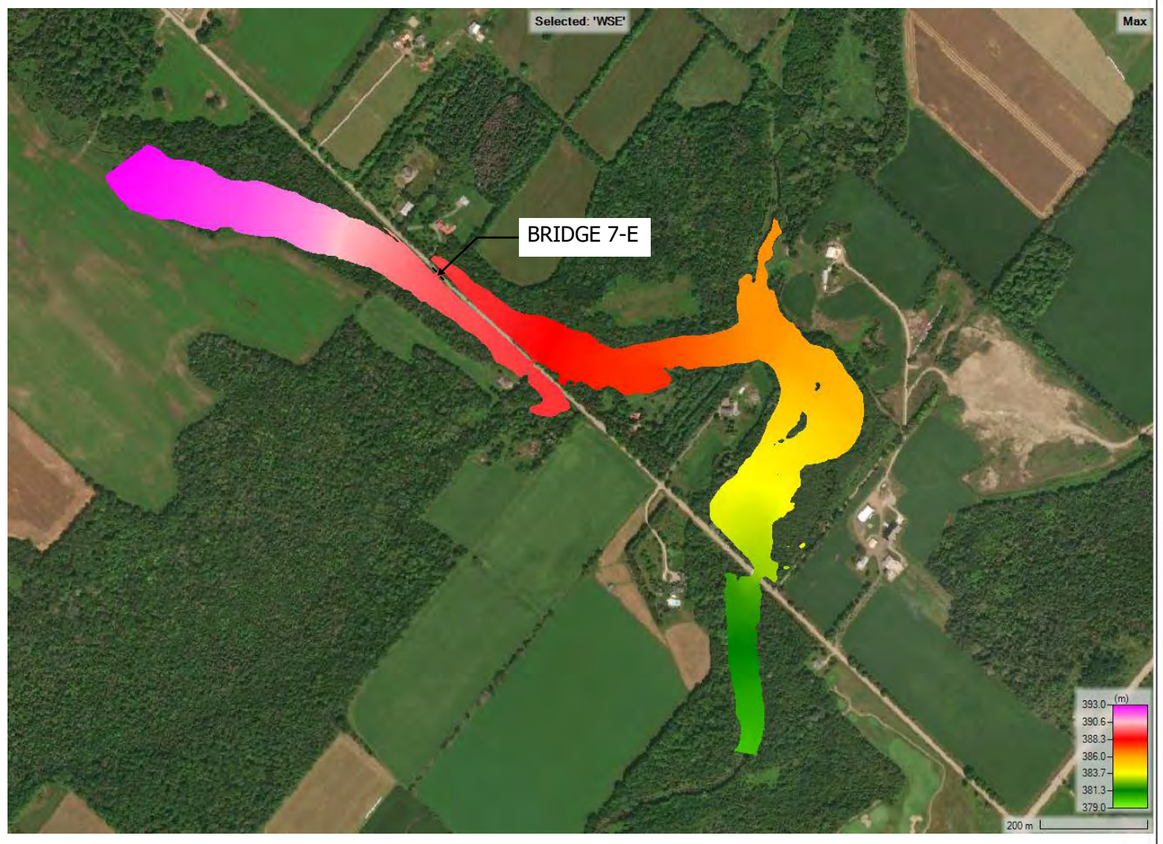


50-YEAR EXISTING WSE



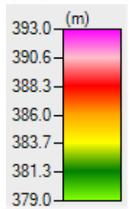
50-YEAR PROPOSED WSE

Datum:	
Coord. System:	
Projection:	
Central Meridian:	
False Easting: m	False Northing: m
Page Orientation: °	Scale Factor:

N

Grid North

WATER SURFACE ELEVATION (m)



BURNSIDE

Client:

TOWNSHIP OF CENTRE WELLINGTON

Figure Title:

BRIDGE 7-E

50-YEAR WATER SURFACE ELEVATION

Drawn	Checked	Date	Figure No.
RW	AD	2024/12/24	7
Scale: NTS		Project No.: 300058117	

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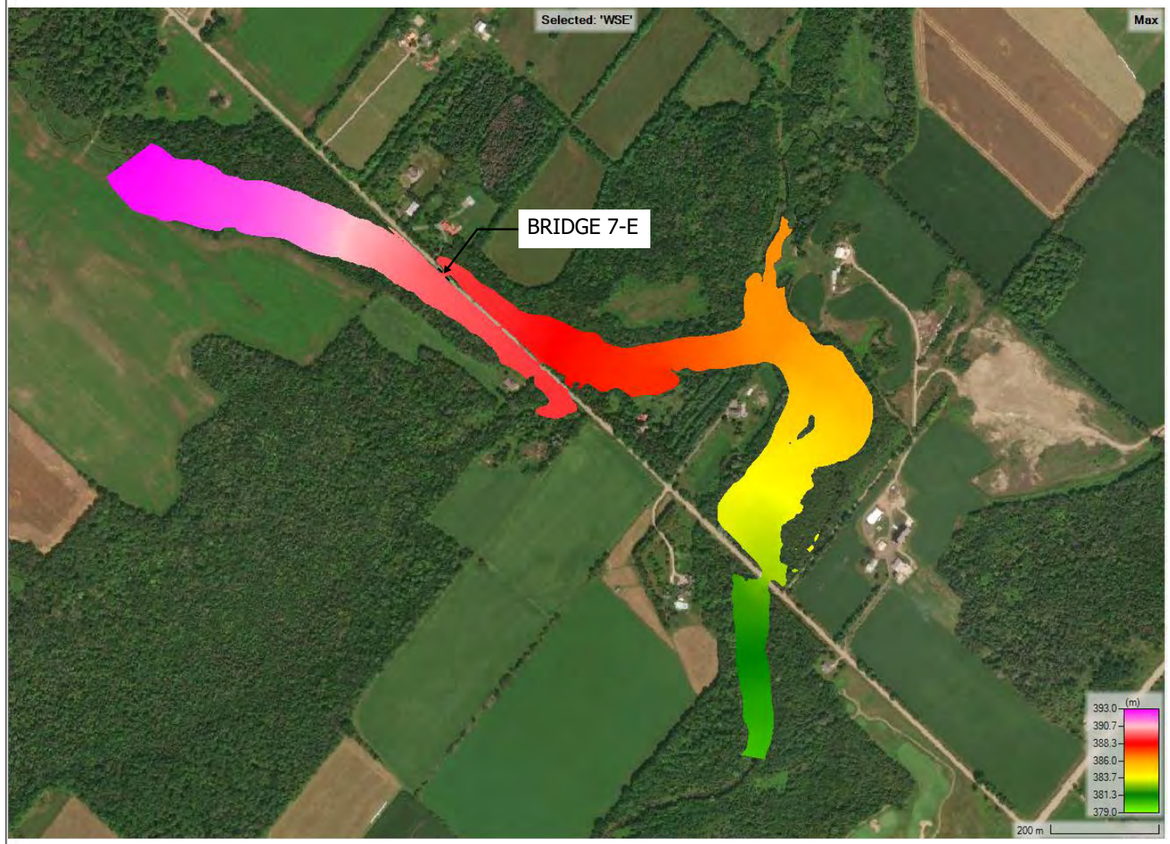

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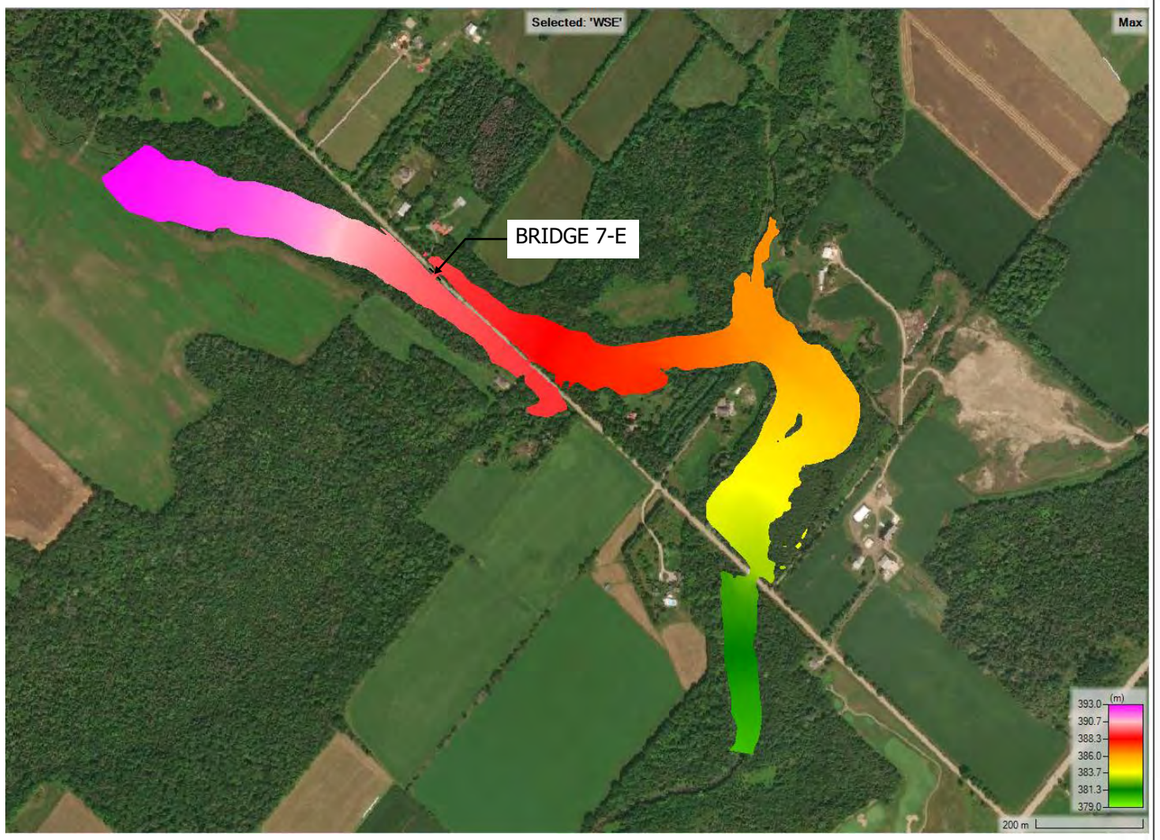
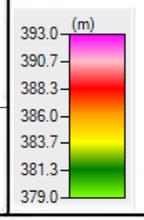


100-YEAR PROPOSED WSE

Datum:	
Coord. System:	
Projection:	
Central Meridian:	
False Easting: m	False Northing: m
Page Orientation: °	Scale Factor:

N
Grid North

WATER SURFACE ELEVATION (m)



BURNSIDE

Client
TOWNSHIP OF CENTRE WELLINGTON

Figure Title
BRIDGE 7-E
100-YEAR WATER SURFACE ELEVATION

Drawn	Checked	Date	Figure No.
RW	AD	2024/12/24	8
Scale: NTS		Project No.: 300058117	

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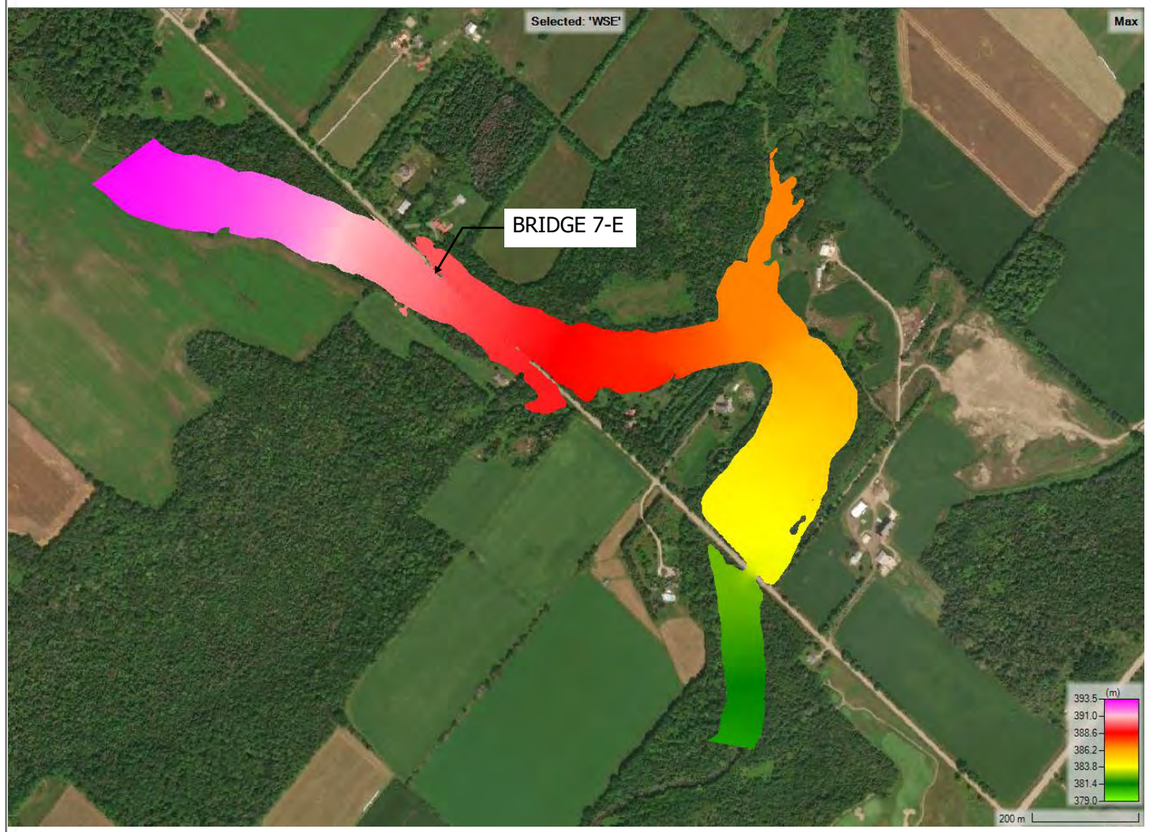
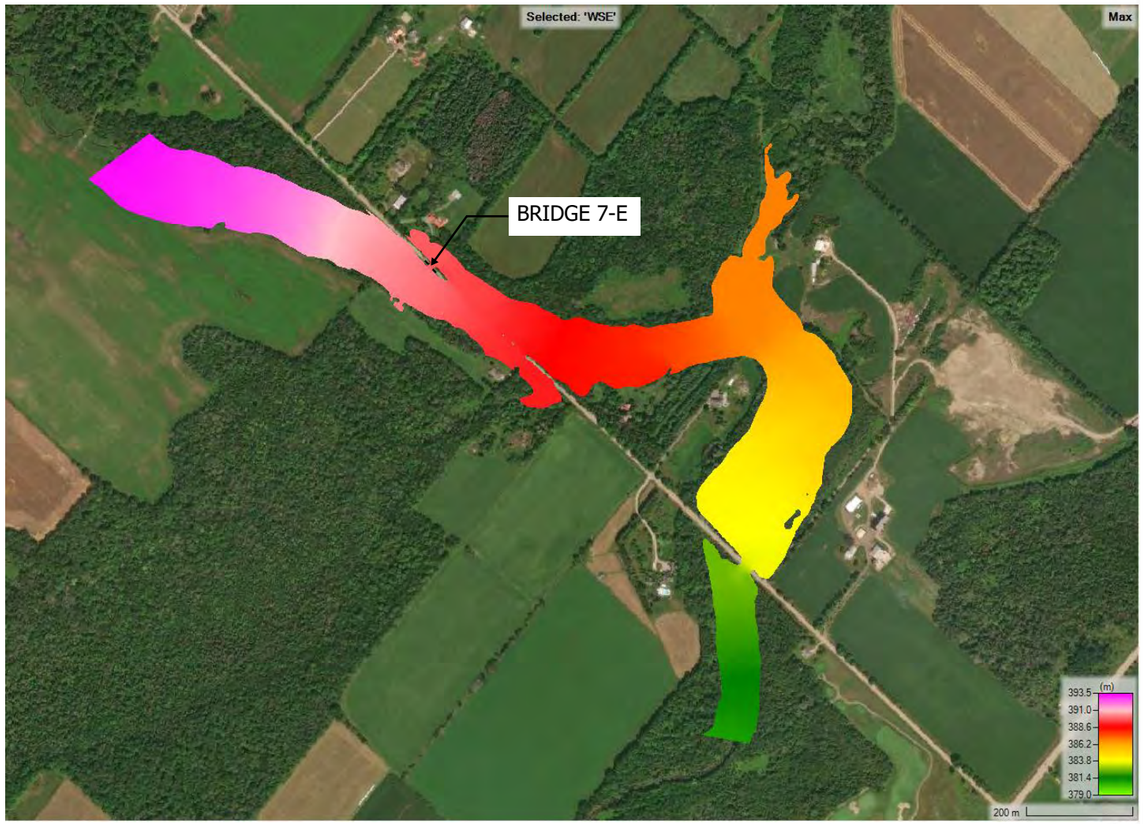


REGIONAL EXISTING WSE



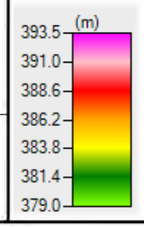
REGIONAL PROPOSED WSE

Datum:	
Coord. System:	
Projection:	
Central Meridian:	
False Easting: m	False Northing: m
Page Orientation: °	Scale Factor:

N

Grid North

WATER SURFACE ELEVATION (m)



BURNSIDE

Client:

TOWNSHIP OF CENTRE WELLINGTON

Figure Title:

BRIDGE 7-E

REGIONAL WATER SURFACE ELEVATION

Drawn	Checked	Date	Figure No.
RW	AD	2024/12/24	9
Scale: NTS		Project No.: 300058117	

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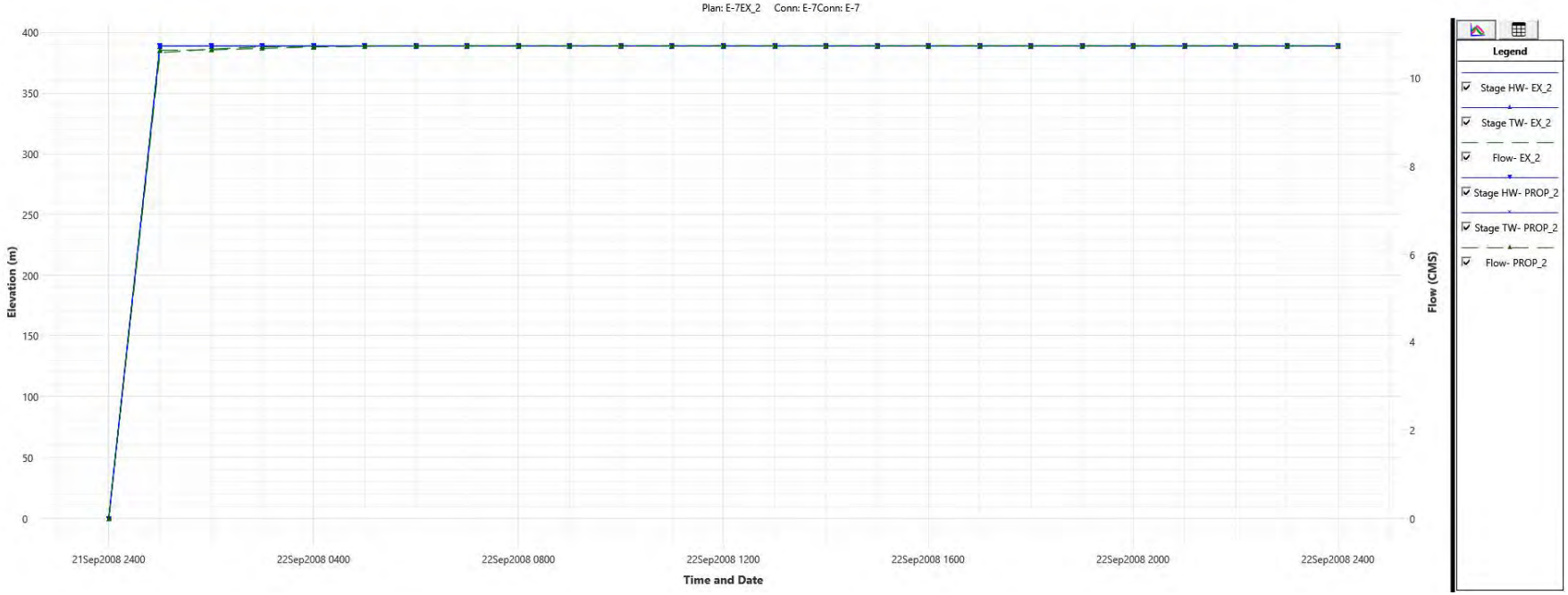
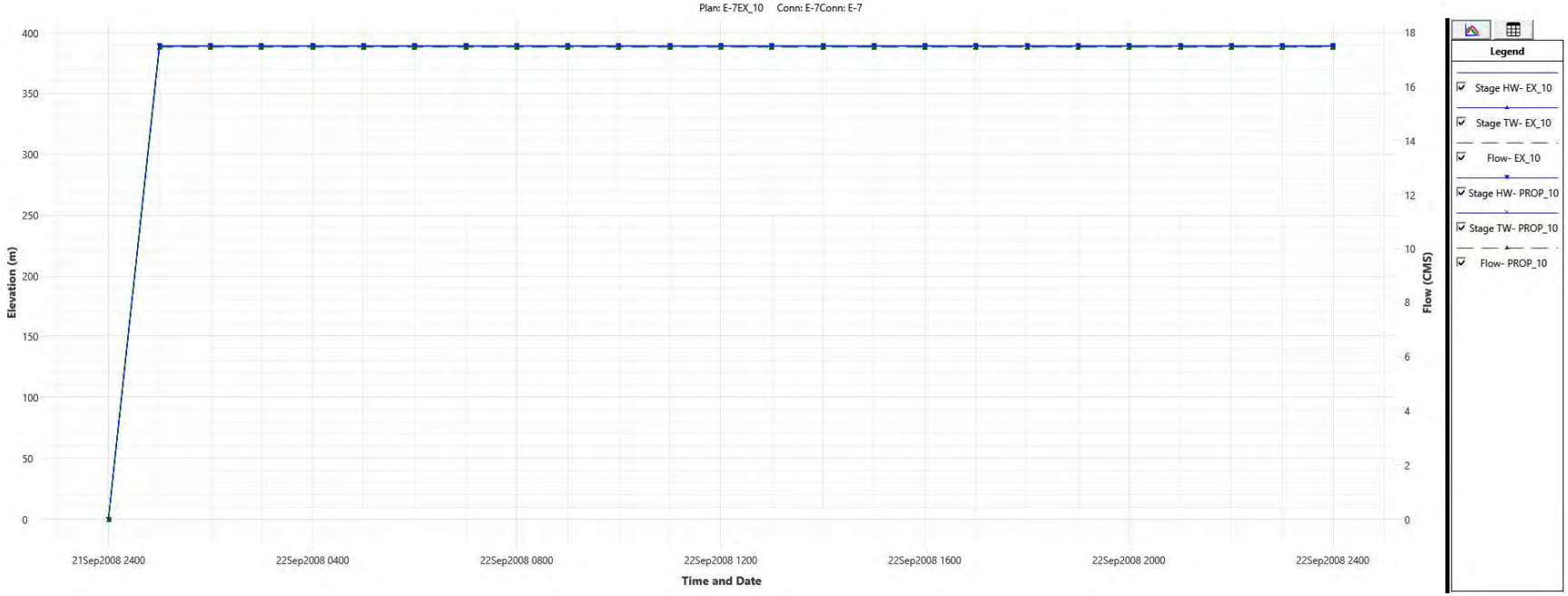
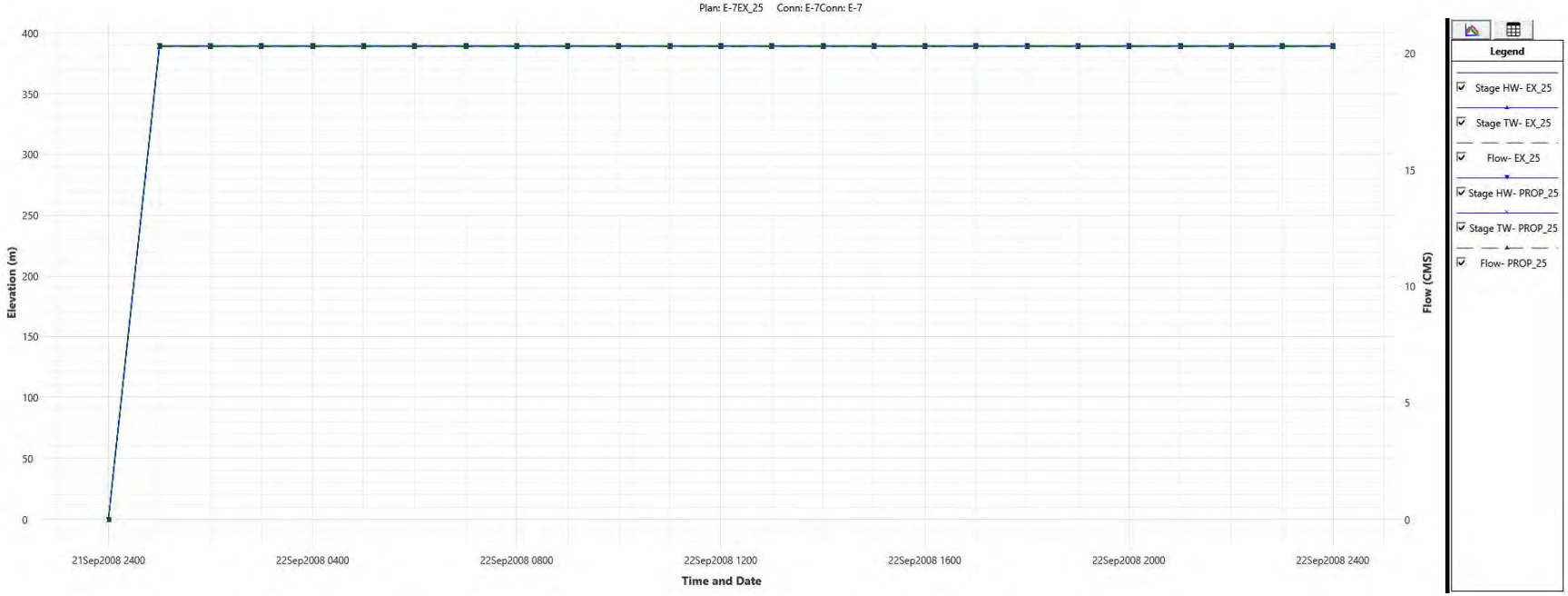


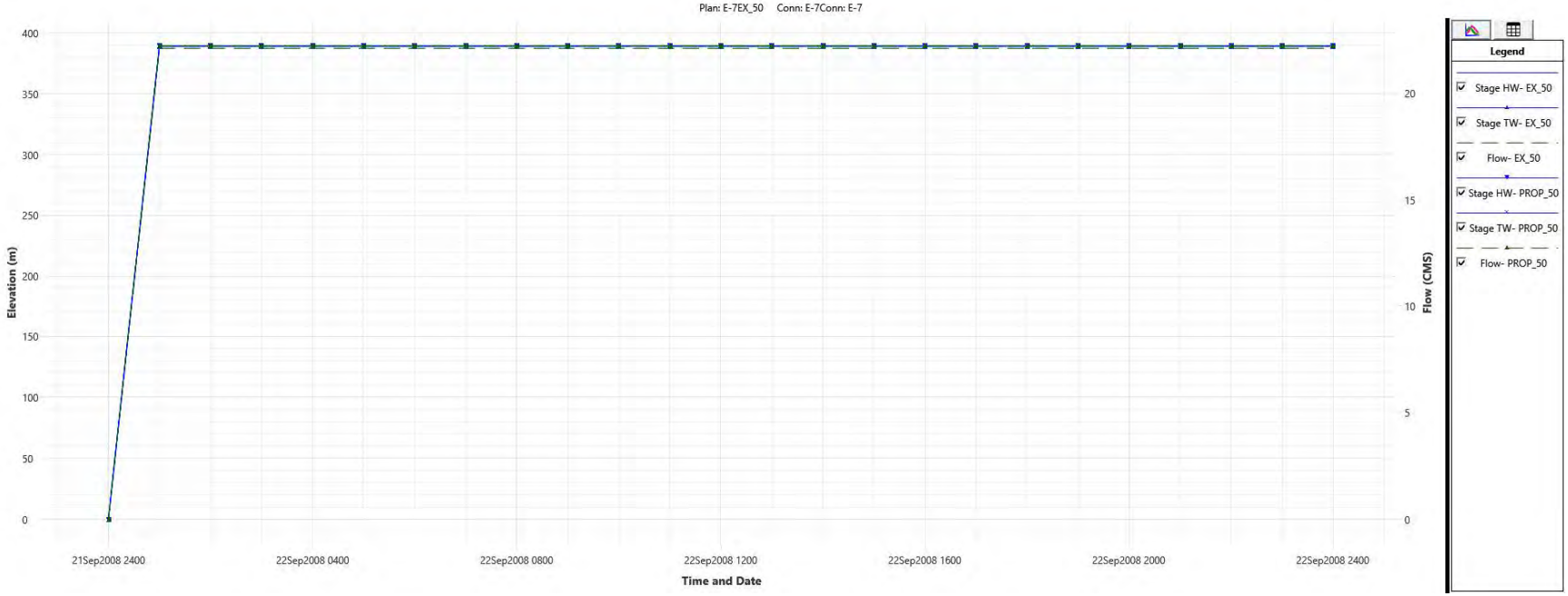
2-Year Bridge 7-E Stage Flow Hydrograph



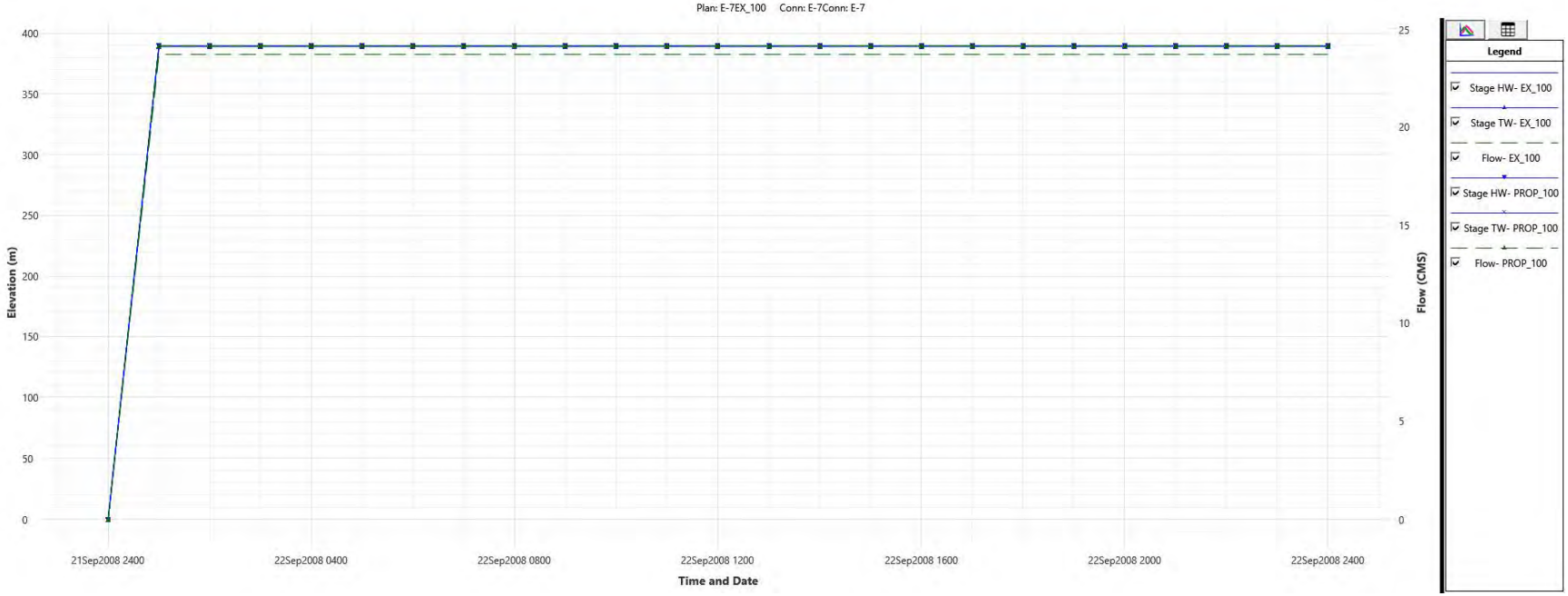
10-Year Bridge 7-E Stage Flow Hydrograph



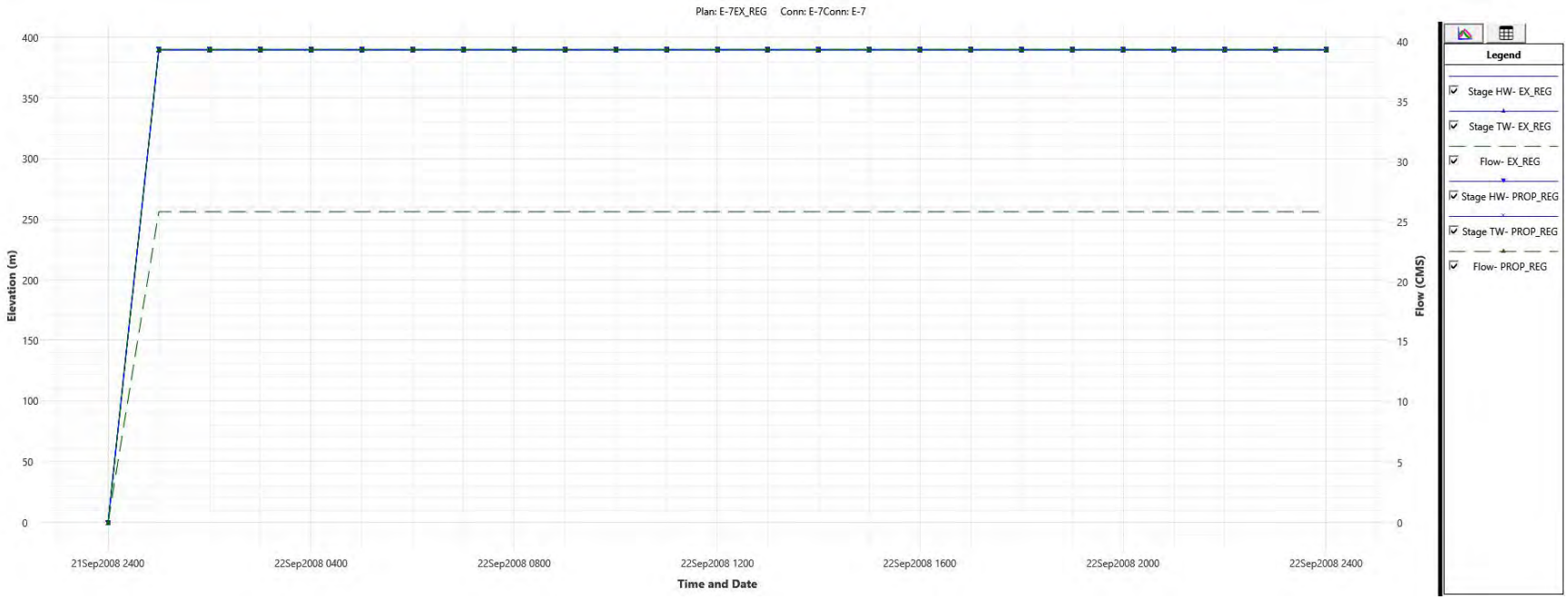
25-Year Bridge 7-E Stage Flow Hydrograph



50-Year Bridge 7-E Stage Flow Hydrograph



100-Year Bridge 7-E Stage Flow Hydrograph



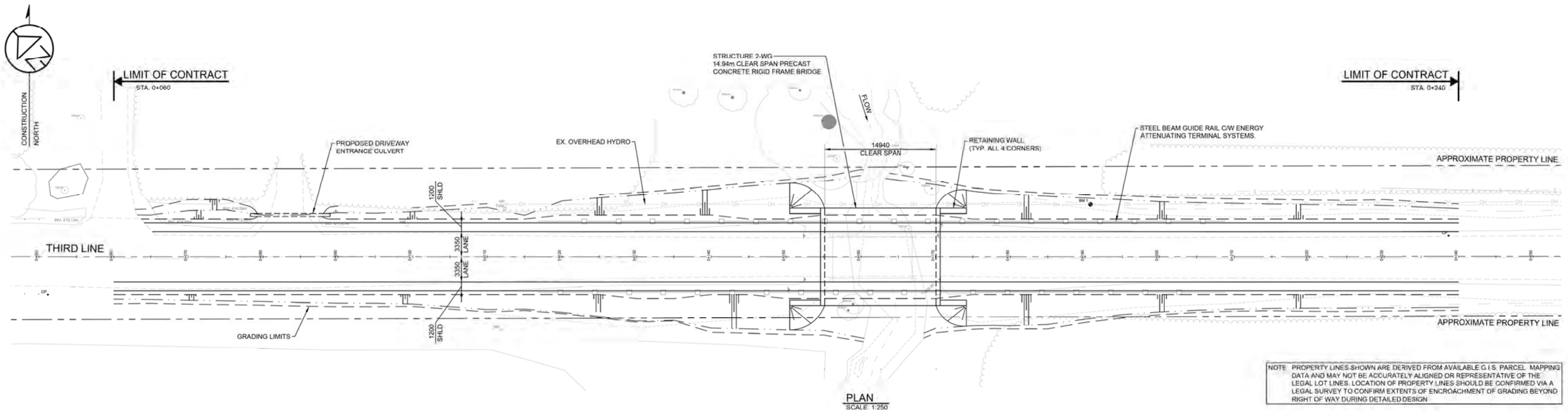
Regional Bridge 7-E Stage Flow Hydrograph

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix E

Drawings



PLAN
SCALE 1:250

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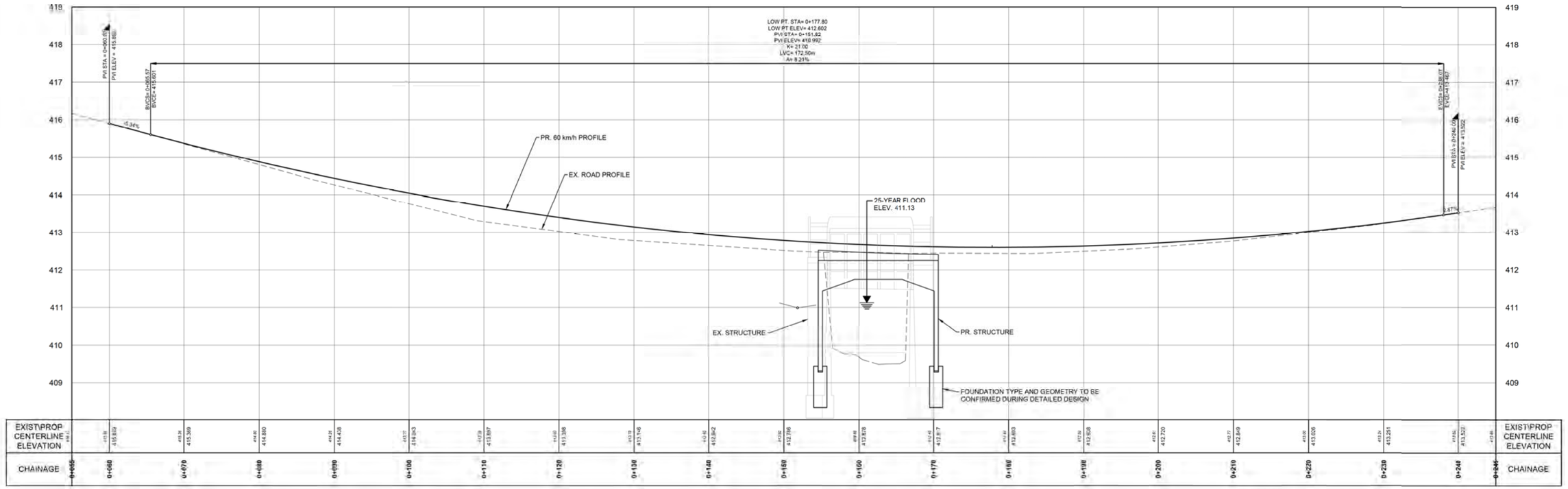

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Drawing Title
BRIDGE 2-WG REPLACEMENT
PLAN AND PROFILE

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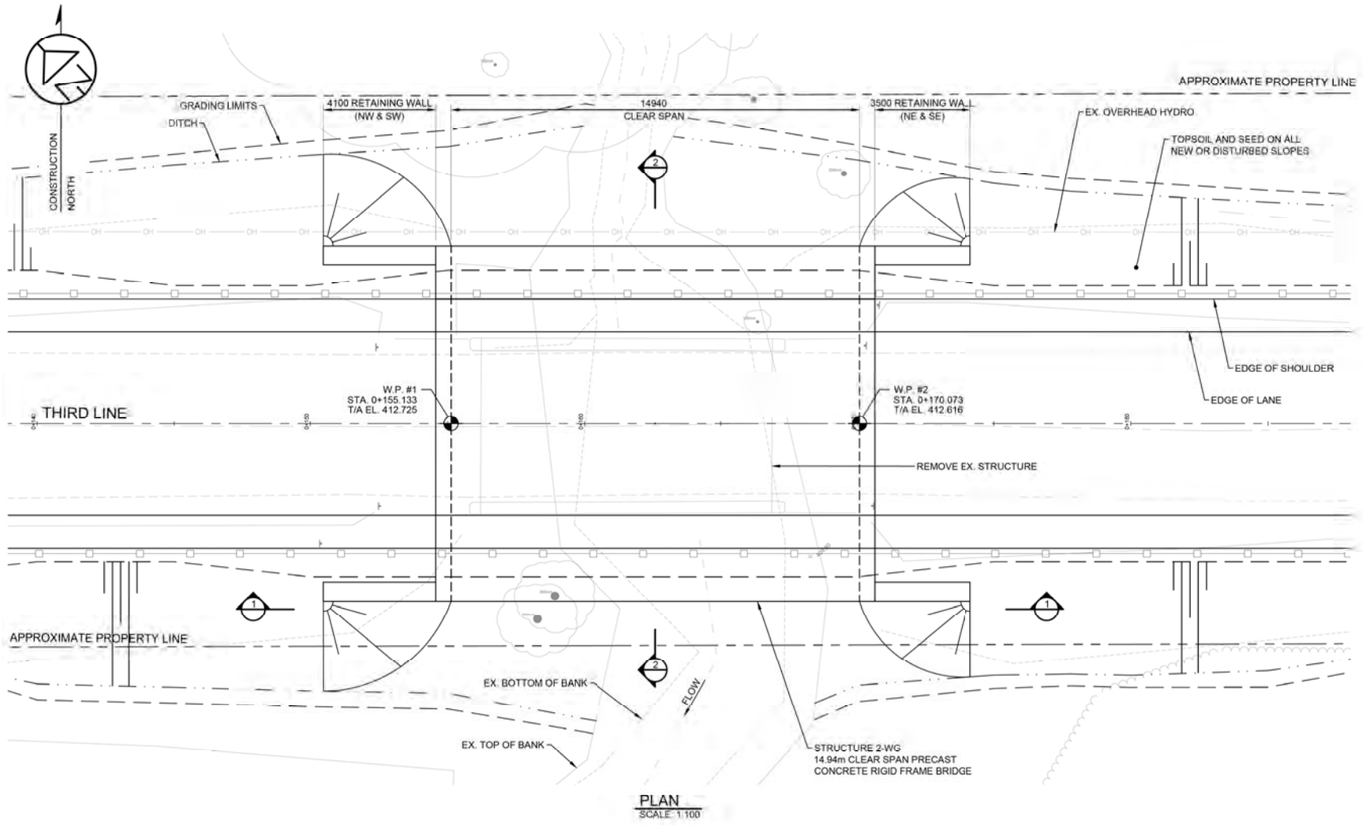

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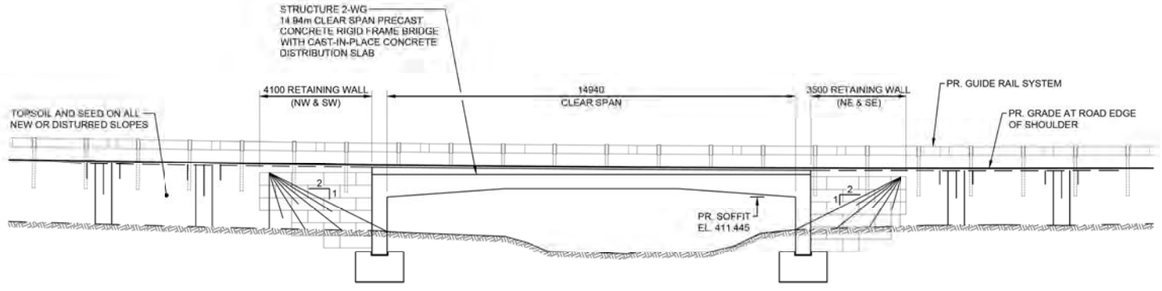

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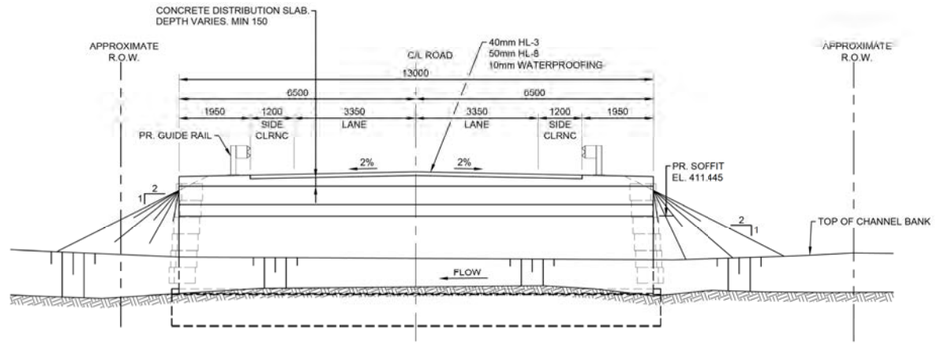

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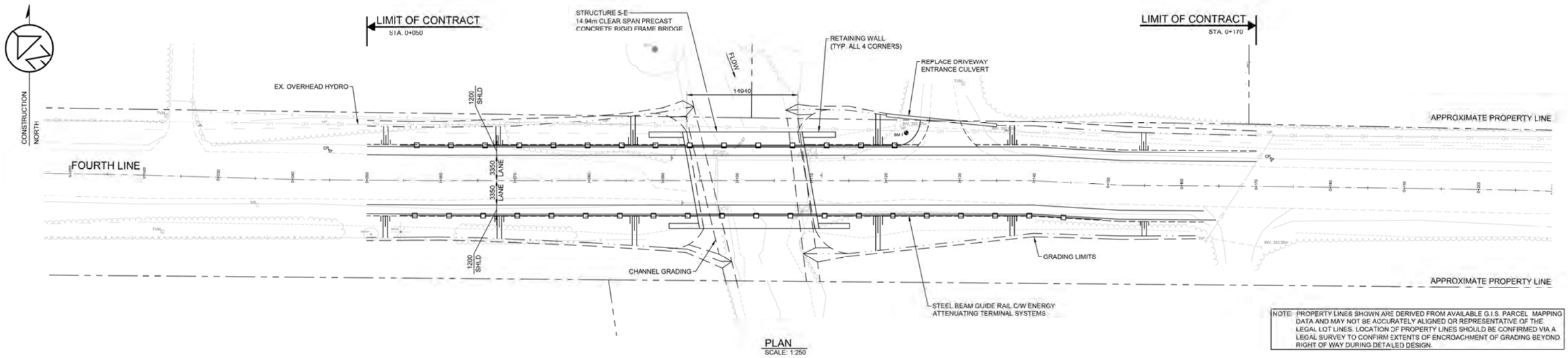

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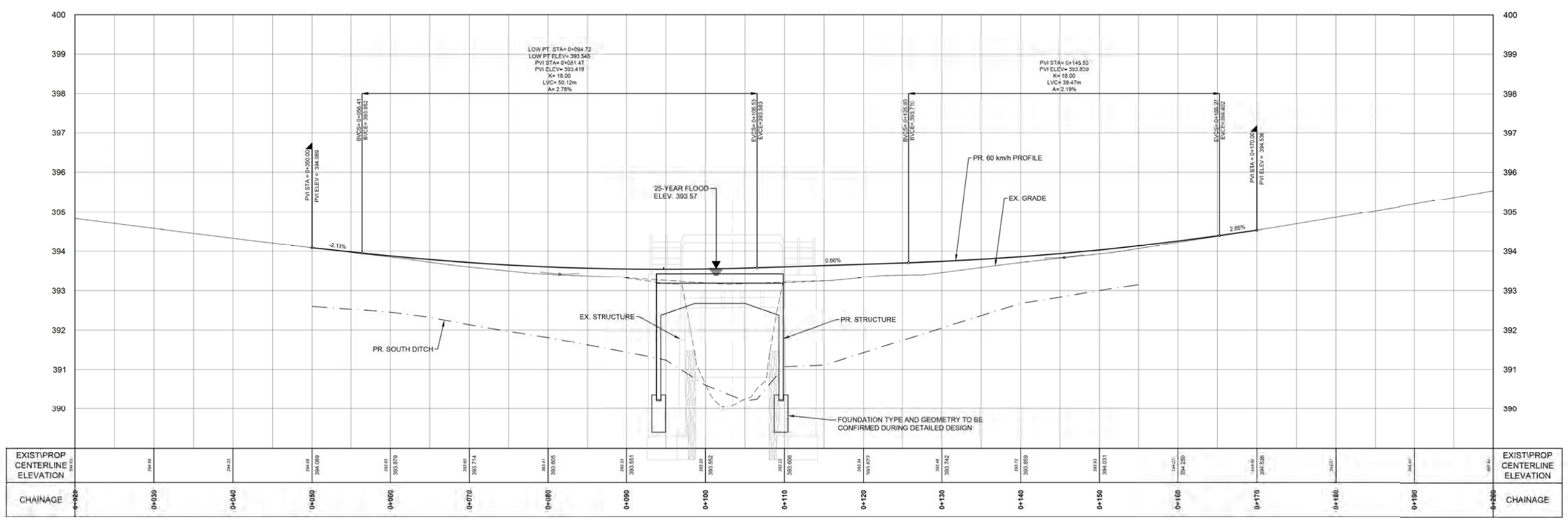

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BRIDGE 5-E REPLACEMENT

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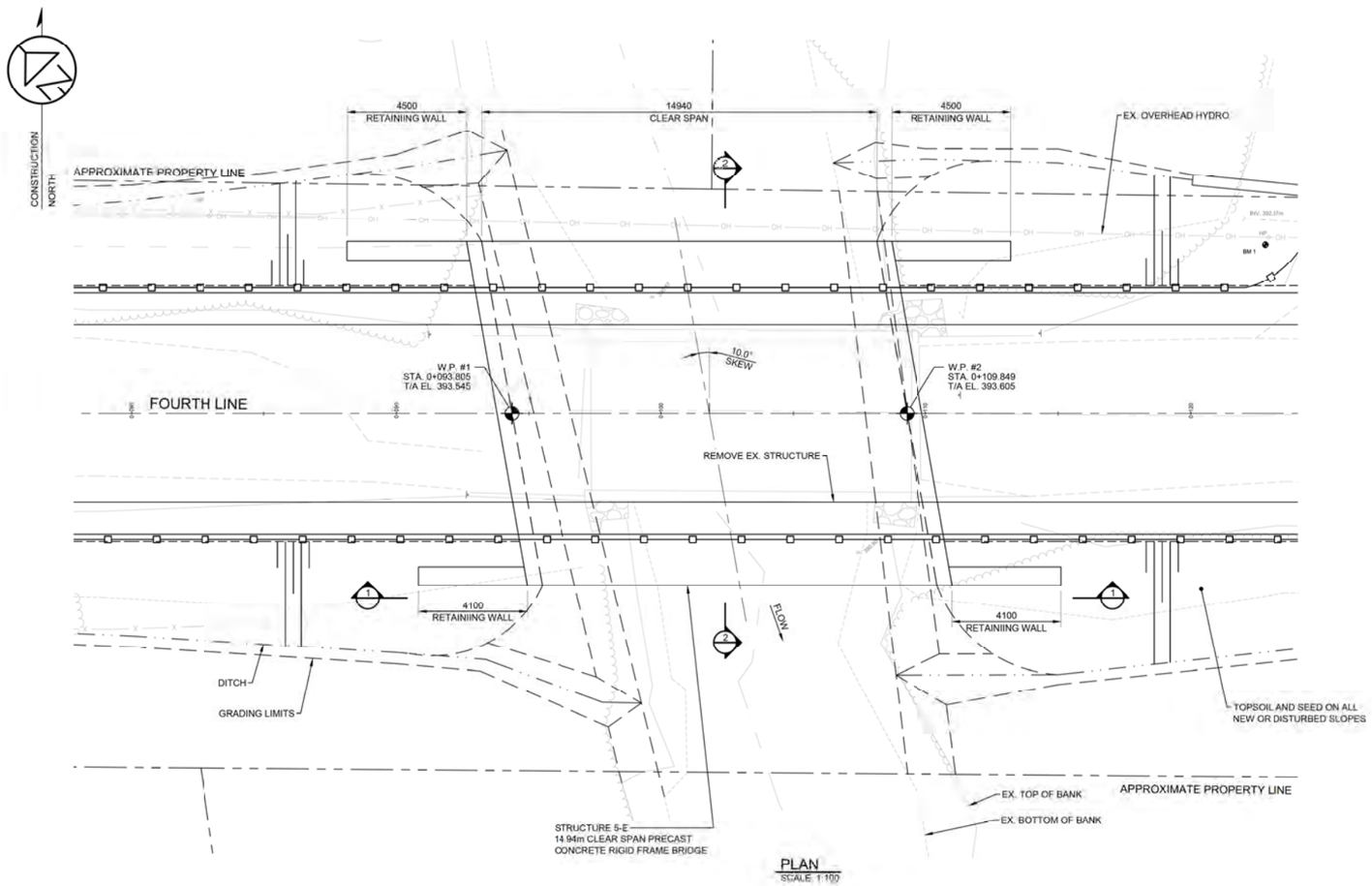

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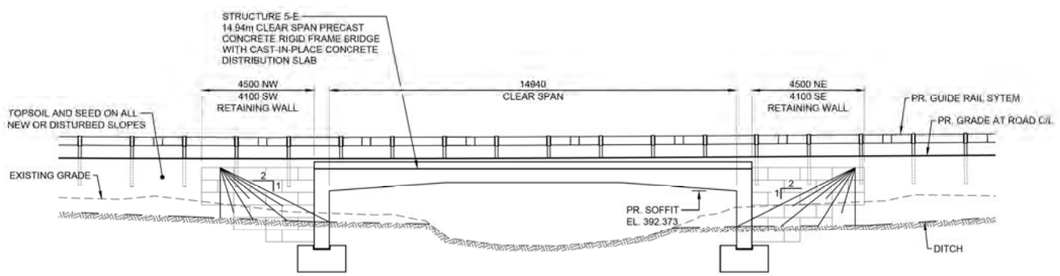

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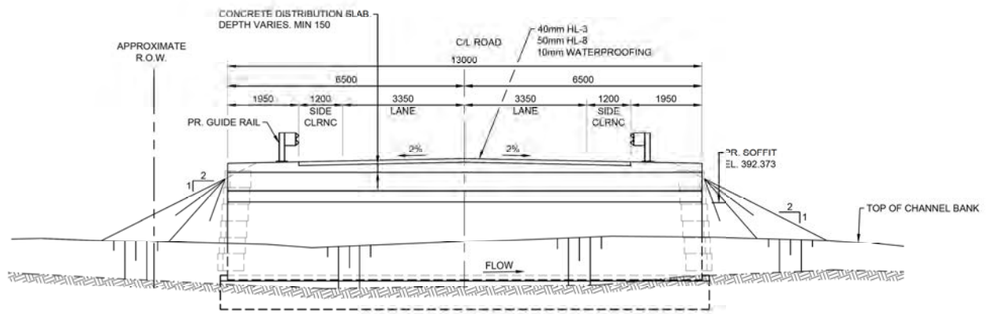

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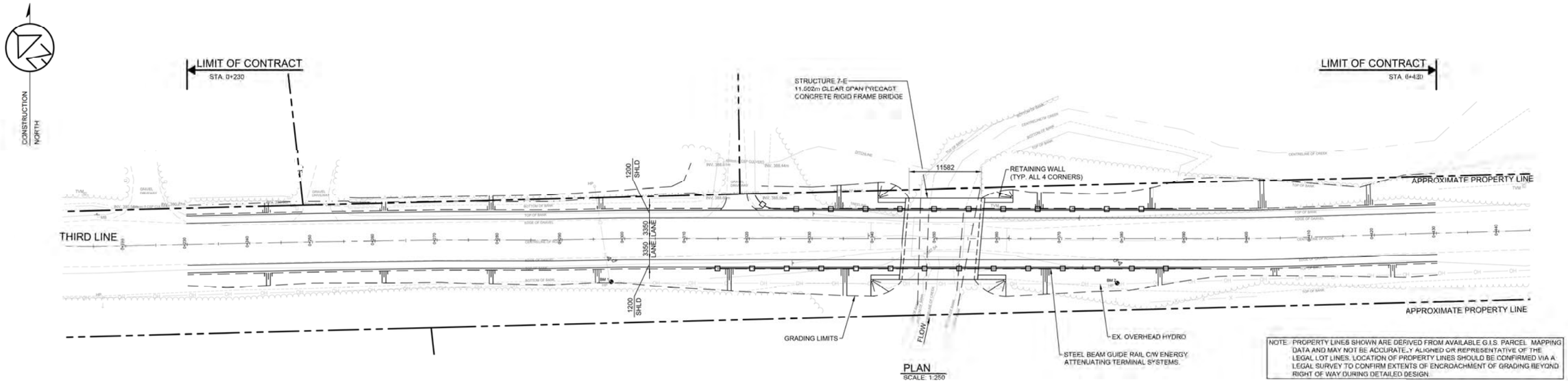

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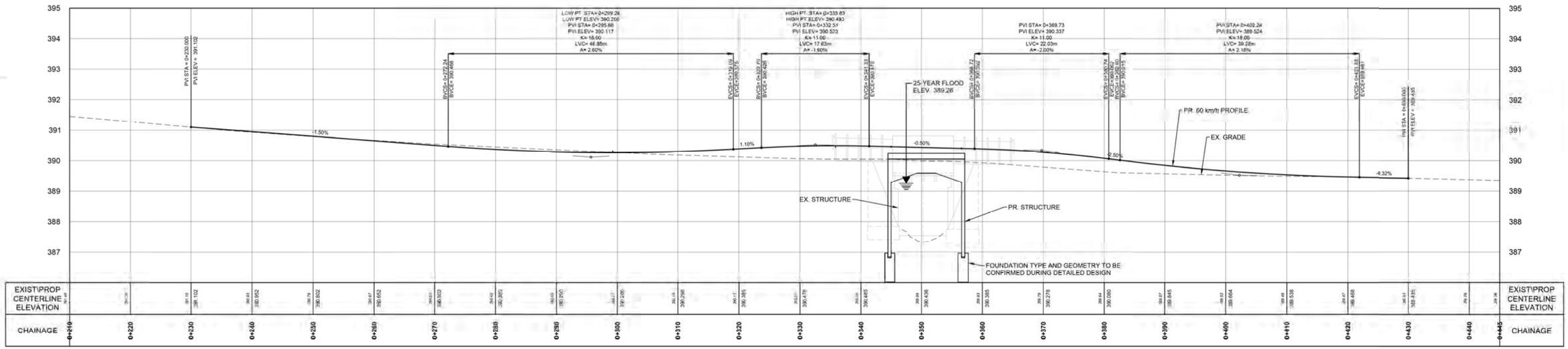

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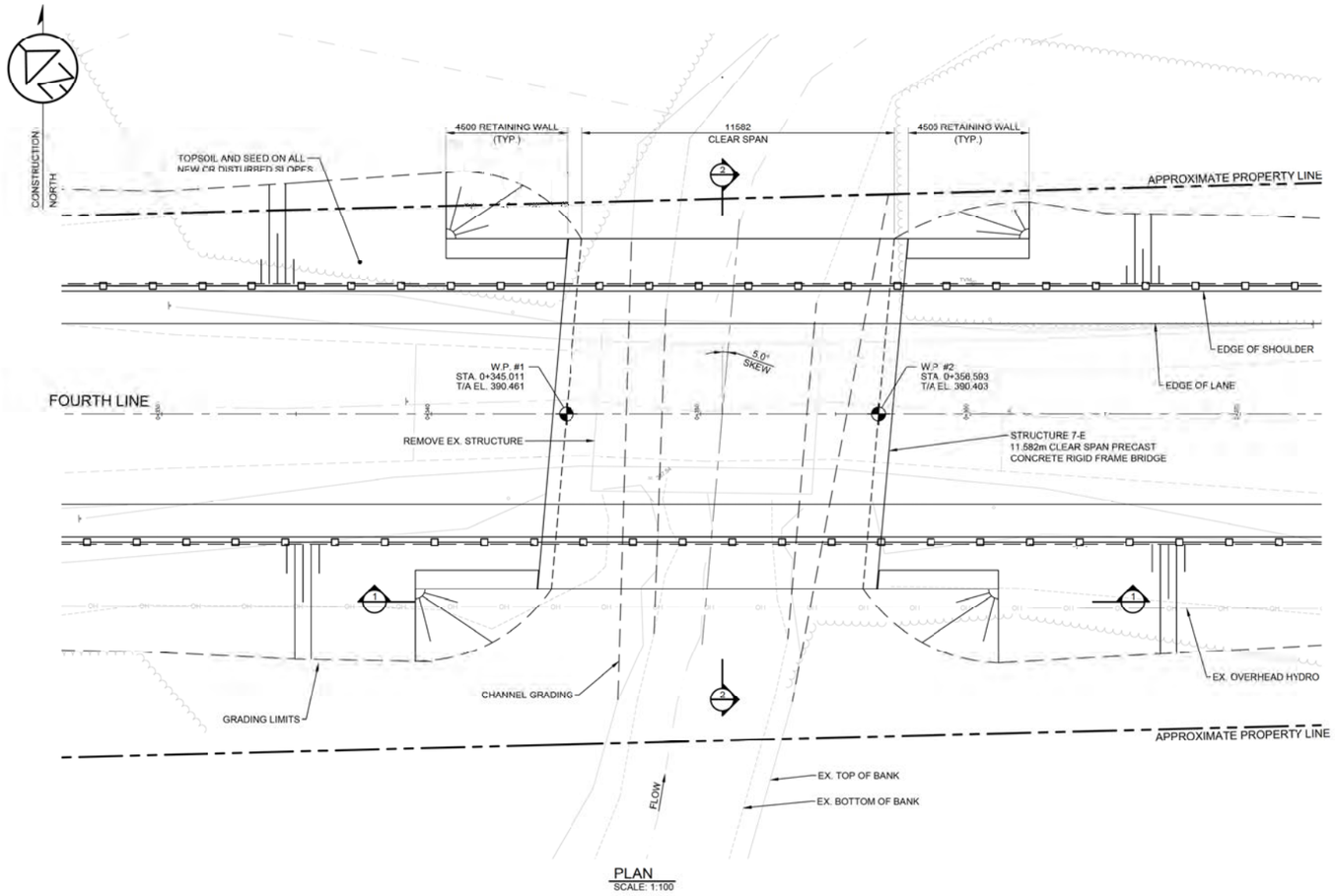

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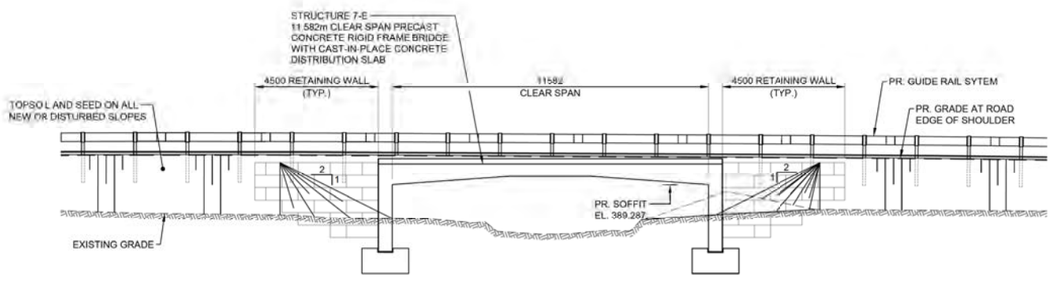

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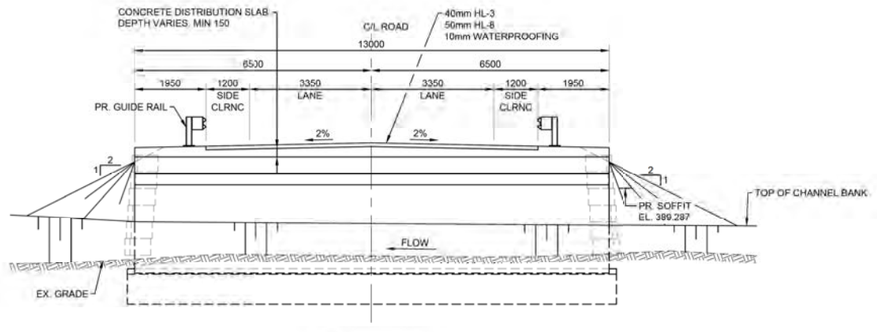

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Appendix A.5

Natural Heritage Report

Centre Wellington Bridge and Transportation Network Study for Bridges
2-WG, 3-E, 5-E, and 7-E Natural Heritage Report

Township of Centre Wellington
1 MacDonald Square
Elora ON N0B 1S0

Centre Wellington Bridge and Transportation Network Study for Bridges 2-WG, 3-E, 5-E, and 7-E Natural Heritage Report

Township of Centre Wellington
1 MacDonald Square
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November 2024
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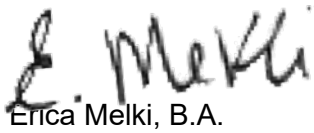

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Project Coordinator – Terrestrial Ecologist
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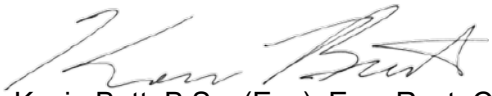
Mark Saunders, MES, B.Sc. (Hons), CAN-CISEC-IT
Aquatic Ecologist



Kevin Butt, B.Sc. (Env), Eco. Rest. Cert. TRAQ
ISA Certified Arborist and Terrestrial Ecologist
Vice President, Ecology

Report Reviewed By:



Tricia Radburn, MCIP, RPP
Senior Environmental Planner

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Appendices

Appendix A Existing Aquatic Habitat Conditions Photo Page

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1.0 Introduction

The Township of Centre Wellington initiated a Bridge and Transportation Network Study for Bridges 2-WG, 3-E, 5-E, and 7-E in May 2024. This study will evaluate the role of these structures within the overall transportation network and connectivity in the community and determine the most suitable alternative at each bridge location.

Three of the four bridges (3-E, 5-E, 7-E) are closed due to poor condition. The fourth bridge (2-WG) is open with load restrictions. The study will evaluate whether each bridge should be closed permanently, rehabilitated (with minor upgrades and modifications), or replaced.

The four bridges being investigated as part of the study are located in the southeast quadrant of the Township of Centre Wellington, as shown on Figure 1.

The location of the bridges are as follows:

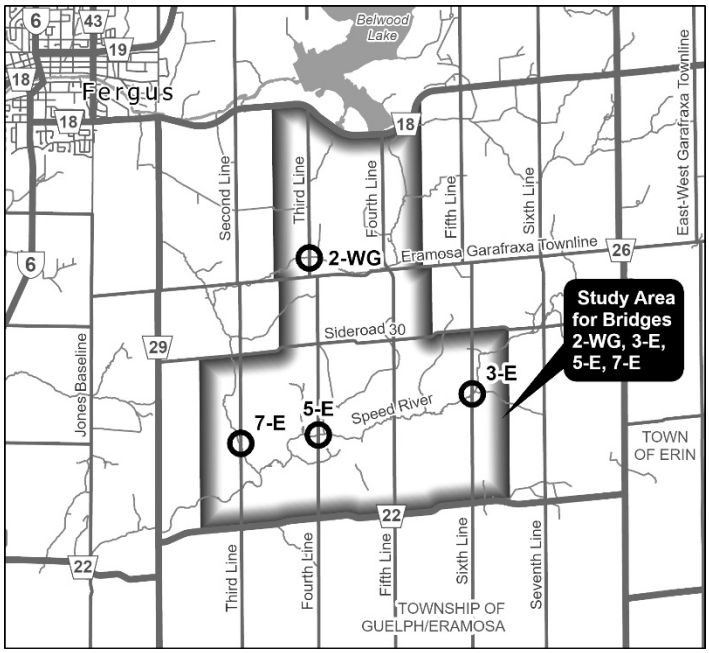

Figure 1: Study Area

- Bridge 2-WG is located on Third Line, approximately 330 m north of Eramosa-Garafraxa Townline
- Bridge 3-E is located on Sixth Line, approximately 1.9 km north of Wellington Road 22
- Bridge 5-E is located on Fourth Line, approximately 1.5 km north of Wellington Road 22
- Bridge 7-E is located on Third Line, approximately 1.5 km north of Wellington Road 22

The four bridges service a rural community which is home to agricultural, residential, and commercial properties. The network of roads within the study area carries motorized vehicles, pedestrians and cyclists and connects the community to Fergus, Belwood and the Township of Guelph-Eramosa to the south.

This Natural Heritage Report documents the existing natural heritage conditions, both terrestrial and aquatic, in a 120 m study area around each respective bridge.

The natural features associated with the watercourses and their crossings are part of larger connected natural systems comprised of varied forests, hedgerows, swamps and marshes. These areas are designated as Core Greenlands according to the Wellington County OP – Schedule B1. GRCA regulated lands are associated with all of the crossings.

This report will inform the preferred alternative decision by identifying natural feature constraints that will need to protected or mitigated from short-term or long-term impacts.

A review of existing documents and databases was used to identify the presence, or potential presence, of the natural features and their associated policy constraints, supported by a field investigation by Burnside ecologists.

2.0 Methodology

The following sources of information to determine the ecological constraints in the vicinity of each structure.

- Aerial photographic imaging and 1:10,000 Ontario Base Mapping (OBM)
- DFO Aquatic SAR mapping (2023)
- Ministry of Natural Resources and Forestry (MNRF) Make a Map: Natural Heritage Areas to identify natural heritage features and Natural Heritage Information Centre (NHIC) data of rare wildlife species on, and in the vicinity of, the subject lands: 1x1 km^2 Squares: 17NJ5540, 17NJ5838, 17NJ5737, 17NJ5940.
- MNRF Land Information Ontario (LIO) database
- MNRF Aquatic Resource Area (ARA) summary data
- Ontario Hydrology Network (OHN) mapping
- The Ontario Breeding Bird Atlas (OBBA) 2001-2005 – 10x10 km^2 Square 17NJ53 and 17NJ54
- Ontario Reptile and Amphibian Atlas (ORAA) – 10x10 km^2 Square 17NJ53 and 17NJ54
- Ontario Insect Atlas (OIA) 2005 – 2021 – 10x10 km^2 Square 17NJ53 and 17NJ54
- iNaturalist records
- eBird records
- GRCA Regulated Areas and Features Mapping
- Township of Centre Wellington Official Plan (2023)
- Wellington County Official Plan (2022)

In addition, field investigations were carried out, as follows:

- August 20, 2023:
  - An Ecological Land Classification (ELC) and botanical inventory were undertaken from the road ROW. ELC communities were described according to the updated Second Approximation 2008 codes (Lee, 2008) with reference to Ecological Land Classification for Southern Ontario: First Approximation and Its Application (Lee et al. 1998) for units that could not be adequately described by the 2008 codes. Approximations of communities were made where permission to enter was not available and work was completed from the publicly-owned road right-of-way. Air photos were used to delineate the features, as needed.
  - Each bridge structure was surveyed by a Burnside ecologist for evidence of breeding birds, primarily Cliff Swallow nests
  - Visual aquatic habitat survey
  - Onsite meeting with First Nations monitors to review the project sites and introduce project. Billye Bomberry and Matthew Turner from Haudenosaunee Development Institute and Leanna Hill from Six Nations of the Grand River were in attendance.

A summary of conditions during field investigations is presented in Table 1.

Table 1: Natural Environment Field Investigations

Field Study	Methodology	Staff Involved	Date(s)	Time of Day	Weather Conditions		
					Precipitation/Cloud Cover	Temperature (°C)	Wind (Beaufort Wind Scale)[1]
Ecological Land Classification	Ecological Land Classification for Southern Ontario (Lee et al.,1998) of entire property.	Kevin Butt	August 20, 2024	0830 - 1730	No precipitation Partly cloudy	10°C on arrival 21°C on departure	2 - Slight Breeze
Aquatic Habitat Assessment	Ontario Ministry of Transportation (MTO) Fisheries Protocol - Environmental Guide for Fish and Fish Habitat (June 2009)	Mark Saunders	August 20, 2024	0830 - 1730	No precipitation Partly cloudy	10°C on arrival 21°C on departure	2 - Slight Breeze
Search for potential wildlife habitats	Survey throughout study areas to search for features that could provide habitat for wildlife or SAR habitat such as: Nests, reptile hibernacula, old barns, structures, uncapped chimneys, foundations, mature forest areas with cavities or other features suitable for bat roosting, turtle nesting or overwintering sites.	All staff	August 20, 2024	0830 - 1730	No precipitation Partly cloudy	10°C on arrival 21°C on departure	2 - Slight Breeze
Incidental flora and fauna observations	Visual observations of animals, tracks or scat and compilation of a plant inventory during all site visits.	Kevin Butt	August 20, 2024	0830 - 1730	No precipitation Partly cloudy	10°C on arrival 21°C on departure	2 - Slight Breeze

[1] Beaufort Wind Scale: 0 = calm, smoke rises vertically (0-2 km/hr); 1 = light air movement, smoke drifts (3-5); 3 = gentle breeze, wind felt on face; leaves rustle (6-11); 4 = moderate breeze, small branches moving, raises dust & loose paper (20-30); 5 = fresh breeze, small trees begin to sway (31-39); 6 = strong breeze, large branches in motion (40-50)

3.0 Existing Conditions

All areas are identified in Schedule B1 of the Wellington County OP as surrounded by Core Greenlands. Greenlands in Wellington County are determined by their composition of natural features. Any wetland in Wellington County is considered significant. Additionally, in Wellington County, all streams and valleylands are considered significant, providing protection to these watercourses at all structures.

The following sections document the terrestrial and aquatic natural heritage features and functions within each study area.

3.1 Terrestrial Environment

A review of NHIC shows that structures 3-E and 7-E are situated on the border of Evaluated Non-Provincially Significant Wetlands (PSW), however, the mapping shows that all four structures are found within the Natural Heritage System (NHS).

Based on a review of the OBBA, ORAA, and OIA, the following SAR (Endangered or Threatened) and Species of Conservation Concern (SCC) were identified as potentially being present on or adjacent to the subject lands (see Table 2).

Table 2: Candidate SAR and SCC on the Subject Lands or Adjacent Lands Based on Background Review

Common Name	Scientific Name	Bridge Location	Provincial S-Rank[1]	Provincial SARO Status[2]	Federal COSEWIC Status[3]	Federal SARA Status[4]	Federal SARA Schedule[4]	Habitat Requirements	Location of Habitat or Potential Habitat in the Study Area
Canada Warbler	*Cardellina canadensis*	3-E, 5-E, 2-WG	S5B	SC	SC	THR	1	Generally, prefers wet coniferous, deciduous and mixed forest types, with a dense shrub layer. Nests on the ground, on logs or hummocks, and uses dense shrub layer to conceal the nest.[5]	Potential habitat at 3-E, 5-E, and 7-E. No potential habitat at 2-WG
Chimney Swift	*Chaetura pelagica*	5-E, 7-E	S3B	THR	THR	THR	1	Historically nested in large hollow trees, other tree cavities and cracks in cliffs. Currently, most are found in developed areas in large, uncapped chimneys. Proximity to lakes is also a preferred habitat feature as they will forage for flying insects close to water.[5]	No potential habitat at any structures.
Bank Swallow	*Riparia riparia*	3-E, 5-E, 7-E	S4B	THR	THR	THR	1	Open habitats including farmland, lake/river shorelines, grasslands, and wetlands. Nests in exposed earthen banks along shorelines.[5]	No potential habitat at any structures.
Barn Swallow	*Hirundo rustica*	All bridges	S4B	SC	SC	THR	1	Farmland, lake/river shorelines, wooded clearings, urban populated areas, rocky cliffs, wetlands. Nests inside or on buildings, under bridges, and in road culverts; on rock faces, and in caves.[6]	Confirmed habitat at 3-E and 2-WG. Potential habitat at 5-E and 7-E.
Bobolink	*Dolichonyx oryzivorus*	All bridges	S4B	THR	SC	THR	1	Open grasslands and hay field for nesting. Can use large field of winter wheat and rye. High grass-to-forb ratio preferred. Can tolerate wetter fields.[7]	No potential habitat at any structures.
Eastern Meadowlark	*Sturnella magna*	All bridges	S4B, S3N	THR	THR	THR	1	Grassy pastures, meadows and hay fields. Prefers moderately tall grass with abundant litter cover, a high proportion of grass cover, moderate forb density, low proportions of shrub and woody vegetation cover, and low percent of bare ground. Prefers to nest in drier sites and frequently nests around field margins.[8]	No potential habitat at any structures.

Common Name	Scientific Name	Bridge Location	Provincial S-Rank[1]	Provincial SARO Status[2]	Federal COSEWIC Status[3]	Federal SARA Status[4]	Federal SARA Schedule[4]	Habitat Requirements	Location of Habitat or Potential Habitat in the Study Area
Eastern Whip-poor-will	*Antrostomus vociferus*	5-E, 7-E	S4B	-	SC	THR	1	Found in areas with a mix of open and forested areas, such as savannahs, open woodlands or opening in more mature, deciduous, coniferous and mixed forests. It forages in open areas and roosts in forested areas. [6]	Potential habitat at 5-E and 7-E. No potential habitat at 3-E and 2-WG.
Eastern Wood-pewee	*Contopus virens*	All bridges	S4B	SC	SC	SC	1	Open space near the nest in the form of forest edges, clearings, roadways, and water. Does not require large areas of woods but occurs less frequently in woodlots surrounded by development than in those without.[5]	Potential habitat at all structures.
Grasshopper Sparrow	*Ammodramus savannarum pratensis*	All bridges	S4B	SC	SC	SC	1	Prefers drier, sparsely vegetated grasslands, particularly rough or unimproved pastures with scattered forb and shrub growth, at least 30 ha in size. It will occasionally also use cultivated hayfields and cereal crops.[5]	No potential habitat at all structures.
Henslow's Sparrow	*Ammodramus henslowii*	5-E, 7-E	S1B	END	END	END	1	Occupies open fields. It prefers undisturbed areas with dense living grasses and a dense thatch of dead grasses. [6]	No potential habitat at any structures.
Midland Painted Turtle	*Chrysemys picta marginata*	5-E, 7-E	S4	-	SC	SC	1	Generally, prefers waterbodies such as ponds, marshes, lakes and slow-moving creeks that have a soft bottom and provide abundant basking sites and aquatic vegetation.[9]	No potential habitat at any structures.
Monarch	*Danaus plexippus*	All bridges	S2N, S4B	SC	END	END	1	In Ontario, larvae feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adult butterflies can be found in more diverse habitats where they feed on nectar from a variety of wildflowers.[8]	Potential habitat at 2-WG and 3-E although no Milkweed observed No potential habitat at 5-E and 7-E.

Common Name	Scientific Name	Bridge Location	Provincial S-Rank[1]	Provincial SARO Status[2]	Federal COSEWIC Status[3]	Federal SARA Status[4]	Federal SARA Schedule[4]	Habitat Requirements	Location of Habitat or Potential Habitat in the Study Area
Red-headed Woodpecker	*Melanerpes erythrocephalus*	5-E, 7-E	S3	END	END	END	1	Open woodland and woodland edges and often found in parks, golf courses and cemeteries because these areas typically have many dead trees which the woodpecker uses for nesting and perching.[7]	No potential habitat at any structures.
Snapping Turtle	*Chelydra serpentina*	All bridges	S4	SC	SC	SC	1	Shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravely or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits.[8]	Potential habitat at all structures.
Western Chorus Frog (Great Lakes/ St, Lawrence-Canadian Shield population)	*Pseudacris triseriata*	All bridges	S4	-	THR	THR	1	The Western Chorus Frog is primarily a lowland terrestrial species. In marshes or wooded wetland areas, it is found on the ground or in low shrubs and grass. Like all other frogs, the Western Chorus Frog requires both terrestrial and aquatic habitats in close proximity. For breeding and tadpole development, it requires seasonally dry temporary ponds devoid of predators, particularly fish. It is very rarely found in permanent ponds. In southern Ontario, its range is bounded by the United States border in the south, Georgian Bay in the northwest, and south of Algonquin Park and up the Ottawa River valley to the vicinity of Eganville in the east. [6, 9]	Potential habitat at 3-E, 7-E and 2-WG. No potential habitat at 5-E.
Wood Thrush	*Hylocichla mustelina*	All bridges	S4B	SC	THR	THR	1	Inhabits and breeds in woodlands ranging from small (3 ha) and isolated to large and contiguous. The presence of tall trees and a thick understory are usually prerequisites for site occupancy.[5]	No potential habitat at any structures.

Common Name	Scientific Name	Bridge Location	Provincial S-Rank[1]	Provincial SARO Status[2]	Federal COSEWIC Status[3]	Federal SARA Status[4]	Federal SARA Schedule[4]	Habitat Requirements	Location of Habitat or Potential Habitat in the Study Area

1 Provincial S-Rank: S1 to S3 are provincially tracked (S1-critically imperiled; S2-imperiled; S3-vulnerable). Breeding (B) status qualifier: Conservation status refers only to the breeding population of the species in the province. Non-breeding (N) status qualifier: Conservation status refers only to the non-breeding population of the species in the province.

2 SARO: Official Species at Risk in Ontario list under the ESA, 2007. Status Coding – Endangered (END), Threatened (THR), Special Concern (SC)

3 COSEWIC: Committee on the Status of Endangered Wildlife in Canada

4 SARA and Schedule: Species at Risk Act; The Act establishes Schedule 1 as the official list of wildlife SAR

5 Cadman, M.D., et al. (eds). 2007. Atlas of the Breeding Birds of Ontario, 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, xxii + 706 pp

6 Species at Risk Public Registry https://species-registry.canada.ca/

7 McCracken, J.D. et al. 2013. Recovery Strategy for the Bobolink (*Dolichonyx oryzivorus*) and Eastern Meadowlark (Sturnella magna) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario, viii + 88 pp.

8 SARO List Species Descriptions (Species at risk in Ontario | ontario.ca)

9 Ontario Nature Reptile and Amphibian Atlas (ON Reptile & Amphibian Atlas (ontarioinsects.org))

The following sections describe natural features at each bridge site.

3.1.1 Terrestrial Natural Features at Each Structure

Bridge 2-WG

The natural heritage system adjacent to this structure is narrow, with hedgerows separating the watercourse from the agricultural lands. The northwest portion has a swamp feature, not identified on GRCA mapping that extends westward along the riparian edge. Open grown trees and hedgerows associated with the rural property are found at the northeast portion of the structure.

There were two Swallow nests under structure identified during the field investigation.

A summary is provided in Table 3 and is illustrated on Figure 2.

Table 3: Bridge 2-WG Summary of Natural Heritage Features

ELC Code	ELC Description	Provincially Significant Wetlands/Other Wetlands	Significant Woodlands	Candidate Significant Wildlife Habitat
SWTM3-1	Missouri Willow Mineral Deciduous Thicket Swamp	Evaluated Non-PSW	N/A	Turtle Wintering Areas
MEGM3-5	Smooth Brome Graminoid Meadow	N/A	N/A	No Candidate SWH
TAGM5	Fencerow	N/A	N/A	No Candidate SWH
CVR_4	Rural Property	N/A	N/A	No Candidate SWH
OAGM1	Annual Row Crops	N/A	N/A	No Candidate SWH



Wetland (GRCA)

Watercourse (GRCA)

Ecological Land Classification

Bridge

Study Area

ELC Descriptions

CVR_4: Rural Property
MEGM3-5: Smooth Brome Graminoid Meadow
OAGM1: Annual Row Crops
SWTM3-1: Missouri Willow Mineral Deciduous Thicket Swamp
TAGM5: Fencerow

Sources:

1. Ministry of Natural Resources, © Queen's Printer for Ontario
2. Natural Resources Canada © Her Majesty the Queen in Right of Canada

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Grid North

0 30 50 80 100

Metres

BURNSIDE

Client

TOWNSHIP OF CENTRE WELLINGTON

Figure Title

CENTRE WELLINGTON BRIDGE AND TRANSPORTATION NETWORK STUDY FOR BRIDGES 2-WG, 3-E, 5-E, AND 7-E
NATURAL HERITAGE REPORT
ECOLOGICAL LAND CLASSIFICATION
BRIDGE 2-WG

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Bridge 3-E

This structure crosses an extensive treed swamp system associated with the riparian area, associated with the evaluated wetland. These swamps are dominated by White Cedar with varying levels of hardwood tree species. An isolated forb-dominated meadow marsh associated with the riparian lands is found west of the structure. Meadows / grazing pastures are found north of the valley system.

There were three Swallow / Eastern Phoebe nests under structure identified during the field investigation.

A summary of these features is provided in Table 4 and illustrated on Figure 3 below.

Table 4: Bridge 3-E Summary of Natural Heritage Features

ELC Code	ELC Description	Provincial Significant Wetlands/Other Wetlands	Significant Woodlands	Candidate Significant Wildlife Habitat
MAMM2	Forb Mineral Meadow Marsh	Non-Provincially Significant Wetland	N/A	Amphibian Breeding Habitat (Wetlands) Marsh Breeding Bird Habitat
SWCM1-1	White Cedar Coniferous Swamp	Non-Provincially Significant Wetland	Yes	Raptor wintering area Bald Eagle & Osprey Nesting, Foraging, Perching Turtle Wintering Areas
SWMM1-1	White Cedar – Hardwood Mineral Mixed Swamp	Non-Provincially Significant Wetland	Yes	Raptor wintering area Bald Eagle & Osprey Nesting, Foraging, Perching Turtle Wintering Areas
MEGM	Dry-Fresh Graminoid Meadow	N/A	N/A	Special Concern and Rare Wildlife Species



Wetland (GRCA)

Watercourse (GRCA)

Ecological Land Classification

Bridge

Study Area

ELC Descriptions

MAMM2: Forb Mineral Meadow Marsh
MEGM3: Dry - Fresh Graminoid Meadow
SWCM1-1: White Cedar Mineral Coniferous Swamp
SWMM1-1: White Cedar - Hardwood Mineral Mixed Swamp

Sources:

1. Ministry of Natural Resources, © Queen's Printer for Ontario
2. Natural Resources Canada © Her Majesty the Queen in Right of Canada

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Grid North

0 30 50 80 100

Metres

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Client

TOWNSHIP OF CENTRE WELLINGTON

Figure Title

CENTRE WELLINGTON BRIDGE AND TRANSPORTATION NETWORK STUDY FOR BRIDGES 2-WG, 3-E, 5-E, AND 7-E
NATURAL HERITAGE REPORT
ECOLOGICAL LAND CLASSIFICATION
BRIDGE 3-E

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Bridge 5-E

The adjacent lands at this crossing are varied and include forest communities, plantation, rural residential, hedgerows and pasture / hayfield. The plantation found southeast of the crossing is dominated by Norway spruce (*Picea abies*). There are two Fresh-Moist White Cedar forest communities identified at the southwest and northeast portions of the Study Area, adjacent to the two rural property lands. The rural properties only have a small area being managed as manicured turf for amenity space but are otherwise densely treed. The pasture / hayfield is dominated by cool season grasses with abundant Goldenrod, Wild Carrot and meadow forbs. A mature hedgerow of White Cedar is found between the watercourse and the pasture. A Fresh-Moist White Cedar - Hardwood Mixed Forest is found at the southeast corner of the Study Area that contains wetland immediately beyond the Study Area limit, as identified by GRCA mapping.

No bird nests were observed under the structure.

A summary of these features is provided in Table 5 and illustrated on Figure 4.

Table 5: Bridge 5-E Summary of Natural Heritage Features

ELC Code	ELC Description	Provincially Significant Wetlands/Other Wetlands	Woodlands	Candidate Significant Wildlife Habitat
TAGM1	Coniferous Plantation	N/A	Contiguous with extensive forested riparian corridor	No Candidate SWH
TAGM5	Fencerow	N/A	N/A	No Candidate SWH
FOCM4-1	Fresh-Moist White Cedar Coniferous Forest	N/A	Contiguous with extensive forested riparian corridor	Raptor wintering area Bald Eagle & Osprey Nesting, Foraging, Perching Special Concern and Rare Wildlife Species
FOMM7-2	Fresh-Moist White Cedar – Hardwood Forest	N/A	Contiguous with extensive forested riparian corridor	Raptor wintering area Bald Eagle & Osprey Nesting, Foraging, Perching Special Concern and Rare Wildlife Species
OAGM5	Open Pasture	N/A	N/A	Special Concern and Rare Wildlife Species
CVR_4	Rural Property	N/A	N/A	No Candidate SWH



Wetland (GRCA)

Watercourse (GRCA)

Ecological Land Classification

Bridge

Study Area

ELC Descriptions

CVR_4: Rural Property
FOCM4-1: Fresh - Moist White Cedar Coniferous Forest
FOMM7-2: Fresh - Moist White Cedar - Hardwood Mixed Forest
OAGM4: Open Pasture
TAGM1: Coniferous Plantation
TAGM5: Fencerow

Sources:

1. Ministry of Natural Resources, © Queen's Printer for Ontario
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Grid North

0 30 50 80 100

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TOWNSHIP OF CENTRE WELLINGTON

Figure Title

CENTRE WELLINGTON BRIDGE AND TRANSPORTATION NETWORK STUDY FOR BRIDGES 2-WG, 3-E, 5-E, AND 7-E
NATURAL HERITAGE REPORT
ECOLOGICAL LAND CLASSIFICATION
BRIDGE 5-E

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Bridge 7-E

The majority of the land around this crossing within the Study Area is identified as White Cedar Mineral Coniferous Swamp that extends throughout the riparian corridor that is associated with the evaluated wetland. These forested lands connect with upland and riparian forested communities (forests, swamps and plantations) on both sides of the road. Rural property and annual row crop lands are also found within the Study Area of this site.

No bird nests were observed under the structure.

A summary of these features is provided below in Table 6 and illustrated on Figure 5.

Table 6: Bridge 7-E Summary of Natural Heritage Features

ELC Code	ELC Description	Provincially Significant Wetlands/Other Wetlands	Woodlands	Candidate Significant Wildlife Habitat
SWCM1-1	White Cedar Mineral Coniferous Swamp	Non-Provincially Significant Wetland	Contiguous with extensive forested riparian corridor	Raptor wintering area Bald Eagle & Osprey Nesting, Foraging, Perching Turtle Wintering Areas
OAGM1	Annual Row Crops	N/A	N/A	No Candidate SWH
CVR_4	Rural Property	N/A	N/A	No Candidate SWH



Wetland (GRCA)

Watercourse (GRCA)

Ecological Land Classification

Bridge

Study Area

ELC Descriptions
CVR_4: Rural Property
OAGM1: Annual Row Crops
SWCM1-1: White Cedar Mineral Coniferous Swamp

Sources:

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Page Orientation: -46.64°	Scale Factor: 0.99960

Grid North

0 30 50 80 100

Metres

BURNSIDE

Client

TOWNSHIP OF CENTRE WELLINGTON

Figure Title

CENTRE WELLINGTON BRIDGE AND TRANSPORTATION NETWORK STUDY FOR BRIDGES 2-WG, 3-E, 5-E, AND 7-E
NATURAL HERITAGE REPORT
ECOLOGICAL LAND CLASSIFICATION
BRIDGE 7-E

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3.2 Aquatic Habitat Conditions

A review of MNRF's ARA data shows that all the structures are along the Speed River's tributaries, all of which have a cold thermal regime. Based on this review, these tributaries share a common spring-spawning fish community (Table 7), which would exclude in-water works from March 15 to July 15 of any year.

Table 7: Summary of Fish Species Historically Found in tributaries of the Speed River

Species Name	Scientific Name	Thermal Regime
Blacknose Dace	*Rhinichthys atratulus*	Cool
Brook Stickleback	*Culaea inconstans*	Cool
Creek Chub	*Semotilus atromaculatus*	Cool
Fantail Darter	*Etheostoma flabellare*	Cool
Greenside Darter	*Etheostoma*	Warm
Longnose Dace	*Rhinichthys cataractae*	Cool
Mottled Sculpin	*Cottus bairdii*	Cool
White Sucker	*Catostomus commersonii*	Cool
Yellow Perch	*Perca flavescens*	Cool

MNRF ARA (2017)

Table 8 below summarizes channel dimensions (i.e., information pertaining to morphology, wetted width/depth, substrate etc.) and conditions observed by Burnside's aquatic ecologist on August 20, 2024. Weather conditions were sunny with air temperatures ranging between 14°C and 16 °C. Common sources of pollution include the agricultural lands (e.g., agricultural pesticides and fertilizers) and the roadway (i.e., gravel road source of fine sediments and salts) that surrounded all sites. A photo page that references the observations described in Section 3.2.1 is provided in Appendix A.

Table 8: Existing Aquatic Habitat Conditions

Structure	Watercourse Names	Morphology	Wetted Width/Depth Upstream (m)	Wetted Width/Depth Downstream (m)	Dominate Substrate Upstream	Dominate Substrate Downstream	Fish Observed	Evidence of Groundwater Upwelling
2-WG	Speed River tributary	Flat	1.5/ 0.3	-	Muck	Muck	No	No
		Pool	8.9/0.4	8.4/0.6	Muck	Muck	No	No
3-E	Speed River tributary	Pool	10.4/ 0.5	10.4/ 0.5	Muck	Muck	Yes	No
5-E	Speed River tributary	Flat	6.6 /0.23	6.0/0.4	Cobble	Cobble	Yes	Yes
7-E	Speed River tributary	Riffle	2.6/0.11	5.32/0.13	Cobble	Cobble	Yes	No
		Pool	3.2/0.4	5.3/0.3	Cobble	Cobble	Yes	No

3.2.1 Aquatic Natural Features at Each Structure

2-WG

Upstream

The upstream reach flowed northeast to southwest along a wooded corridor surrounded by an agriculturally dominated landscape (Photo 1). The watercourse was nearly stagnant, starting narrow and flat-like (averages: 1.5 m width, depth 0.3 m; Photo 2) before quickly widening into a large pool (averages: 8.9 m width, >0.4 m depth; Photo 3). The banks were heavily vegetated with herbaceous plants and small woody shrubs. Overhanging shrubs, grasses, and a few larger trees cover nearly 80% of the watercourse. Some emergent vegetation (<5% cover) occurred near the shoreline (Photo 4). The dominant substrates were silt and muck. A layer of organic (e.g., decaying vegetation) and woody debris covered ~15% of the area, especially in the leading into the structure. In the far upstream area, debris jams were present. However, most of the woody debris were small branches instead of larger logs and branches.

Downstream

The surrounding riparian habitat was similar to that observed upstream. However, the downstream reach was noticeably more exposed to sunlight (~30% coverage) as there were no large trees, just overhanging shrubs, willows, and grasses. The pool observed upstream continues under the structure and into the downstream area (8.4 m width, 0.6 m depth; Photos 5, 6, & 7). The pool quickly narrows to 2.0 m but maintains the depth. The aquatic habitat was similar to upstream's habitat, except there were more woody debris, including a few large branches (25% cover), cobbles (5% cover), and boulders (5% cover). Undercut banks were observed in small patches on the east and west sides of the structure, but they appear to result from footpaths (Photo 8).

Habitat Improvement

The soft bottom may benefit from addition of harder substrate (e.g., rock) to increase habitat heterogeneity and improve erosion protection.

3-E

Upstream

The upstream reach flowed north to south and was surrounded by riparian woodland with small grass-dominated banks (Photo 9). The watercourse was largely exposed to sunlight, with ~40% covered by overhanging trees and grasses. The grasses helped to protect the banks, as there were minimal signs of erosion (Photo 10). The watercourse

was a large pool (10.4 m width, 0.5 m depth) with a substrate dominated by finer sediments like muck (60% cover) with scattered cobble (10% cover), gravel (10% cover), and a few small boulders (10% cover). No aquatic plants, except for a few emergent grasses (5% cover), were observed with the watercourse, and some large woody branches (5% cover) were scattered across the width of the watercourse.

Downstream

The watercourse remains a pool nearly unchanged from the upstream, except for narrowing slightly as the pool leaves the observed area (Photos 11 & 12). The substrate was still dominated by muck (~50%), but there was noticeably more cobble than upstream (30%). The downstream riparian area has fewer trees, more shrubs, and tall grasses, resulting in the watercourse being more exposed than upstream (30% cover). The well-vegetated banks showed no signs of erosion. Despite the riparian vegetation, there was no instream vegetation.

Habitat Improvement

The soft bottom may benefit from addition of harder substrate (e.g., rock) to increase habitat heterogeneity and improve erosion protection.

5-E

Upstream

The upstream reach flowed north to south and was surrounded by riparian woodland with small grass-dominated banks (Photo 13). The watercourse was a flat (6.6 m width, 0.23 m width) with a substrate dominated by cobbles (60% cover) interspaced by sand and gravel (10% cover). Large patches of muck (20% cover) were present along the shorelines. There were minimal aquatic habitat features besides several boulders (10% cover) as there were neither aquatic plants nor woody debris in the observed area. The rocky banks and shorelines showed no signs of erosion. There was a small patch of watercress (*Nasturtium officinale*) found along the east bank, indicating a minor amount of groundwater upwelling (Photo 14). There were no aquatic habitat features underneath the structure (Photo 15).

Downstream

The downstream area was identical to the upstream in terms of overhead cover (Photo 16). The watercourse remains a flat, though slightly narrower and deeper than upstream (6.0 m width, 0.4 m width). The substrate remains similar, though there is less cobble (60% cover) and more sand and gravel (30%; Photo 17). There were more woody debris (<5% cover) and several large concrete chunks (<5%) within the

watercourse too (Photo 18). However, the most noticeable differences were more signs of erosion (i.e., bank undercuts) along both banks (Photo 19).

Habitat Improvement

It is recommended that replacements or repairs to the structure do not impede possible groundwater upwelling identified in the area. In addition, stabilization of the banks may reduce the risk of erosion.

7-E

Upstream

The watercourse flows west to east through a densely wooded corridor (90% cover), only entering an open area immediately in front of the structure (Photo 20). The well-vegetated banks showed minimal signs of erosion. The watercourse was a riffle (2.6 m width, 0.11 m depth) with a cobble substrate (90%) interspaced with sand and gravel (10%) and no woody debris or aquatic vegetation. The watercourse widens underneath the structure (3.2 m width, 0.4 m depth) into a pool with simar instream features to the riffle (Photo 21).

Downstream

The watercourse exits the structure and turns into a riffle-pool stretch more exposed than upstream (50% cover; Photo 22). The riffle section (5.32 m width, 0.13 m depth) was the dominant feature near the watercourse. The pool is as wide as the riffle but noticeably deeper (0.3 m depth; Photo 23). The substrate was mainly cobble (70% cover) interspaced with sand and gravel (15%) and large boulders (15% cover). The rocky shorelines showed no signs of erosion.

Habitat Improvements

The area was good quality fish habitat.

4.0 Impacts, Mitigation and Monitoring Guidelines

Impacts, mitigation measures and monitoring must be considered when selecting the preferred alternative. Table 9 provides a summary of impacts that are anticipated with bridge replacement, removal or rehabilitation (depending on extent of impact area and workzone), with guidelines for the mitigation measures and monitoring.

Table 9: Summary of Impacts, Mitigation and Monitoring for Natural Features

Feature	Description of Potential Effects	Mitigation Measures	Monitoring Activities
Effects on Ecological Features and Functions			
Wildlife (General)	Temporary displacement and disturbance to wildlife and habitat during the construction phase. May include SAR and Species of Special Concern.	The footprint of the proposed disturbed area shall be minimized as much as possible. In the event an animal is encountered during construction and does not move from the construction zone, the Contract Administrator should be notified. If the construction activities are such that continuing construction in the area would result in harm to wildlife, construction activities in that location should temporarily stop and the MNRF or MECP can be contacted for direction. If temporary perimeter exclusion fencing is used at a location, it should be installed to allow wildlife to leave the fenced area during vegetation clearing. Once the work area has been cleared, it can be securely fenced to prevent wildlife from returning. The excluded area should be searched immediately following fencing installation for any wildlife (including SAR) that may have become trapped. Any wildlife should be safely relocated or permitted to escape, to a suitable habitat. All works should stop immediately and MECP should be contacted if SAR is encountered within the area to ensure compliance with the ESA. Avoid vegetation clearing during sensitive times of the year for local wildlife, such as spring and early summer (during breeding and migration seasons). The new structure will allow for wildlife passage below the structure if feasible. Fencing to delineate the work zone will prevent encroachment into adjacent habitat supporting SAR and Species of Special Concern.	The Contractor will conduct regular monitoring of the erosion and sediment control measures to ensure they are acting as intended and are containing the work area.
Migratory Breeding Birds	Disturbance or destruction of migratory breeding bird nests / habitat may occur during construction phase (vegetation clearing)	To reduce the risk of contravening the federal Migratory Bird Convention Act, 1994 (MBCA), timing constraints shall be applied to avoid any limited vegetation clearing (including grubbing) and/or structure works (construction) during the active window for breeding birds, broadly from April 1 to August 31 for most species. Active nests (nests with eggs or young birds) of protected migratory birds, including SAR protected under the ESA, cannot be destroyed at any time of the year. If a nesting migratory bird (or SAR protected under ESA) is identified within or adjacent to the construction site (or during operations and maintenance activities) and the activities are such that continuing works in that area would result in a contravention of the MBCA or ESA, all activities should stop and the Contract Administrator (with assistance from an Avian Biologist) should discuss mitigation measures with the Town. If SAR are identified, all activities should stop and MECP should be contacted to ensure compliance with the ESA. The Contract Administrator can instruct the Contractor on how to proceed based on the mitigation measures established through discussions with the Township, the MECP and/or Environment Canada.	If construction works occur during the active window for breeding birds, an Environmental Inspector should monitor the tarped or netted structure every 2 to 3 days to ensure that no bird nests are established on the bridge (some species such as Barn Swallow or Eastern Phoebe (Sayornis phoebe) have been reported to attempt nesting on the exterior of the tarp material used for exclusion).

Feature	Description of Potential Effects	Mitigation Measures	Monitoring Activities
		To avoid contravention of the MBCA and/or ESA, the bridge structure should be completely excluded with tarping or netting material prior to the next active window for breeding birds (i.e., by end of March) if construction works are to occur during the active window for breeding birds (as noted above). Tarping or netting of the bridge ensures that breeding birds are excluded from nesting on or under the structure while the bridge is being replaced.	
SAR bat maternity-roosting habitat	Tree removals could impact wildlife	Trees that are identified as candidate bat maternal roosting habitat must be taken down outside the active bat window (active window is March 31 to October 1).	Further studies are required to confirm the extent of impacts and whether surveys are required to determine absence or presence of SAR bats.
Trees	Loss of woody vegetation and creation of new forest edges causing new growing conditions such as sun exposure and weed invasion.	A tree inventory will be completed during the detailed design to characterize and confirm required removals. Impacts will be minimized to remaining trees by implementing measures such as tree protection or ESC fencing to protect trees from grading impacts near adjacent construction. ESC measures and other specified protection measures must be installed prior to commencement of any construction or vegetation disturbance. No access, storage or stockpile of materials or equipment should occur within the area protected by the ESC and other protection measures. A replanting plan may be required to compensate for tree loss.	An Environmental Inspector should be engaged during the construction phase to review ESC and other protection measures for deficiencies. Monitoring of mitigation / compensation plantings will be associated with plant warranty inspections.
Vegetation	Temporary disturbance of meadow, swamp, hedgerow, marsh, forest and plantation vegetation may be required for access and construction.	Tree protection fence and ESC measures will delineate the areas of access and construction to reduce impacts extending unnecessarily into adjacent lands. Seeding of native grasses and wildflowers may be required to revegetate the disturbed areas that will be illustrated in replanting plan.	An Environmental Inspector should be engaged during the construction phase to review ESC and other protection measures for deficiencies. Monitoring of mitigation / compensation plantings will be associated with plant warranty inspections.
Fish and Fish Habitat	In-water works may be required, and the proposed works could potentially result in HADD to fish habitat and the death of fish by means other than fishing.	A qualified professional aquatic ecologist will submit a Request for Review to DFO for any bridge replacements or removals requiring in-water works. It is anticipated that a Letter of Advice will be obtained for the project based on the footprints of the structures and fish community present. During Detailed Design, correspondence shall be maintained with a qualified professional aquatic ecologist to determine appropriate mitigation measures and whether the proposal has potential to pose HADD to fish habitat and/or if the proposal has the potential to kill fish. Preferred mitigation measures include workzone isolation while maintaining flow downstream and fish salvage from the isolated work area. Efforts will be made in consultation with the DFO to mitigate should HADD to fish habitat occur. A fish salvage must occur under a License to Collect Fish for a Scientific Purpose obtained from the MNRF.	ESC monitoring during construction Fish salvage prior to the commencement of any in-water works Spill management plan to be created and measures to contain potential spills are to be on-site throughout construction

Feature	Description of Potential Effects	Mitigation Measures	Monitoring Activities
		Near-water work and work below the annual high-water mark will adhere to the appropriate in-water work timing window to avoid potential impacts to resident and migratory fish species.	
Groundwater	Potential for localized groundwater quality impacts as a result of spills. Temporary dewatering in the work area.	Refueling of equipment and fuel storage shall be conducted in designated areas, at least 30 m away from the watercourses and any existing wells, with spill protection provided. The work area shall be dewatered as per recognized provincial standards and pumped into acceptable dewatering traps. These dewatering traps will be placed away from the watercourse to allow for infiltration prior to discharging to the watercourse.	ESC monitoring throughout construction Spill management plan to be created and measures to contain potential spills are to be on-site throughout construction
Surface Water / Hydrology / Stormwater	Potential for sediments to enter the water course due to stockpiling, excavation, and construction. Potential for localized water quality impacts in the case of spills. Potential for invasive species to enter the environment	The footprint of the disturbed area shall be minimized as much as possible, for example, vegetated buffers/setbacks will remain untouched adjacent to the watercourse, wherever possible. An ESC Plan shall be developed during the detailed design phase of the project, prior to construction. Implementation of the erosion and sediment control measures shall conform to recognized standard specifications, such as Ontario Provincial Standards Specification (OPSS), and the requirements of the GRCA. A permit from the GRCA under the Development, Interference, with Wetlands and Alterations to Shorelines and Watercourses Regulation (Ontario Regulation 150/06) will be required prior to conducting the proposed works as work is proposed within a flood Regulated Area. In-water operation of heavy equipment shall be prevented, as well as minimizing the operation of any equipment on the banks of the watercourse. Stockpiled material will be stored and stabilized a minimum of 30 m from the watercourse. All materials and equipment used for the purpose of site preparation and project completion will be operated and stored in a manner that prevents any deleterious substance (e.g., petroleum products, silt, etc.) from entering the water. ESC measures (silt curtains, silt fence, rock check dams, etc.) shall be installed and maintained during the work phase, until the site has been stabilized. ESC measures will be inspected daily to ensure they are functioning and maintained as required. If ESC measures are not functioning properly, no further work will occur until the problem is resolved. Temporary mitigation measures shall be installed prior to the commencement of any clearing, grubbing, excavation, filling, or grading works and must be maintained on a regular basis, prior to, and after precipitation events.	Monitoring of surface water quality will be completed along with regular ESC monitoring as outlined above Spill management plan to be created and measures to contain potential spills are to be on-site throughout construction

Feature	Description of Potential Effects	Mitigation Measures	Monitoring Activities
		Water quality impacts related to surface water runoff shall be mitigated to avoid downstream impacts by controlling surface water run off within the boundaries of the site. All disturbed areas of the work site shall be stabilized immediately and revegetated as soon as conditions allow. All equipment fueling and maintenance shall be done at least 30 m from the watercourse to ensure that no deleterious substances enter the waterway. The Contractor shall be required to develop Spill Prevention and Contingency Plans for construction and operational phases of the project. Personnel will be trained in how to apply the Plans, and the Plans will be reviewed to strengthen their effectiveness and ensure continuous improvement. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. A hydrocarbon spill response kit will be on site at all times during the work. Spills will be reported to the Ontario Spills Action Center at 1 800 268 6060. All equipment and personal protective equipment must arrive on-site clean to prevent the potential transfer of invasive species (i.e., phragmites) to the local environment.	

5.0 Future Commitments

The following future commitments are recommended to be addressed following the selection of the preferred alternative, as detailed design is being carried out. Many of these commitments have been provided by Six Nations of the Grand River Elected Council from a previous, similar project and are applicable here.

- The wetland limits should be determined with GRCA through in-field staking to measure extent of impacts that will result from construction.
- A review of preliminary grading areas of each site for SAR wildlife habitats such as bat roost trees and snake hibernacula should be completed.
- Agency permits, licenses and approvals should be determined that are required to carry out the work, including a GRCA permit to do work in regulated areas, Letter of Advice from the Department of Fisheries and Oceans, License to Collect Fish for a Scientific Purpose from the Ministry of Natural Resources and a Permit from Wellington County to remove trees under By-Law 5515-09.
- A tree inventory will be completed to determine and characterize required removals. The Six Nations of the Grand River Elected Council (SNGREC)'s list of plant species of interest and importance shall be reviewed to identify if vegetation proposed for removal is of interest to the SNGREC. Impacts to trees shall be minimized by implementing a tree protection plan in areas adjacent to construction or grading.
- If any Provincial SAR are identified during the tree inventory and / or associated detailed design studies, potential impacts will be mitigated to the extent possible and the MECP will be consulted with as needed to determine next steps and permitting requirements.
- Plant species loss should be minimized where possible, and a re-vegetation plan using native species and seed mix should be created. A re-planting ratio of ten replanted trees per one removed tree shall be used for quantifying replacements, as per the request of the Six Nations of the Grand River Elected Council (SNGREC). Re-planting should be completed on-site to the extent possible. Where the required re-planting quantities are unable to be achieved within the Township right-of-way, the preference is for the Township to strive to reach an agreement with the immediately adjacent landowners to allow for replanting on-site, beyond the Township right-of-way. If on-site planting is not achievable, off-site plantings to reach the desired ratios are acceptable to the SNGREC.
- Plant species identified for replanting shall be selected from the SNGREC's list of species of Interest / Importance which are suitable for the proposed planting locations. The Kayanase Greenhouse is available for consultation regarding replanting initiatives during detailed design.
- Near-bank cover plantings along the watercourse shall be included in the re-planting landscaping plan where possible, while considering the required offset of plantings from structures.

- Detailed Hydrologic and hydraulic modelling shall be completed to verify compliance of the proposed works with GRCA policies 8.1.15-8.1.16. The GRCA shall be consulted early in the detailed design stage to determine the scope of work for this exercise.
- An Erosion and Sediment Control (ESC) Plan shall be developed during the detailed design phase of the project in consultation with the GRCA and will conform to industry best management practices and recognized standard specifications such as Ontario Provincial Standards Specification (OPSS).
- Further investigations shall be undertaken to ensure the proposed alternatives will not impact potential erosion hazards that may be present due to riverine slopes and / or the meander belt of the creek. The requirement for engineering assessments such as geotechnical or fluvial geomorphology should be confirmed with the GRCA at the detailed design stage.
- The geometry and alignment of structures should be reviewed during the detailed design stage.
- All bridge and SWM-related components of the projected shall be designed with consideration for increased precipitation due to Climate Change.
- Where erosion protection, channel regrading / stabilization or earth retaining structures are determined to be required, the use of “softer” means of protection shall be preferred over the use of hard surfaces unless it is unfeasible to do so.
- Should future work require an expansion of the study area, then a qualified heritage consultant should be contacted in order to confirm the impacts of the proposed work on potential heritage resources.
- All Indigenous communities previously engaged shall be contacted, if there are any substantial changes to the project / process or if the Owner applies for subsequent permits from the Ministry (MECP) that may be of interest or concern to communities.
- The required erosion and sediment control measures shall be determined during detailed design to limit sediment migration and protect receiving watercourses. All disturbed areas of the construction site shall be stabilized and re-vegetated as soon as conditions allow.

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Appendix A

Existing Aquatic Habitat Conditions Photo Page

Structure 2-WG



Photo 1:Landscape surrounding the upstream reach. Facing northeast.



Photo 2: Upstream flat. Facing north.



Photo 3: The upstream pool. Facing east.



Photo 4: Vegetation in upstream pool. Facing south.

Structure 2-WG



Photo 5 Inlet of the structure. Facing east.



Photo 6 Downstream pool. Facing south.



Photo 7: Downstream pool. Facing west.



Photo 8: Erosion on the downstream's east bank, small patched were present on the west as well. Facing west.

Structure 3-E



Photo 9: Upstream section. Facing north.



Photo 10: The east bank of the upstream area. Facing east.



Photo 11: Downstream section. Facing south.



Photo: 12 Downstream section. Facing east.

Structure 5-E



Photo 13: Upstream section. Facing north.



Photo 14: The east bank of the upstream section. Watercress (Nasturtium officinale) present. Facing north.



Photo 15: The inlet of the structure. Facing south.



Photo 16: Downstream section. Facing south.

Structure 5-E



Photo 17: Downstream section. Facing west.



Photo 18: Structure's outlet. Facing north.



Photo 19: Northern bank of the downstream area. Facing north.

Structure 7-E



Photo 20: Upstream section. Facing west.



Photo 21: Inlet of the structure. Facing east.



Photo 22: Downstream riffle. Facing east.



Photo 23: Downstream pool. Facing east.

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Appendix A.6

Cultural Heritage Evaluation Report

Cultural Heritage Evaluation Report, Municipal Class Environmental Assessment, Bridges 2-WG, 3-E, 5-E and 7-E, Township of Centre Wellington, Ontario

Project Number: 2024-0053

Report Type: Original

Report Date: August 19, 2024

Parslow Heritage Consultancy Inc.
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Appendix A – Qualifications

Appendix B – Key Plan

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Appendix D – OSIM Inspection Reports

Executive Summary

Parslow Heritage Consultancy, Inc. (PHC) was retained by R.J. Burnside & Associates Limited (the Proponent) to undertake a Cultural Heritage Evaluation Report (CHER) for four bridges in the Township of Centre Wellington, identified as 2-WG, 3-E, 5-E, and 7-E. The four bridges are in the southeast portion of the municipality and are all located within municipally owned road right-of-ways (ROW). The CHER was completed as a component of a Municipal Class Environmental Assessment (MCEA).

The purpose of the CHER is to review relevant historical documents, evaluate the potential cultural heritage value or interest (CHVI) of each bridge, identify cultural heritage resources and provide recommendations for each bridge, as appropriate. In order to evaluate potential CHVI of the bridges and provide appropriate recommendations, provisions in the *Ontario Heritage Act* (OHA) under Ontario Regulation (O. Reg.) 9/06 (as amended by O. Reg. 569/22) and the County of Wellington *Official Plan* were applied. A site visit was conducted on April 29, 2024, to document the bridges and surrounding landscape.

While none of the bridges evaluated are provincially owned, the Ontario Ministry of Transportation (MTO) Heritage Bridge Evaluation Guidelines (HBEG) were also applied to each structure as they provide a proven and accepted bridge-specific set of evaluation criteria from which to assess the heritage value of these structures.

Of the four bridges evaluated as part of this CHER, only Bridge 3-E was found to be a candidate for Listing under Section 27 of the OHA, or Designation under Section 29 of the OHA. Bridge 3-E also exceeded the 60-point threshold for heritage value based on the MTO bridge assessment standards. Bridges 2-WG, 5-E, and 7-E did not meet any criteria for CHVI under O. Reg. 9/06, nor did they meet the 60-point threshold for heritage value based on the MTO bridge assessment standards.

The *Provincial Policy Statement* (2020) notes that CHVI is identified for cultural heritage resources by communities. Thus, the system by which heritage is administered in Ontario places emphasis on the decision-making of local municipalities in determining CHVI. It is hoped that the information presented in this report will be useful in those determinations.

Should the Township of Centre Wellington decide to exercise protection of bridge 3-E under the terms of the OHA, a Heritage Impact Assessment would be required as a next step.

Project Personnel

Carla Parslow, Ph.D., CAHP	Senior Cultural Resource Specialist
Christopher Lemon, B.Sc., Dip. Heritage, CAHP	Lead Cultural Heritage Specialist
Jamie Lemon, M.A.	Project Manager

Acknowledgements

Andrew Dawson	R.J. Burnside & Associates Limited

Project Context

Parslow Heritage Consultancy, Inc. (PHC) was retained by R.J. Burnside & Associates Limited (the Proponent) to undertake a Cultural Heritage Evaluation Report (CHER) for four bridges in the Township of Centre Wellington, identified as 2-WG, 3-E, 5-E, and 7-E. The four bridges are in the southeast portion of the municipality and are all located within municipally owned road right-of-ways (ROW). The CHER was completed as a component of a Municipal Class Environmental Assessment (MCEA).

The purpose of the CHER is to review relevant historical documents, evaluate the potential cultural heritage value or interest (CHVI) of each bridge, identify cultural heritage resources and provide recommendations for each bridge, as appropriate. In order to evaluate potential CHVI of the bridges and provide appropriate recommendations, provisions in the *Ontario Heritage Act* (OHA) under Ontario Regulation (O. Reg.) 9/06 (as amended by O. Reg. 569/22) and the County of Wellington *Official Plan* were applied.

Bridges 2-WG, 3-E, 5-E are each included in the 2013 publication “Arch, Truss & Beam: The Grand River Watershed Heritage Bridge Inventory” and have been identified as being of increased historical interest based on age, design, construction method or overall scarcity.

A site visit was conducted on April 29, 2024, to document the bridges and surrounding landscape. Documentation took the form of high-resolution photographs using a Nikon D5600 DSLR camera the collection of field notes and the production of measured drawings. The assessment strategy was derived from the National Parks and Sites Branch Canadian Inventory of Historic Buildings (Parks Canada 1980), Well Preserved: The Ontario Heritage Foundation Manual on the Principles and Practice of Architectural Conservation (Fram 2003), the Guide to Field Documentation (HABS 2011), and the Standards and Guidelines for the Conservation of Historic Places in Canada (Parks Canada 2010).

While none of the bridges evaluated are provincially owned, the Ontario Ministry of Transportation (MTO) Heritage Bridge Evaluation Guidelines (HBEG) were also applied to each structure as they provide a proven and accepted bridge-specific set of evaluation criteria from which to assess the heritage value of these structures.

This CHER was written for a project located on the Treaty lands and Territory of the Mississaugas of the Credit First Nation and the traditional territory of the Haudenosaunee and the Attiwandaronk.

Site Description and Context

The bridges are located southeast of the Town of Fergus between Wellington Road 18, Wellington Road 22, Wellington Road 29 and Seventh Line. The five bridges assessed were constructed between 1920 and 1929. Of the four bridges 3-E, 5-E and 7-E are currently non-operable, with only bridge 2-WG remains open to vehicular traffic.

Applicant Contact Information

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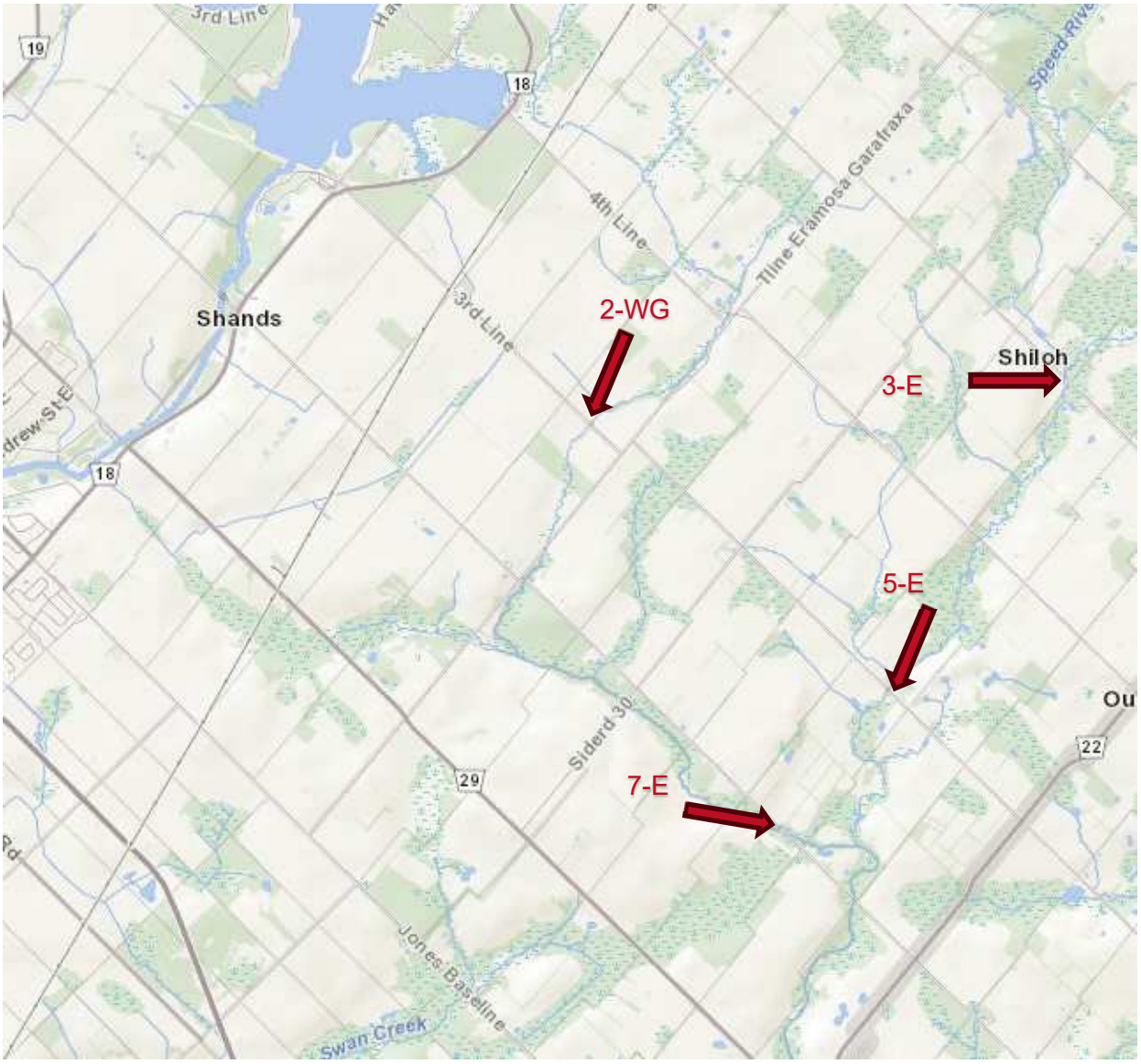
Location of Bridges



Legislative and Policy Framework

The following assessment reviews provincial and municipal legislation and policies designed to protect cultural heritage resources that may be affected by development in the Township of Centre Wellington.

Provincial Legislation and Policy

Ontario Heritage Act (OHA), Revised January 1, 2023

The OHA was enacted in 1990 and since that time has been revised and amended a total of 25 times, most recently on January 1, 2023. When it comes to heritage properties, the OHA prescribes the legal requirements of municipalities and the powers municipalities have to protect and administer heritage within their jurisdiction. The OHA also prescribes the criteria by which heritage value is assessed by way of O.Reg. 569/22. Under Section 27 of the OHA, the municipal clerk is required to keep a current register of properties of cultural heritage value or interest within the municipality, including properties Designated under Part IV, Section 29 of the OHA. Heritage protections within the OHA fall into the following categories:

- Listed Properties (Part IV, Section 27), minimal protection, usually candidates for Designation
- Designated Properties (Part IV, Section 29), protection under Municipal By-law
- Heritage Conservation Districts (Part V), protection under Municipal By-law

Planning Act

The Planning Act (1990) provides the legislative framework for land use planning in Ontario. Part 1, Section 2 (d) and (r) of the Act identifies matters of provincial interest.

Part I, Section 2

The Minister, the council of a municipality, a local board, a planning board and the Tribunal, in carrying out their responsibilities under this Act, shall have regard to, among other matters, matters of provincial interest such as,

(d) the conservation of features of significant architectural, cultural, historical, archaeological or scientific interest;

(e) the promotion of built form that,

(i) is well-designed,

(ii) encourages a sense of place, and

(iii) provides for public spaces that are of high quality, safe, accessible, attractive and vibrant.

Provincial Policy Statement

The Provincial Policy Statement (PPS), issued under Section 3 of the Planning Act, came into effect on May 1, 2020. It applies to all planning decisions made on or after that date and replaced the PPS, 2014. The PPS provides direction for the appropriate regulation for land use and development while protecting resources of provincial interest, and the quality of the natural and built environment, which includes cultural heritage and archaeological resources. These policies are specifically addressed in Part V, Sections 1.7 and 2.6.

Section 1.7.1e of the PPS addresses long-term economic prosperity by “encouraging a sense of place, by promoting well-designed built form and cultural planning, and by conserving features that help define character, including built heritage resources and cultural heritage landscapes”.

Section 2.6 of the PPS addresses the protection and conservation cultural heritage and archaeological resources in land use planning and development and requires the following:

2.6.1 Significant built heritage resources and significant cultural heritage landscapes shall be conserved.

2.6.2 Development and site alteration shall not be permitted on lands containing archaeological resources or areas of archaeological potential unless significant archaeological resources have been conserved.

2.6.3 Planning authorities shall not permit development and site alteration on adjacent lands to protected heritage property except where the proposed development and site alteration has been evaluated and it has been demonstrated that the heritage attributes of the protected heritage property will be conserved.

2.6.4 Planning authorities should consider and promote archaeological management plans and cultural plans in conserving cultural heritage and archaeological resources.

2.6.5 Planning authorities shall engage with Indigenous communities and consider their interests when identifying, protecting and managing cultural heritage and archaeological resources.

Municipal Class Environmental Assessment (MCEA) Manual (2024)

The following excerpt is from Section C.1.1 of the MCEA Manual:

Cultural Environment refers to cultural heritage and archaeological resources in the environment. These are defined as follows:

Archaeological resources includes artifacts, archaeological sites and marine archaeological sites. The identification and evaluation of such resources are based upon archaeological fieldwork undertaken in accordance with the Ontario Heritage Act.

Areas of archaeological potential means areas with the likelihood to contain archaeological resources. Criteria for determining archaeological potential are established by the Province, but municipal approaches which achieve the same objective may be applied. Archaeological potential is confirmed through archaeological fieldwork undertaken in accordance with the Ontario Heritage Act.

Built heritage resources means one or more significant buildings, structures, monuments, installations or remains associated with architectural, cultural, social, political, economic or military history and identified as being important to a community. These resources may be identified through designation or heritage conservation easement under the Ontario Heritage Act, or listed by local, provincial or federal jurisdictions.

Cultural heritage landscape means a defined geographical area of heritage significance which has been modified by human activities and is valued by a community. It involves grouping(s) of individual heritage features such as structures, spaces, archaeological sites, and natural elements, which together form a significant type of heritage form, distinctive from that of its constituent elements or parts. Examples may include, but are not limited to, heritage conservation districts designated under the Ontario Heritage Act; and villages, parks, gardens,

battlefields, mainstreets and neighbourhoods, cemeteries, trailways, and industrial complexes of cultural heritage value.

Cultural heritage resources include built heritage, cultural heritage landscapes, and marine and other archaeological sites. The Minister of Culture (MCL) is responsible for the administration of the Ontario Heritage Act and is responsible for determining policies, priorities and programs for the conservation, protection and preservation of Ontario's heritage, which includes cultural heritage landscapes, built heritage and archaeological resources. MCL has released a series of resource guides on the Ontario Heritage Act, entitled the Ontario Heritage Tool Kit.

Significant cultural heritage and archaeological resources features should be avoided where possible. Where they cannot be avoided, then effects should be minimized where possible, and every effort made to mitigate adverse impacts, in accordance with provincial and municipal policies and procedures. Cultural heritage features should be identified early in the process in order to determine significant features and potential impacts.

Ontario Heritage Bridge Guidelines for Provincially Owned Bridges

The *Ontario Heritage Bridge Guidelines for Provincially Owned Bridges* (OHBG) were developed in 1993 by the Ontario Ministry of Transportation (MTO); the current version of the document was revised in 2008 (MTO 2008). While none of the bridges under review are provincially-owned, the established assessment guidelines provide a methodology by which to assess the potential CHVI of municipal bridges. This is accomplished by way of an evaluative scoring system derived from the criteria outlined in O. Reg. 9/06 (as amended by O. Reg. 569/22) and calibrated by the MTO (MTO 2008). The scoring system requires an overall score of 60 to be achieved before a bridge can be considered to exhibit CHVI. Appendix C provides the scoring of each assessed bridge.

Municipal Policies

Township of Centre Wellington Municipal Official Plan

Section C.2 of the Official Plan (OP) of Centre Wellington (consolidated January 2023) outlines four Goals and Objectives to the management of Cultural Heritage Resources.

1. To protect the Township's heritage resources from neglect, deterioration, demolition, alteration, redevelopment or changes in use which threaten their existence or integrity
2. To encourage and support the functional and economic use of heritage buildings
3. To identify, and protect and enhance natural areas
4. To encourage public awareness and appreciation of the heritage resources of the Township and the value of protecting these resources to both residents and visitors

County of Wellington Official Plan

Section 4.1 of the County of Wellington Official Plan deals with cultural heritage and archaeological resources:

Cultural heritage and archaeological resources form an important and in many cases highly visible part of the community fabric. These resources are a source of civic pride for the residents, a benefit to the local economy through tourism, and are important to our

understanding of the settlement of the County. The policies of this Plan, in conjunction with the Ontario Heritage Act, provide a framework for the protection and enhancement of cultural heritage resources in Wellington.

Built Heritage

Wellington has a rich history reflected in many buildings and structures, either individually or in groups, which are considered to be architecturally or historically significant to the community, county, province or country.

Cultural Heritage Landscapes

A cultural heritage landscape is a defined geographical area of heritage significance which has been modified by human activities and is valued by a community. It involves a grouping(s) of individual heritage features such as structures, spaces, archaeological sites and natural elements, which together form a significant type of heritage form, distinctive from that of its constituent elements or parts. Examples may include, but are not limited to, heritage conservation districts designated under the Ontario Heritage Act, and villages, parks, gardens, battlefields, mainstreets and neighbourhoods, cemeteries, trailways and industrial complexes of cultural heritage value.

For cultural heritage landscapes to be significant, they must be valued for the important contribution they make to our understanding of a place, an event, or a people.

Section 4.1.5 provides policy direction related to cultural heritage resources:

- *a) significant built heritage resources and significant cultural heritage landscapes shall be conserved. Conserved means the identification, protection, use and/or management of heritage and archeological resources in such a way that their heritage values, attributes and integrity are retained. This may be addressed through a conservation plan or heritage impact assessment in accordance with Section 4.6.7.*
- *b) The need for a Heritage Impact Assessment and/or Conservation plan will be based on the heritage attributes or reasons for which the resource is identified as significant, and will normally be identified in pre-consultation on development applications.*
- *c) Wellington County will work with its local municipalities to identify significant cultural heritage landscapes. The identification of significant cultural heritage landscapes shall be implemented through at least one of the following options:*
    - *i. Added to an Official Plan through an Amendment that shows the resource as an overlay designation on the Schedule, and adds site-specific policies where needed;*
    - *ii. included in the municipal register of properties that Council considers to be of cultural heritage value or interest but have been designated;*
    - *iii. Designated under the Ontario Heritage Act.*
- *d) The need for a Heritage Impact Assessment.*
- *e) Wellington will encourage the conservation of significant built heritage resources through heritage designations and planning policies which protect these resources.*
- *f) The re-use of heritage buildings is often a valid means of ensuring their restoration, enhancement or future maintenance. Projects to re-use heritage buildings may be given favourable consideration if the overall results are to ensure the long term protection of a heritage resource and the project is compatible with surrounding land uses and represents an appropriate use of land.*
- *g) Where a property has been identified as a protected heritage property, development and site alteration may be permitted on adjacent lands where the proposed development and site alteration has been evaluated and it has been demonstrated that the heritage*

attributes of the protected heritage property will be conserved. Mitigative measures and/or alternative development approaches may be required in order to conserve the heritage attributes of the protected heritage property affected by the adjacent development or site alteration.

h) The County recognizes the important cultural significance of the Grand River as a Canadian Heritage River, and the need to conserve its inherent values.

Assessment of Existing Conditions

Bridge 2-WG

Design and Construction

Bridge 2-WG is an example of a fixed concrete through girder bridge. The Grand River Watershed Heritage Bridge Inventory attributes the construction date to 1921 (GRCA 2013). Fixed through girder concrete bridges were utilized in the 1910's and 1920's in Canada and the United States, but never gained widespread popularity. The guard rails leading up to the main deck appear to have been cast off-site and assembled on-site.

Current Condition

Bridge 2-WG, located on 3rd Line, appears to be in fair condition. The bridge shows ample signs of degradation and exhibits signs of past structural repairs consistent with previous maintenance. The underside of the bridge presents as being in the best overall structural condition, but this may be the result of previous repairs as the concrete exhibits a different colour then the remainder of the structure. The guard rails exhibit signs of significant degradation and the walls of the superstructure of the bridge adjacent to the road deck show signs of significant degradation resulting from prolonged exposure to road salt. Bridge 2-WG is narrow and is not suited to modern two lane traffic or modern agricultural equipment. Bridge 2-WG remains open to vehicular traffic. A 2022 Ontario Structure Inspection Manual (OSIM) report recommended the bridge be replaced within 1-5 years (Appendix D).



FIGURE 1: BRIDGE 2-WG, SOUTH SIDE FACING NORTH



FIGURE 2: BRIDGE 2-WG, NORTH FACE, FACING SOUTH



FIGURE 3: BRIDGE 2-WG, SUPERSTRUCTURE ABUTTING ROADWAY



FIGURE 4: BRIDGE 2-WG, REPRESENTATIVE ABUTMENT, BRIDGE DECK AND GUARDRAIL



FIGURE 5: BRIDGE 2-WG, CLOSE UP OF SUPERSTRUCTURE



FIGURE 6: BRIDGE 2-WG, CLOSE UP OF TYPICAL GUARD RAIL DEGRADATION



FIGURE 7: BRIDGE 2-WG, CLOSEUP OF GUARD RAIL SUPPORT WITH CHAMFERED CORNERS, CAST DIAMOND INSET AND TAPERED UPPER SURFACE



FIGURE 8: BRIDGE 2-WG, UNDERSIDE OF BRIDE



FIGURE 9: BRIDGE 2-WG, APPROACH TO BRIDGE 2-WG FACING SOUTHEAST

O. Reg. 9/06 Evaluation: Bridge 2-WG

1. **The property has design value or physical value because it is a rare, unique, representative or early example of a style, type, expression, material or construction method. (Criteria Not Met)**

   Bridge 2-WG is a surviving example of a fixed concrete through girder design and represents a relatively common style of cast concrete bridge constructed in Wellington County in the early 20th century.

2. **The property has design value or physical value because it displays a high degree of craftsmanship or artistic merit. (Criteria Not Met)**

   Bridge 2-WG is typical of reinforced concrete bridges of the era and does not display a high degree of craftsmanship or artistic merit.

3. **The property has design value or physical value because it demonstrates a high degree of technical or scientific achievement. (Criteria Not Met)**

   Bridge 2-WG is typical of reinforced concrete bridges of the era and does not display a high degree of technical or scientific achievement.

4. **The property has historical value or associative value because it has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community. (Criteria Not Met)**

   Bridge 2-WG was constructed during a period of rapid transportation growth in the Province of Ontario and represents a surviving example of an early 20th century cement bridge for which Wellington County became known.

5. **The property has historical value or associative value because it yields, or has the potential to yield, information that contributes to an understanding of a community or culture. (Criteria Not Met)**

   Bridge 2-WG does not meet the criteria to have the potential to yield new information that would contribute to the understanding of a community or culture.

6. **The property has historical value or associative value because it demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community. (Criteria Not Met)**

   Bridge 2-WG was unable to be attributed to a specific designer or construction contractor and as such does not meet this requirement.

7. **The property has contextual value because it is important in defining, maintaining, or supporting the character of an area. (Criteria Not Met)**

   Bridge 2-WG contributes to the historic character of the larger county. The bridge reflects early 20th century concrete bridge use for which Wellington County became well known. While the bridge contributes to the legacy of 20th century cast concrete bridges in Wellington County, the contextual value of this particular bridge is not considered important in maintaining or supporting the character of the area.

8. **The property has contextual value because it is physically, functionally, visually or historically linked to its surroundings. (Criteria Not Met)**
   To satisfy this criterion, the bridge needs to have a relationship to is broader context that is important to understand the meaning of the bridge and or its context. Other than

providing egress over a watercourse nothing was identified to indicate Bridge 2-WG has a contextual relationship to the broader environment.

9. **The property has contextual value because it is a landmark. O. Reg. 569/22, s. 1. (Criteria Not Met)**

   Bridge 2-WG was not identified to be a landmark.

Evaluation of Bridge 2-WG against the nine criteria outlined by O. Reg. 9/06 (as amended by O. Reg. 569/22) does not identify the bridge to meet the regulation for consideration for Listing under the Section 27 of the OHA or Designation by municipal By-law under Section 29 of the OHA. When looking at a bridge-specific evaluation, the bridge did not meet the 60-point threshold for heritage value based on the MTO bridge assessment standards (Appendix C). As the bridge did not meet any criteria under the O. Reg. 9/06 evaluation, no draft statement of significance was developed.

Bridge 3-E

Design and Construction

Bridge 3-E is an example of a bowstring through arch bridge constructed of reinforced concrete. This style of bridge is colloquially referred to as a 'rainbow arch bridge'. The Grand River Watershed Heritage Bridge Inventory attributes the construction date to 1919 (GRCA 2013). Bridge 3-E represents one of the few remaining 'rainbow arch bridges' that Wellington County was once known for. The bowstring through arch design was developed in the early 20th century and reached its height of popularity in the 1920's and 1930's. The design was popular as it required minimal material, was relatively simple to install and could easily accommodate vehicular traffic. The bowstring design was well suited to situations where riverbanks were low and there was limited room for below deck support. The bowstring design was popularized by Fergus architect Charles Mattaini. Mr. Mattaini was born in Italy and emigrated to Canada in 1892. Following his emigration to Canada, he settled in Fergus and started an engineering and construction firm where he employed the engineering skills he had developed while constructing tunnels through the Alps. Mattaini developed the bowstring design and his company eventually built close to 70 bowstring bridges in Southern Ontario, with a high number of them being constructed in Wellington and Waterloo counties (Brennan 2019).

Current Condition

At the time of the cultural heritage evaluation, Bridge 3-E had been permanently closed to vehicular traffic. The bridge retains examples of all original finishes but exhibited significant degradation resulting in the exposure of the underlying square steel reinforcement bar. A single steel tie beam has been added to the upper limit of the arches, thereby imposing a height restriction to the structure that was not part of the original design. Visual inspection shows all components of the original structure to be present, but to be in varying degrees of degradation resulting in exfoliation of concrete structure and exposure of the internal rebar. A 2022 Ontario Structure Inspection Manual (OSIM) report recommended the bridge be replaced within 1-5 years (Appendix D).

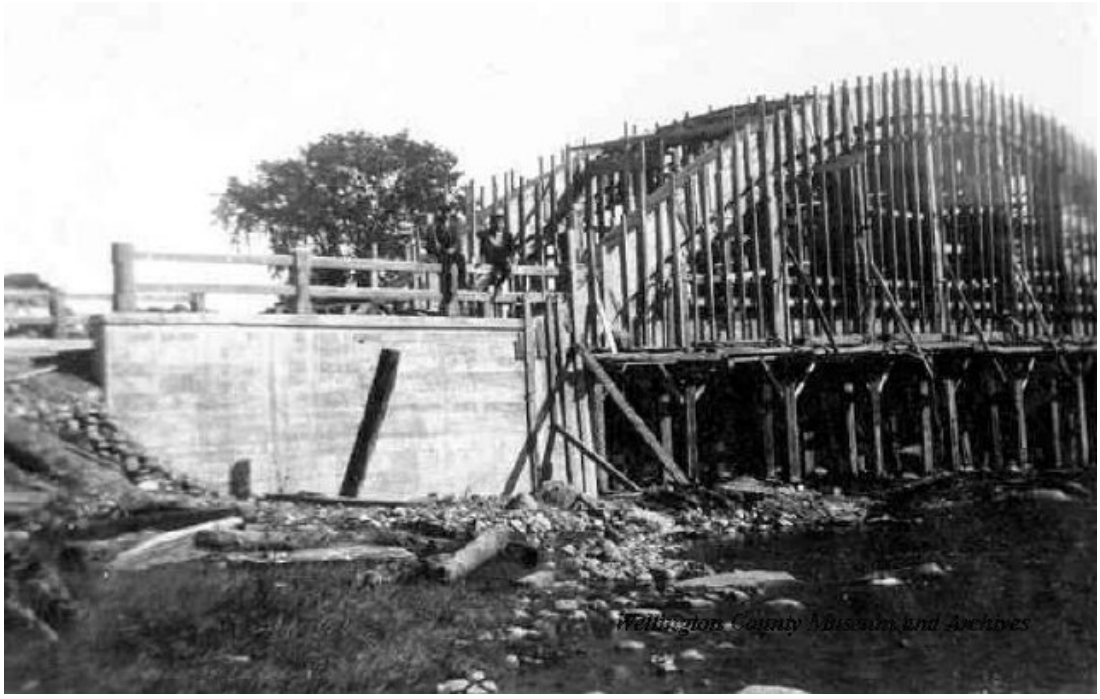


FIGURE 10: UNDATED HISTORIC IMAGE OF THE CONSTRUCTION OF A BOWSTRING BRIDGE, IMAGE 3032, PART OF THE MATTAINI FOND ON FILE WITH WELLINGTON COUNTY MUSEUM AND ARCHIVES



FIGURE 11: BRIDGE 3-E, SOUTH SIDE OF BRIDGE, FACING NORTH



FIGURE 12: BRIDGE 3-E, SOUTHSIDE OF BRIDGE, FACING NORTH



FIGURE 13: BRIDGE 3-E, TYPICAL GUARDRAIL, SOUTH SIDE



FIGURE 14: BRIDGE 3-E, TYPICAL GUARDRAIL NORTH SIDE



FIGURE 15: BRIDGE 3-E, BRIDGE DECK, FACING NORTHWEST



FIGURE 16: BRIDGE 3-E, TYPICAL EXAMPLE OF DETERIORATION, EXAMPLE IS OF SUPERSTRUCTURE CENTRAL SUPPORT



FIGURE 17: BRIDGE 3-E, UNDERSIDE OF BRIDGE DECK

O. Reg. 9/06 Evaluation: Bridge 3-E

1. **The property has design value or physical value because it is a rare, unique, representative or early example of a style, type, expression, material or construction method. (Criteria Met)**

   Bridge 3-E is a fine example of a bowstring through arch bridge constructed of reinforced concrete. The design is representative of a unique style that was once prevalent in Wellington County.

2. **The property has design value or physical value because it displays a high degree of craftsmanship or artistic merit. (Criteria Met)**

   Bridge 3-E represents a unique design, with the arch design displaying a high degree of artistic merit.

3. **The property has design value or physical value because it demonstrates a high degree of technical or scientific achievement. (Criteria Met)**

   Bridge 3-E displays physical value as it demonstrated a deviation from typical bridge construction and reflects a technical achievement that was designed in the County and was utilized effectively in the County and on select and recognizable bridges in surrounding counties.

4. **The property has historical value or associative value because it has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community. (Criteria Met)**

   Bridge 3-E was designed by local Fergus architect Charles Mattaini and likely constructed by his construction firm. The arch design was once widespread in the County and this surviving example is significant to the people of Central Wellington and the larger bridge engineering community.

5. **The property has historical value or associative value because it yields, or has the potential to yield, information that contributes to an understanding of a community or culture. (Criteria Not Met)**

   Bridge 3-E does not meet the criteria to have the potential to yield new information that would contribute to the understanding of a community or culture.

6. **The property has historical value or associative value because it demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community. (Criteria Met)**

   Bridge 3-E has historical value as a surviving example of a bowstring through arch bridge constructed of reinforced concrete designed by Fergus architect Charles Mattaini. The bridge stands as one of a limited number of surviving examples of the design and the work of Mattaini.

7. **The property has contextual value because it is important in defining, maintaining, or supporting the character of an area. (Criteria Met)**

   Bridge 3-E is important to maintaining and supporting the character of the area and reflects the once prominent use of the bowstring design in Wellington County.

8. **The property has contextual value because it is physically, functionally, visually or historically linked to its surroundings. (Criteria Met)**

Bridge 3-E reflects the once prevalent use of bowstring design in Wellington County and reflects the history and contribution to bridge design of Charles Mattaini. The bridge also visually contributes to the overall rural character of the area.

9. **The property has contextual value because it is a landmark. O. Reg. 569/22, s. 1. (Criteria Met)**

   Given its unique design and being one of a limited number of surviving examples of the style, bridge 3-E does meet the criteria of local landmark.

Evaluation of bridge 3-E against the nine criteria outlined by O. Reg. 9/06 (as amended by O. Reg. 569/22) did identify Bridge 3-E to meet eight of the nine criteria prescribed by the regulation for consideration for Listing under the Section 27 of the OHA or Designation by municipal By-law under Section 29 of the OHA. The bridge also exceeded the 60-point threshold for heritage value based on the MTO bridge assessment standards.

Bridge 3-E Draft Statement of Cultural Heritage Value

Bridge 3-E is located on 6 Line in the road allowance between Lot 29 Concession 5 and Lot 29 Concession 6, in the former township of Eramosa, now Township of Centre Wellington, Ontario.

Bridge 3-E is an example of a bowstring through arch bridge constructed of reinforced concrete. This style of bridge is colloquially referred to as a 'rainbow arch bridge'. The Grand River Watershed Heritage Bridge Inventory attributes the construction date to 1919 (GRCA 2013). Bridge 3-E represents one of the few remaining 'rainbow arch bridges' that Wellington County was once known for. The bowstring through arch design was developed in the early 20th century and reached its height of popularity in the 1920's and 1930's. The design was popular as it required minimal material, was relatively simple to install and could easily accommodate vehicular traffic. The bowstring design was popularized by Fergus architect Charles Mattaini. Mr. Mattaini was born in Italy and emigrated to Canada in 1892. Following his emigration to Canada, he settled in Fergus and started an engineering and construction firm where he employed the engineering skills he had developed while constructing tunnels through the Alps. Mattaini developed the bowstring design and his company eventually built close to 70 bowstring bridges in Southern Ontario, with a high number of them being constructed in Wellington and Waterloo counties (Brennan 2019).

The bridge retains examples of all original finishes but exhibits significant degradation resulting in the exposure of the underlying square steel reinforcement bar. A single steel tie beam has been added to the upper limit of the arches, thereby imposing a height restriction to the structure that was not part of the original design.

Evaluation of Bridge 3-E found the bridge to be a candidate for Listing under Section 27 of the OHA, or Designation under Section 29 of the OHA. The bridge also exceeded the 60-point threshold for heritage value based on the MTO bridge assessment standards.

Defining Elements

- 'Rainbow Arch Bridge' design

- Decorative guardrail pillars

- Designed and possibly constructed by local well-known architect Charles Mattaini

Bridge 5-E

Design and Construction

Bridge 5-E is an example of a fixed through girder bridge constructed of reinforced concrete. Bridges of this age and material were often stamped with their date of construction but no such marking was identified on this example. The Grand River Watershed Heritage Bridge Inventory attributes the construction date to 1923 (GRCA 2013). It is unknown who designed the bridge or who undertook its construction. Evaluation of the bridge show it to have been cast in place and to utilize square reinforcement bars. The guard rails leading up to the main deck appear to have been cast off-site and assembled on-site. Fixed through girder concrete bridges were utilized in the 1910's and 1920's in Canada and the United States, but never gained widespread popularity.

Current Condition

Bridge 5-E shows signed of multiple previous repairs. The repairs are evident by the contrasting consistency and colour of the concrete used. The upper railing of the bridge has been caped in new material and the concrete beam on the underside of the structure appear to have been reinforced during a subsequent round of repairs. The guard rails show signs of significant degradation exhibiting significant loss of concrete at their bases resulting in the exposure of the interior rebar structure. At the time of the cultural heritage evaluation, Bridge 5-E had been permanently closed to vehicular traffic. A 2022 Ontario Structure Inspection Manual (OSIM) report recommended the bridge be subject to major rehabilitation or replacement (Appendix D).



FIGURE 18: BRIDGE 5-E, LOOKING SOUTHEAST FROM APPROACH



FIGURE 19: BRIDGE 5-E, LOOKING NORTHWEST FROM APPROACH



FIGURE 20: EAST SIDE OF BRIDGE 5-E



FIGURE 21: WEST SIDE OF BRIDGE 5-E



FIGURE 22: WEST SIDE OF BRIDGE 5-E WITH ROAD DECK



FIGURE 23: EAST SIDE OF BRIDGE 5-E SHOWING DEGRADATION OF CONCRETE

O. Reg. 9/06 Evaluation: Bridge 5-E

1. **The property has design value or physical value because it is a rare, unique, representative or early example of a style, type, expression, material or construction method. (Criteria Not Met)**

   Bridge 5-E is a surviving example of a fixed concrete through girder design and represents a relatively common style of cast concrete bridge constructed in Wellington County in the early 20th century.

2. **The property has design value or physical value because it displays a high degree of craftsmanship or artistic merit. (Criteria Not Met)**

   Bridge 5-E is typical of reinforced concrete bridges of the era and does not display a high degree of craftsmanship or artistic merit.

3. **The property has design value or physical value because it demonstrates a high degree of technical or scientific achievement. (Criteria Not Met)**

   Bridge 5-E is typical of reinforced concrete bridges of the era and does not display a high degree of technical or scientific achievement.

4. **The property has historical value or associative value because it has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community. (Criteria Not Met)**

   Bridge 5-E was constructed during a period of rapid transportation growth in the Province of Ontario and represents a surviving example of an early 20th century cement bridge for which Wellington County became known.

5. **The property has historical value or associative value because it yields, or has the potential to yield, information that contributes to an understanding of a community or culture. (Criteria Not Met)**

   Bridge 5-E does not meet the criteria to have the potential to yield new information that would contribute to the understanding of a community or culture.

6. **The property has historical value or associative value because it demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community. (Criteria Not Met)**

   Bridge 5-E was not identified to be of historical or associative value based on a connection to an architect, artist, designer, builder or theorist who is significant to a community.

7. **The property has contextual value because it is important in defining, maintaining, or supporting the character of an area. (Criteria Not Met)**

   Bridge 5-E contributes to the historic character of the larger county. The bridge reflects early 20th century concrete bridge use for which Wellington County became well known. While the bridge contributes to the legacy of 20th century cast concrete bridges in Wellington County, the contextual value of this particular bridge is not considered important in maintaining or supporting the character of the area.

8. **The property has contextual value because it is physically, functionally, visually or historically linked to its surroundings. (Criteria Not Met)**
   To satisfy this criterion, the bridge needs to have a relationship to is broader context that is important to understand the meaning of the bridge and or its context. Other than providing egress over a watercourse nothing was identified to indicate Bridge 5-E has a contextual relationship to the broader environment.

9. **The property has contextual value because it is a landmark. O. Reg. 569/22, s. 1. (Criteria Not Met)**

   Bridge 5-E was not identified to be a landmark.

Evaluation of Bridge 5-E against the nine criteria outlined by O. Reg. 9/06 (as amended by O. Reg. 569/22) did not identify the bridge to meet the regulation for consideration for Listing under Section 27 of the OHA or Designation by municipal By-law under Section 29 of the OHA (two or more criteria met under O. Reg. 569/22). The bridge also did not meet the 60-point threshold for heritage value based on the MTO bridge assessment standards. As the bridge did not meet any criteria under the O. Reg. 9/06 evaluation, no draft statement of significance was developed.

Bridge 7-E

Design and Construction

Bridge 7-E represents the remains of a fixed through girder bridge constructed of reinforced concrete. The bridge is believed to have been constructed c.1920. Bridges of this age and material were often stamped with their date of construction but no such marking was identified on the remains of this example. It is unknown who designed the bridge or who undertook its construction. Evaluation of the bridge show it to have been cast in place and to utilize square reinforcement bars.

Current Condition

Bridge 7-E is in poor overall condition, showing signed of multiple previous repairs and alterations. The repairs are evident by the contrasting consistency and colour of the concrete used. The upper guard rails and approach railings are in very poor condition with all approach railings having been removed and replaced with modern galvanized material. The superstructure of the bridge is also in very poor condition with approximately 50% of the cast walls of the bridge having disintegrated. The underside of the bridge shows signs of past reinforcement of the girders and shows signs of significant exfoliation resulting in exposure of the underlying rebar system. At the time of the cultural heritage evaluation Bridge 5-E had been permanently closed to vehicular traffic. A 2022 Ontario Structure Inspection Manual (OSIM) report recommended the bridge be replaced within 1-5 years (Appendix D).



FIGURE 24: BRIDGE 7-E, NORTH APPROACH TO BRIDGE, FACING SOUTH



FIGURE 25: BRIDGE 7-E, DETERIORATED UPPER SUPPORT WALLS OF EAST SIDE OF STRUCTURE



FIGURE 26: BRIDGE 7-E, DETERIORATED UPPER SUPPORT WALLS, WEST SIDE OF STRUCTURE



FIGURE 27: BRIDGE 7-E, OVERVIEW OF THE WEST SIDE OF BRIDGE, FACING NORTH



FIGURE 28: BRIDGE 7-E, EXAMPLE OF THE UNDERSIDE OF STRUCTURE, SHOWING EXPOSED AND UNSUPPORTED REBAR IN BOTH THE BRIDGE DECK AND THE ABUTMENT WALL



FIGURE 29: BRIDGE 7-E, EVIDENCE OF PAST RECONDITIONING OF THE BRIDGE, WHICH IS SHOWING SIGNS OF DEGRADATION

O. Reg. 9/06 Evaluation: Bridge 7-E

1. **The property has design value or physical value because it is a rare, unique, representative or early example of a style, type, expression, material or construction method. (Criteria Not Met)**

   Bridge 7-E is typical of early 20th century bridges constructed of reinforced concrete. The overall design is constant with other area example and is judged to be typical of the era and area.

2. **The property has design value or physical value because it displays a high degree of craftsmanship or artistic merit. (Criteria Not Met)**

   Bridge 7-E is typical of reinforced concrete bridges of the era and does not display a high degree of craftsmanship or artistic merit.

3. **The property has design value or physical value because it demonstrates a high degree of technical or scientific achievement. (Criteria Not Met)**

   Bridge 7-E is typical of reinforced concrete bridges of the era and does not display a high degree of technical or scientific achievement.

4. **The property has historical value or associative value because it has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community. (Criteria Not Met)**

   Bridge 7-E was constructed during a period of rapid transportation growth in the Province of Ontario and is not identified as being of particular significance to the surrounding community.

5. **The property has historical value or associative value because it yields, or has the potential to yield, information that contributes to an understanding of a community or culture. (Criteria Not Met)**

   Bridge 7-E does not meet the criteria to have the potential to yield new information that would contribute to the understanding of a community or culture.

6. **The property has historical value or associative value because it demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community. (Criteria Not Met)**

   Bridge 7-E was not identified to be of historical or associative value based on a connection to an architect, artist, designer, builder or theorist who is significant to a community.

7. **The property has contextual value because it is important in defining, maintaining, or supporting the character of an area. (Criteria Not Met)**

   Bridge 7-E is not key to defining, maintaining or supporting the character of the area; while the scale of the bridge contributes to the rural character of the area, the specific bridge does not meet the intent of the criteria for identifying CHVI.

8. **The property has contextual value because it is physically, functionally, visually or historically linked to its surroundings. (Criteria Not Met)**
   Bridge 7-E is not key to defining maintaining or supporting the character of the area and based on its level of decay does not visually contributes to the overall rural character of the area.

9. **The property has contextual value because it is a landmark. O. Reg. 569/22, s. 1. (Criteria Not Met)**

   Bridge 7-E was not identified to be a landmark.

Evaluation of Bridge 7-E against the nine criteria outlined by O. Reg. 9/06 (as amended by O. Reg. 569/22) does not identify the bridge to meet the regulation for consideration for Listing under Section 27 of the OHA or for Designation by municipal By-law under Section 29 of the OHA. The bridge also did not meet the 60-point threshold for heritage value based on the MTO bridge assessment standards. As the bridge did not meet any criteria under the O. Reg. 9/06 evaluation, no draft statement of significance was developed.

Summary

Table 1 provides a summary of the heritage evaluations for bridges 2-WG, 3-E, 5-E, and 7-E.

TABLE 1: BRIDGE EVALUATIONS

Bridge	O. Reg. 9/06	MTO HBEG Threshold Met
2-WG	0 of 9 criteria	No
3-E	8 of 9 criteria	Yes
5-E	0 of 9 criteria	No
7-E	0 of 9 criteria	No

While none of the bridges evaluated are provincially owned, the Ontario Ministry of Transportation (MTO) Heritage Bridge Evaluation Guidelines (HBEG) were also applied to each structure as they provide a proven and accepted bridge-specific set of evaluation criteria from which to assess the heritage value of these structures.

Of the four bridges evaluated as part of this CHER, only Bridge 3-E was found to be a candidate for Listing under Section 27 of the OHA, or Designation under Section 29 of the OHA. Bridge 3-E also exceeded the 60-point threshold for heritage value based on the MTO bridge assessment standards. Bridges 2-WG, 5-E, and 7-E did not meet any criteria for CHVI under O. Reg. 9/06, nor did they meet the 60-point threshold for heritage value based on the MTO bridge assessment standards.

The *Provincial Policy Statement* (2020) notes that CHVI is identified for cultural heritage resources by communities. Thus, the system by which heritage is administered in Ontario places emphasis on the decision-making of local municipalities in determining CHVI. It is hoped that the information presented in this report will be useful in those determinations.

Should the Township of Centre Wellington decide to exercise protection of Bridge 3-E under the terms of the OHA, a Heritage Impact Assessment would be required as a next step.

While Bridges 2-WG, 5-E and 7-E did not meet the thresholds for CHVI established by O. Reg. 9/06 (as amended by O. Reg. 569/22), or the minimum threshold of the MTO HBEG, each bridge still contributes to the history of reinforced concrete bridge construction in Wellington County and further considerations regarding the fate of these structures should aim to incorporate styling cues of the existing structures into any future designs.

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Appendix A

Qualifications

Senior Heritage Specialist – Carla Parslow, PhD, CAHP Member in Good Standing: Dr. Carla Parslow has over 20 years of experience in the cultural heritage resource management (CHRM) industry in Canada. As the President of PHC Inc., Dr. Parslow is responsible for the for the management of CHRM projects, as well as the technical review and quality assurance of all archaeological and cultural heritage projects completed by PHC. Throughout her career, Carla has managed both large and small offices of CHRM professionals and has mobilized both large (50+) and small (4+) teams of CHRM and Environmental projects offices throughout the province of Ontario. Dr. Parslow has served as either Project Manager or Project Director on hundreds of Archaeological and Cultural Heritage Assessments. Dr. Parslow is a professional member of the Canadian Association of Heritage Professionals (CAHP).

Dr. Parslow is responsible for the overall quality assurance.

Project Manager – Jamie Lemon, MA: Jamie Lemon is a Senior Archaeologist and Project Manager with PHC and is responsible for managing archaeological and heritage projects across Ontario. She is the primary or secondary author of numerous heritage and archaeological license reports and is proficient at artifact and archaeobotanical analysis. In addition, she is a former field technician and field director with experience on precontact Indigenous and historical Euro-Canadian sites. She has worked on archaeological and heritage projects for mining, land development, transportation, aggregates, and energy sectors. Jamie received a BA in Anthropology from the University of Waterloo in 2007, an MA from Trent University in 2014, and has been active in Cultural Resource Management in Ontario for 17 years. Jamie holds a valid professional license with the Ontario Ministry of Citizenship and Multiculturalism (MCM). Jamie regularly assists clients with navigating the life cycle of archaeological and heritage assessments as it relates to their Project, including interpretation of MCM Standards and Guidelines and engaging with Indigenous communities and other stakeholder groups.

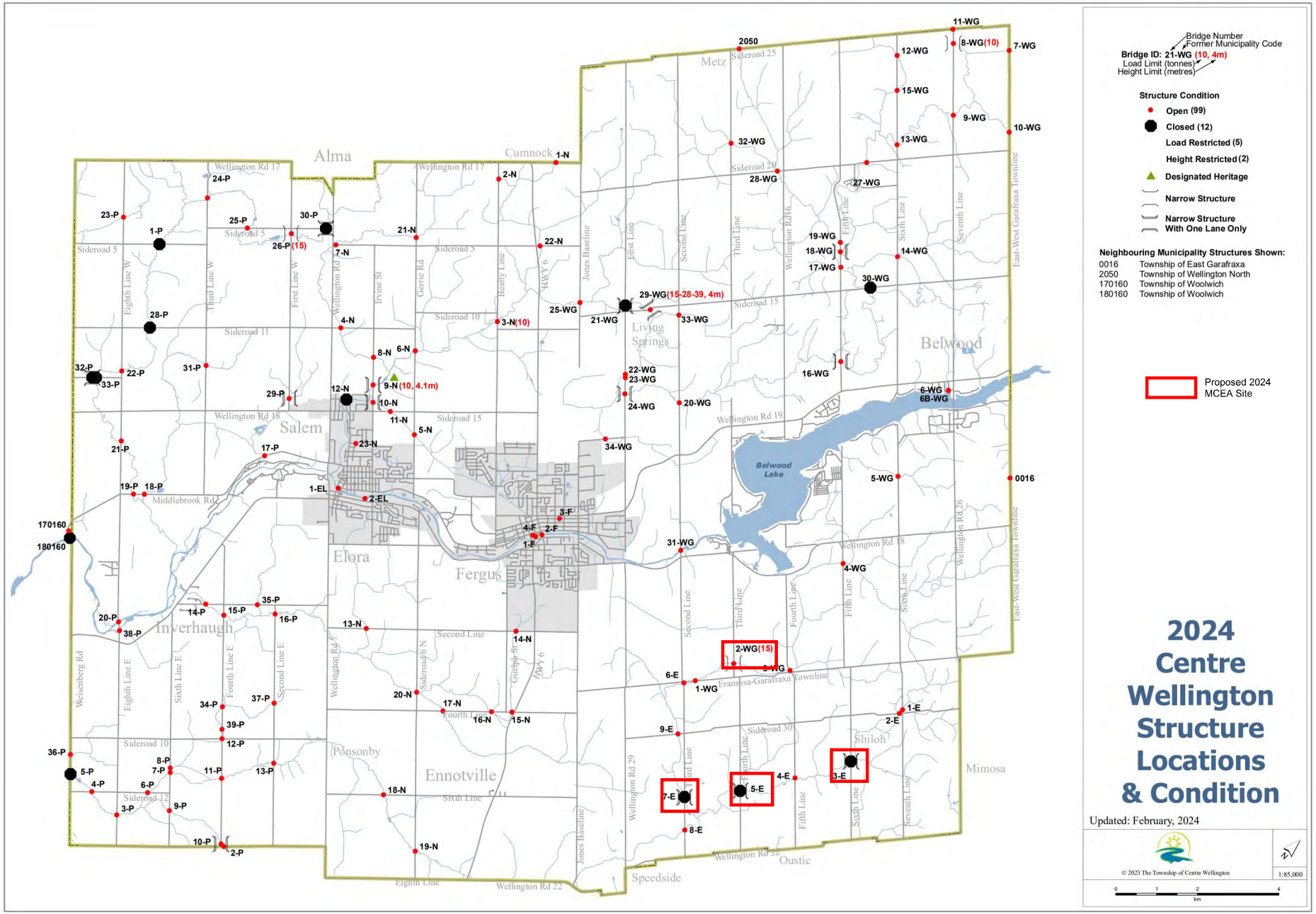
Ms. Lemon is responsible for project management and client relations.

Heritage Specialist – Chris Lemon, B.Sc., Dip. CAHP Member in Good Standing: Chris Lemon is a Cultural Heritage Specialist and Licensed Archaeologist (R289) with 18 years' experience. He received an Honours B.Sc. in Anthropology from the University of Toronto and has completed course work towards an M.A. from the University of Western Ontario. Mr. Lemon has a Diploma in Heritage Carpentry and Joinery and a Certificate in Heritage Planning from Algonquin College. During his career Mr. Lemon has participated in cultural heritage assessments across Ontario as both a Senior Field Director in archaeology and as a Built Heritage Practitioner. Chris's previous experience includes representation on Joint Health and Safety Committees; he is dedicated to maintaining a safety-first focus on all job sites. Chris is a professional member of the Canadian Association of Heritage Professionals (CAHP).

Mr. Lemon is responsible for research, reporting and analysis.

Appendix B

Key Plan


Bridge Number
Former Municipality Code
Bridge ID: 21-WG (10, 4m)
Load Limit (tonnes)
Height Limit (metres)
Structure Condition
Open (99)
Closed (12)
Load Restricted (5)
Height Restricted (2)
Designated Heritage
Narrow Structure
Narrow Structure With One Lane Only
Neighbouring Municipality Structures Shown:
0016 Township of East Garafraxa
2050 Township of Wellington North
170160 Township of Woolwich
180160 Township of Woolwich
Proposed 2024 MCEA Site
2024 Centre Wellington Structure Locations & Condition
Updated: February, 2024
© 2023 The Township of Centre Wellington
1:85,000
0 1 2 4 km
Alma
Cumnock
Metz
Salem
Elora
Fergus
Inverhaugh
Ennotville
Ponsonby
Living Springs
Belwood
Belwood Lake
Shiloh
Mimosa
Oustic
Speedside
Middlebrook Rd
Wellington Rd 17
Wellington Rd 18
Wellington Rd 19
Wellington Rd 22
Sideroad 5
Sideroad 10
Sideroad 11
Sideroad 12
Sideroad 15
Sideroad 25
Sideroad 29
Sideroad 30
Eighth Line W
Third Line W
First Line W
Wellington Rd
Irvine St
Gerrie Rd
Beatty Line
HWY 6
Jones Baseline
First Line
Second Line
Third Line
Wellington Rd 6
Fifth Line
Sixth Line
Seventh Line
East-West Garafraxa Townline
Weisenberg Rd
Eighth Line E
Sixth Line E
Fourth Line E
Second Line E
Sideroad 6 N
Guelph St
9 MWY
Fourth Line
Wellington Rd 7
Wellington Rd 29
Wellington Rd 26
Eramosa-Garafraxa Townline
Eighth Line
Sixth Line
1-N 2-N 3-N(10) 4-N 5-N 6-N 7-N 8-N 9-N(10, 4.1m) 10-N 11-N 12-N 13-N 14-N 15-N 16-N 17-N 18-N 19-N 20-N 21-N 22-N 23-N 24-N 25-N
1-P 2-P 3-P 4-P 5-P 6-P 7-P 8-P 9-P 10-P 11-P 12-P 13-P 14-P 15-P 16-P 17-P 18-P 19-P 20-P 21-P 22-P 23-P 24-P 25-P 26-P(15) 28-P 29-P 30-P 31-P 32-P 33-P 34-P 35-P 36-P 37-P 38-P 39-P
1-EL 2-EL
1-F 2-F 3-F 4-F
1-WG 2-WG(15) 3-WG 4-WG 5-WG 6-WG 6B-WG 7-WG 8-WG(10) 9-WG 10-WG 11-WG 12-WG 13-WG 14-WG 15-WG 16-WG 17-WG 18-WG 19-WG 20-WG 21-WG 22-WG 23-WG 24-WG 25-WG 27-WG 28-WG 29-WG(15-28-39, 4m) 30-WG 31-WG 32-WG 33-WG 34-WG
1-E 2-E 3-E 4-E 5-E 6-E 7-E 8-E 9-E
2050
0016
170160
180160

Appendix C

MTO Bridge Evaluations

Ontario Heritage Bridge Evaluation: 2-WG

Criteria	Details	Max. Score	Assigned Score	Comments
Design/ Physical Value (Total marks 50)				
Functional Design (Maximum score 20)	Excellent	20		
	Very Good	16		
	Fair	12	12	Historically a common style of bridge in Wellington County Relatively few examples of the style left in the area
	Common	0		
Visual Appeal (Maximum score 20)	Excellent	20		
	Very Good	12		
	Fair	4	4	Bridge that is appropriate to the landscape and visually unobtrusive
	Common	0		
Materials (Maximum score 10)	Excellent	10		
	Very Good	8		
	Fair	5	5	Constructed of reinforced concrete, which was in widespread use at the time of construction and continues to be in widespread use to the present day
	Common	0		
Contextual Value (Total marks 25)				
Landmark (Maximum score 15)	Excellent	15		
	Very Good	9		

	Fair	3	3	Bridge is typical of area bridge construction of the era and reflects the high number of reinforced concrete bridges that were constructed in Wellington County in the early 20th century
	Common	0		
Character Contribution (Maximum score 10)	Excellent	10		
	Very Good	6	6	Bridge contributes to the overall aesthetic and character of the area
	Common	0		
Historical/ Associative Value (Total marks 25)				
Designer/ Construction Firm (Maximum score 15	Excellent	15		
	Good	9		
	Fair	3		
	Unknown	0	0	Bridge designer and constructor is unknown
Association with a historical theme, person or event (Maximum score 10)	Excellent	10		
	Good	6	6	Bridge is connected to the early expansion of automotive transportation in the early 20th century. Has connection to the history of transportation in the area
	Common	0		
TOTAL			**36/100**	**Does not meet heritage value threshold of 60 points**

Ontario Heritage Bridge Evaluation: 3-E

Criteria	Details	Max. Score	Assigned Score	Comments
Design/ Physical Value (Total marks 50)				
Functional Design (Maximum score 20)	Excellent	20	20	Design was developed by local Fergus architect Charles Mattaini. Historically a common style of bridge construction in Wellington County. Relatively few examples of the style left in the area.
	Very Good	16		
	Fair	12		
	Common	0		
Visual Appeal (Maximum score 20)	Excellent	20		
	Very Good	12	12	Well proportioned bridge that is appropriate to the landscape with unique visual appeal
	Fair	4		
	Common	0		
Materials (Maximum score 10)	Excellent	10		
	Very Good	8		
	Fair	5	5	Constructed of reinforced concrete, which was in widespread use at the time of construction and continues to be in widespread use to the present day
	Common	0		
Contextual Value (Total marks 25)				
Landmark (Maximum score 15)	Excellent	15		
	Very Good	9	9	Bridge is visually distinctive and identifiable in the surrounding landscape.

	Fair	3		
	Common	0		
Character Contribution (Maximum score 10)	Excellent	10	10	Bridge contributes to the overall aesthetic and character of the area and represents one of few remaining bowstring bridges still in existence in the county
	Very Good	6		
	Common	0		
Historical/ Associative Value (Total marks 25)				
Designer/ Construction Firm (Maximum score 15	Excellent	15		
	Good	9		Bridge has unique history and has a connection to the history of transportation in the area, bridge was designed by local Fergus architect Charles Mattaini and was likely constructed by the construction firm owned by Charles Mattaini.
	Fair	3		
	Unknown	0		
Association with a historical theme, person or event (Maximum score 10)	Excellent	10	10	Bridge has unique history and has a connection to the history of transportation in the area, bridge was designed by local Fergus architect Charles Mattaini. Marttaini designed the bowstring bridge as part of a tender to construct a bridge over the Grand River, this design was then used on approximately 70 stylistically similar bridges
	Good	6		
	Common	0		
TOTAL			**66/100**	**Exceeds the heritage value threshold of 60 points**

Ontario Heritage Bridge Evaluation: 5-E

Criteria	Details	Max. Score	Assigned Score	Comments
Design/ Physical Value (Total marks 50)				
Functional Design (Maximum score 20)	Excellent	20		
	Very Good	16		
	Fair	12	12	Historically a common style of bridge in Wellington County Relatively few examples of the style left in the area
	Common	0		
Visual Appeal (Maximum score 20)	Excellent	20		
	Very Good	12		
	Fair	4	4	Bridge that is appropriate to the landscape and visually unobtrusive
	Common	0		
Materials (Maximum score 10)	Excellent	10		
	Very Good	8		
	Fair	5	5	Constructed of reinforced concrete, which was in widespread use at the time of construction and continues to be in widespread use to the present day
	Common	0		
Contextual Value (Total marks 25)				
Landmark (Maximum score 15)	Excellent	15		
	Very Good	9		

	Fair	3	3	Bridge is typical of area bridge construction of the era and reflects the high number of reinforced concrete bridges that were constructed in Wellington County in the early 20th century
	Common	0		
Character Contribution (Maximum score 10)	Excellent	10		
	Very Good	6	6	Bridge contributes to the overall aesthetic and character of the area
	Common	0		
Historical/ Associative Value (Total marks 25)				
Designer/ Construction Firm (Maximum score 15	Excellent	15		
	Good	9		
	Fair	3		
	Unknown	0	0	Bridge designer and constructor is unknown
Association with a historical theme, person or event (Maximum score 10)	Excellent	10		
	Good	6	6	Bridge is connected to the early expansion of automotive transportation in the early 20th century. Has connection to the history of transportation in the area
	Common	0		
TOTAL			**36/100**	**Does not meet heritage value threshold of 60 points**

Ontario Heritage Bridge Evaluation: 7-E

Criteria	Details	Max. Score	Assigned Score	Comments
Design/ Physical Value (Total marks 50)				
Functional Design (Maximum score 20)	Excellent	20		
	Very Good	16		
	Fair	12	12	Historically a common style of bridge in Wellington County Relatively few examples of the style left in the area
	Common	0		
Visual Appeal (Maximum score 20)	Excellent	20		
	Very Good	12		
	Fair	4	4	Bridge design was appropriate to the landscape and visually unobtrusive
	Common	0		
Materials (Maximum score 10)	Excellent	10		
	Very Good	8		
	Fair	5	5	Constructed of reinforced concrete, which was in widespread use at the time of construction and continues to be in widespread use to the present day
	Common	0		
Contextual Value (Total marks 25)				
Landmark (Maximum score 15)	Excellent	15		
	Very Good	9		

	Fair	3	3	Bridge is typical of area bridge construction of the era and reflects the high number of reinforced concrete bridges that were constructed in Wellington County in the early 20th century
	Common	0		
Character Contribution (Maximum score 10)	Excellent	10		
	Very Good	6	6	Bridge contributes to the overall aesthetic and character of the area
	Common	0		
Historical/ Associative Value (Total marks 25)				
Designer/ Construction Firm (Maximum score 15	Excellent	15		
	Good	9		
	Fair	3		
	Unknown	0	0	Bridge designer and constructor is unknown
Association with a historical theme, person or event (Maximum score 10)	Excellent	10		
	Good	6	6	Bridge is connected to the early expansion of automotive transportation in the early 20th century. Has connection to the history of transportation in the area
	Common	0		
TOTAL			**36/100**	**Does not meet heritage value threshold of 60 points**

Appendix D

OSIM Inspection Reports

Structure Condition Summary Form

Structure Name	THIRD LINE
Structure Number	2-WG
Date of Inspection	May 05, 2022
Project No.	18015
Consultant	HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approaches	Wearing Surface	Sq.m	6.00	66.00	0.00	33.00	19.80	13.20	396	196	50	00	00
Barriers	Barrier/ Parapet Walls (interior)	Sq.m	100.00	20.88	0.00	14.88	3.00	3.00	2088	1236	59	00	08
	Barrier/ Parapet Walls (exterior)	Sq.m	100.00	20.88	0.00	18.88	1.00	1.00	2088	1456	70	00	08
Decks	Wearing Surface	Sq.m	25.00	60.50	0.00	30.50	18.00	12.00	1513	752	50	00	00
	Deck Top - Thin Slab	Sq.m	120.00	70.40	0.00	70.40	0.00	0.00	8448	6336	75	00	00
	Soffit - Thin Slab	Sq.m	120.00	67.84	0.00	51.84	10.00	6.00	8141	5146	63	01	00
Beams/ Main Longitudinal Elements	Girders	Sq.m	200.00	113.30	0.00	78.30	20.00	15.00	22660	13345	59	01	00
	Floor Beams - Concrete	Sq.m	200.00	45.92	0.00	43.92	1.00	1.00	9184	6668	73	00	08
Abutment	Wingwalls	Sq.m	350.00	17.40	0.00	7.40	5.00	5.00	6090	2643	43	00	00
	Abutment Walls	Sq.m	900.00	24.32	0.00	2.32	11.00	11.00	21888	5526	25	01	00
									82495	43303			

Bridge Condition Index (BCI) 52

Structure Name 2-WG

THIRD LINE

HP Engineering Inc.

Municipal Structure Inspection Form

MTO Site Number: 35-219

BCI: 52.00

Inventory Data:

Structure Name:	2-WG						
Main Hwy/Road #		On ☑ / Under ☐	Crossing Type:	Navig. Water ☑	Non-Navig Water ☐		
				Rail ☐	Ped. ☐		
				Road ☐	Other ☐		
Road Name	Third Line						
Structure Location	1.25 km North of Eramosa-West Garafraxa Townline						
Latitude	N 43° 42' 57.0"		Longitude	W 80° 18' 28.8"			
Owner(s)	Township of Centre Wellington		Heritage Designation	Not Cons. ☐	Cons. /not App ☐		
				List/not Desig. ☐	Desig./not List ☐		
					Desig.& List ☐		
MTO Region *	- -		Road Class	Freeway ☐	Collector ☐		
				Arterial ☐	Local ☑		
MTO District *	- -		Posted Speed	80	No. of Lanes:	2	
Current County*	- -		AADT		% Trucks		
Geographic Twp. *	West Garafraxa		Special Routes:	Transit ☐	School ☐		
				Truck ☐	Bicycle ☐		
Structure Type*	5 Half-through Beams of Girders			Detour Length	8	(km)	
Total Deck Length	11.6	(m)		Fill on Structure	0.2	(m)	
Overall Str. Width	6.4	(m)		Skew Angle		(degrees)	
Total Deck Area	74.6	(sq. m)		Direction of Structure	N-S		
Roadway Width	5.5	(m)		No. of Spans	1		
Span Lengths.	10.6					(m)	

Historical Data:

Year Built	1921		Last Biennial Inspection	June 18, 2020
Current Load Limit	15	(tonnes)	Last BridgeMaster Inspection	
Load Limit By-Law #			Last Evaluation	
By-Law Expiry Date			Last Underwater Inspection	
Min. Vertical Clearance		(m)	Last Condition Survey	

Rehab History : (Date/description)

Municipal Structure Inspection Form **MTO Site Number:** **35-219**

Field Inspection Information:

Date of Inspection:	May 05, 2022
Inspector:	Tashi Dwivedi, P.Eng., (H.P. Engineering)
Others in Party:	Charlemagne Charles and Sagar Chhayani, (H.P. Engineering)
Equipment Used:	Hammer, Tape, Camera, Chest waders
Weather	Rainy
Temperature	11 °C

Additional Investigations Required		Priority			Estimated Cost
		None	Normal	Urgent	
Detailed Deck Condition Survey:			X		$10,000.00
DART Survey:					
Detailed Coating Condition Survey:					
Underwater Investigation					
Fatigue Investigation:					
Seismic Investigation:					
Replacement/Rehabilitation Study:			X		$20,000.00
Load Posting - Estimated Load	0			Total Cost	$30,000.00

Special Notes:

The current approach guiderails are not code compliant. It is recommended that the existing approach guiderails be replaced with a code compliant approach guiderail system and end treatments. The current deck barrier is not code compliant. It is recommended that the existing deck barrier be replaced with a code compliant deck barrier.

Several potholes observed on top of deck and approach wearing surface. Several areas of apparent delamination was noted on the inside face of the girders.Severe spalling with exposed corroded reinforcement was also noted along the underside of the girders for the entire length of the beams. Delamination and spalls with exposed corroded reinforcement were also observed on the floor beams and the soffit.A wide horizontal crack with disintegration and erosion was also observed at the west corner of the North abutment.

Next Detailed Inspection: May 2024

Municipal Structure Inspection Form **MTO Site Number:** **35-219**

Repair and Rehabilitation Required		Priority				Estimated Construction Cost
Element	Repair and Rehabilitation Required	6 - 10 years	1 - 5 years	Within 1 year	Urgent	
	Structure Replacement		X			$858,000.00
						$858,000.00

Associated Work:	Comments	Estimated Cost
Approaches		
Detours		$100,000.00
Traffic Control		$60,000.00
Utilities		
Right of Way		
Environmental Study		$100,000.00
Other		
Contingencies		
	Total Cost	$260,000.00

Justification

The outcome of the detailed deck condition survey, the replacement/rehabilitation study and other project constraints could result in significant escalation of estimated cost.

Construction Cost	$858,000.00
Associated Costs	$260,000.00
TOTAL Estimated Cost	$1,118,000.00

Municipal Structure Inspection Form **MTO Site Number** **# 35-219**

Element Data

Element Group	900	Abutments				**Length**		
Element Name	901	Abutment Walls				**Width**	6.40	
Location	North and south side of structure					**Height**	1.90	
Material	Cast-in-place concrete					**Count**	2	
Element Type	Conventional closed		**Element code**			**Total Qnty.**	24.32	
Environment	Moderate					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	1	Load Carrying capacity	
	Sq. m.	0	2.32	11	11			

Comments:
Severe scaling and severe erosion was noted at the base of abutments. A wide horizontal crack with disintegration and erosion was also observed at the west corner of the North abutment. Large areas of spalls and scaling with cracks noted at both walls.

Recommended Work:	Rehab	☐	Replace	☒	**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒ 6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	900	Abutments				**Length**	2.90	
Element Name	903	Wingwalls				**Width**		
Location	NE, NW, SE & SW of structure					**Height**	1.50	
Material	Cast-in-place concrete					**Count**	4	
Element Type	Reinforced concrete		**Element code**	6		**Total Qnty.**	17.4	
Environment	Moderate					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Sq. m.	0	7.4	5	5			

Comments:
Concrete disintegration and spalls at SW, NW and NE wingwalls. Light scaling noted throughout.

Recommended Work:	Rehab	☐	Replace	☒	**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒ 6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	1500	Signs				**Length**		
Element Name	1501	Sign				**Width**		
Location	NE, NW, SE & SW of structure					**Height**		
Material	Steel					**Count**	6	
Element Type	Hazard Signs		**Element code**	N/A		**Total Qnty.**	6	
Environment	Severe					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Each	0	1	3	2			

Comments:
All signs observed appeared to be leaning. Load posting sign at southeast ia also leaning. Light corrosion notes at all bolts.

Recommended Work:	Rehab	☐	Replace	☐	**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☐ 6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Data

Element Group	1600	Approaches				**Length**	2.50	
Element Name	1606	Barriers				**Width**	0.25	
Location	East & West side of structure					**Height**	1.20	
Material	Cast-in-place concrete					**Count**	4	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	26.50	
Environment	Severe					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	08	Pedestrain/ Vehicular hazard	
	Sq. m.	0	17.0	5.0	4.5			

Comments:

The current approach barriers are not code compliant. Numerous spalls with exposed corroded reinforcement was noted on the concrete posts. Approach barrier should be replaced with a code complaint barrier and end treatments. Large spalls with exposed corroded reinforcement was noted on the bottom section of top railing.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	1600	Approaches				**Length**	6.00	
Element Name	1601	Wearing surface (app)				**Width**	5.50	
Location	North & south side of structure					**Height**		
Material	Gravel					**Count**	2	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	66	
Environment	Severe					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Sq. m.	0	33.0	19.8	13.2			

Comments:

Numerous potholes observed on the approach wearing surface with some loose gravels throughout.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	500	Beams/MLE's				**Length**	5.60	
Element Name	502	Floor Beams (Intermediate)				**Width**	0.35	
Location	Underside of structure					**Height**	0.50	
Material	Cast-in-place concrete					**Count**	4	
Element Type	Rectangular-solid		**Element code**	4		**Total Qnty.**	45.92	
Environment	Moderate					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Sq. m.	0	38.42	5.0	2.5			

Comments:

Several areas of apparent delamination noted on floor beams. Medium to severe horizontal cracks also observed at bottom and end sections section of floor beams. Severe spalls with exposed corroded reinforcement at the end sections of beams.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	8	Repair of bridge concrete
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year	☒

Municipal Structure Inspection Form **MTO Site Number** **35-219**

Element Data

Element Group	500	Beams/MLE's				**Length**	11.00		
Element Name	501	Girders				**Width**	0.45		
Location	Underside of structure					**Height**	1.90		
Material	Cast-in-place concrete					**Count**	2		
Element Type	Rectangular-solid	**Element code**	4			**Total Qnty.**	113.3		
Environment	Severe					**Limited Insp.**			
Protection System	Hot dip galvanizing					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	1	Load Carrying capacity		
	Sq. m.	0	78.3	20	15				

Comments:
Several areas of apparent delamination noted on the inside face of girders. Severe spalling along underside of girders with exposed corroded reinforcement for full length of the beams.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-	
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐		

Element Group	100	Decks				**Length**	11.00		
Element Name	102	Deck top				**Width**	6.40		
Location	Top of deck					**Height**			
Material	Cast-in-place concrete					**Count**	1		
Element Type	Cast-in-place conc on supports, composite	**Element code**				**Total Qnty.**	70.4		
Environment	Moderate					**Limited Insp.**	X		
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-		
	Sq. m.	0	70.4	0	0				

Comments:
The deck top could not be observed due to the gravel wearing surface. Rating based on the condition of the soffit.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	-	-	
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year ☐		

Element Group	100	Decks				**Length**	10.60		
Element Name	103	Soffit Thin Slab (Interior)				**Width**	6.40		
Location	Underside of deck					**Height**			
Material	Cast-in-place concrete					**Count**	1		
Element Type	N/A	**Element code**	N/A			**Total Qnty.**	67.84		
Environment	Benign					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	01	Load carrying capacity		
	Sq. m.	0	51.84	10	6				

Comments:
Localized areas of delamination and some spalls with exposed corroded reinforcement was noted on the interior portion of the soffit.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-	
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐		

Municipal Structure Inspection Form **MTO Site Number** **35-219**

Element Data

Element Group	100	Decks				**Length**	11.00		
Element Name	101	Wearing surface				**Width**	5.50		
Location	Top of deck					**Height**			
Material	Gravel					**Count**	1		
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	60.5		
Environment	Severe					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-		
	Sq. m.	0	30.5	18	12				

Comments:
Numerous potholes and loose gravel observed on bridge deck. Accumulation of vegetation on the west edges was noted.

Recommended Work:	Rehab ☐	Replace ☐				**Maint. Needs**	-	-	
	Urgent ☐	1-5 yrs ☐	6-10 yrs ☐			Urgent ☐	1 year ☐		

Element Group	1400	Embankments and Streams				**Length**			
Element Name	1402	Embankments				**Width**			
Location	NE, NW, SE & SW side of structure					**Height**			
Material	Native soil					**Count**	4		
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	4		
Environment	-					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-		
	Each	0	3	0	1				

Comments:
The embankments were moderately sloped and well vegetated. Northeast embankment appeared unstable and collapsed at the time of inspection. Northwest, southeast and southwest embankments were in stable condition.

Recommended Work:	Rehab ☐	Replace ☐				**Maint. Needs**	13	Erosion Control at bridge	
	Urgent ☐	1-5 yrs ☐	6-10 yrs ☐			Urgent ☐	1 year ☒		

Element Group	1400	Embankments and Streams				**Length**			
Element Name	1403	Slope Protections				**Width**			
Location	NE, NW, SE & SW of structure					**Height**			
Material	Other					**Count**	-		
Element Type	Rock Protection		**Element code**	9		**Total Qnty.**	-		
Environment	-					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-		
	Each	0	0	0	0				

Comments:
No slope protection was present at the time of the inspection.

Recommended Work:	Rehab ☐	Replace ☐				**Maint. Needs**	-	-	
	Urgent ☐	1-5 yrs ☐	6-10 yrs ☐			Urgent ☐	1 year ☐		

Element Data

Element Group	1400	Embankments and Streams				**Length**			
Element Name	1401	Streams and Waterways				**Width**			
Location	Under structure					**Height**			
Material	Other					**Count**	1		
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	1		
Environment	-					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-		
	All	0	1	0	0				

Comments:
The stream had a low volume of water and a low flow from east to west. Vegetation appeared to be encroaching into the water upstream.

Recommended Work:	Rehab ☐	Replace ☐				**Maint. Needs**	-	-	
	Urgent ☐	1-5 yrs ☐	6-10 yrs ☐			Urgent ☐	1 year ☐		

Element Group	1300	Foundations				**Length**			
Element Name	1301	Foundation (below ground level)				**Width**			
Location	Below abutment walls					**Height**			
Material	Unknown					**Count**			
Element Type			**Element code**			**Total Qnty.**	1		
Environment	Benign					**Limited Insp.**	X		
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-		
	N/A	0	1	0	0				

Comments:
The foundation was not visible at the time of the inspection. No sign of instability was noted.

Recommended Work:	Rehab ☐	Replace ☐				**Maint. Needs**	-	-	
	Urgent ☐	1-5 yrs ☐	6-10 yrs ☐			Urgent ☐	1 year ☐		

Element Group	500	Barriers				**Length**	11.6		
Element Name	502	Barrier/Parapet Walls (Interior)				**Width**	0.5		
Location	East & West side of structure					**Height**	0.9		
Material	Concrete					**Count**	2		
Element Type	Cast-in-Place Concrete Barrier		**Element code**	4		**Total Qnty.**	20.88		
Environment	Severe					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-		
	Sq. m.	0	13.88	3.5	3.5				

Comments:
The interior faces of the parapet walls appeared to be in generally fair condition with small spalls at the ends and mi-section of the walls. Disintegration noted at the base of east parapet wall.

Recommended Work:	Rehab ☐	Replace ☐				**Maint. Needs**	8	Repair of bridge concrete	
	Urgent ☐	1-5 yrs ☐	6-10 yrs ☐			Urgent ☐	1 year ☒		

HP Engineering Inc.

Municipal Structure Inspection Form **MTO Site Number** **# 35-219**

Element Data

Element Group	500	Barriers					**Length**	11.6	
Element Name	502	Barrier/Parapet Walls (Exterior)					**Width**	0.5	
Location	East & West side of structure						**Height**	0.9	
Material	Concrete						**Count**	2	
Element Type	Cast-in-Place Concrete Barrier		**Element code**	4			**Total Qnty.**	20.88	
Environment	Severe						**Limited Insp.**		
Protection System	None						**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		-	-	
	Sq. m.	0	18.88	1	1				

Comments:

Light scaling and damp stains throughout. Spalling noted at the base of the parapet walls.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	8	Repair of bridge concrete
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent	☐	1 year ☒



Photo 1 Structure from north approach



Photo 2 Structure from south approach



Photo 3 North approach from centre of structure



Photo 4 South approach from centre of structure



Photo 5 East elevation



Photo 6 West elevation



Photo 7 Spalls with exposed corroded reinforcement noted on approach barrier



Photo 8 Disintegration with small spalls noted on east parapet wall



Photo 9 Interior face of west parapet wall



Photo 10 Severe scaling, damp stains and spalls with exposed corroded reinforcement noted on exterior parapet wall



Photo 11 Medium horizontal cracks with delamination with exposed corroded reinforcement noted at soffit



Photo 12 Sever scaling and erosion with horizontal cracks noted on north abutment wall



Photo 13 Severe spalls with concrete disintegration noted on south abutment wall



Photo 14 Concrete disintegration and spalls observed on wingwalls



Photo 15 Sever spalling with exposed corroded reinforcement noted over the full length of west exterior beams

Structure Condition Summary Form

Structure Name	SIXTH LINE
Structure Number	3-E
Date of Inspection	May 04, 2022
Project No.	18015
Consultant	HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approach	Wearing Surface	Sq.m	6.00	58.80	0.00	52.80	3.00	3.00	353	245	69	09	12
Barriers	Railing Systems	m	200.00	88.00	0.00	0.00	44.00	44.00	17600	3520	20	08	00
	Posts (Steel/Concrete)	Each	200.00	18.00	0.00	4.00	6.00	8.00	3600	1080	30	08	00
Trusses/ Arches	Top Chords	Sq.m	300.00	64.00	0.00	56.00	4.00	4.00	19200	13080	68	00	00
	Verticals	Sq.m	300.00	5.76	0.00	0.00	2.88	2.88	1728	346	20	01	00
	Bottom Chords	Sq.m	300.00	52.56	0.00	42.56	5.00	5.00	15768	10176	65	00	00
Decks	Deck Top - Thin Slab	Sq.m	120.00	79.80	0.00	0.00	39.90	39.90	9576	1915	20	09	02
	Soffit - Thin Slab	Sq.m	120.00	78.09	0.00	46.85	15.62	15.62	9371	4966	53	00	00
Beams/ Main Longitudinal	Floor Beams - Concrete	Sq.m	200.00	51.30	0.00	41.30	5.00	5.00	10260	6595	64	01	00
Abutment	Wingwalls	Sq.m	350.00	22.40	0.00	18.40	2.00	2.00	7840	5110	65	00	08
	Abutment Walls	Sq.m	900.00	19.38	0.00	17.38	2.00	0.00	17442	12452	71	00	00
									112738	59484			

Bridge Condition Index (BCI) 52.76

Structure Name 3-E

SIXTH LINE

Municipal Structure Inspection Form

MTO Site Number: 35-224

BCI: 52.76

Inventory Data:

Structure Name:	3-E						
Main Hwy/Road #		On ☑ / Under ☐	Crossing Type:	Navig. Water ☑	Non-Navig Water ☐		
				Rail ☐	Ped. ☐		
				Road ☐	Other ☐		
Road Name	Sixth Line						
Structure Location	1.1 km South of Sideroad 30						
Latitude	N 43° 43' 8.8"		Longitude	W 80° 15' 42.9"			
Owner(s)	Township of Centre Wellington	Heritage Designation	Not Cons. ☐	Cons. /not App ☐			
			List/not Desig. ☐	Desig./not List ☐			
				Desig.& List ☐			
MTO Region *	- -	Road Class	Freeway ☐	Collector ☐			
			Arterial ☐	Local ☑			
MTO District *	- -	Posted Speed	80	No. of Lanes:	2		
Current County*	- -	AADT	<Null>	% Trucks	<Null>		
Geographic Twp. *	Eramosa	Special Routes:	Transit ☐	School ☐			
			Truck ☐	Bicycle ☐			
Structure Type*	1 Bowstring Arch		Detour Length	9	(km)		
Total Deck Length	14.5	(m)	Fill on Structure		(m)		
Overall Str. Width	5.8	(m)	Skew Angle		(degrees)		
Total Deck Area	84.1	(sq. m)	Direction of Structure	N-S			
Roadway Width	4.9	(m)	No. of Spans	1			
Span Lengths.	13.7				(m)		

Historical Data:

Year Built	1919		Last Biennial Inspection	June 18, 2020
Current Load Limit	Bride is closed	(tonnes)	Last BridgeMaster Inspection	
Load Limit By-Law #			Last Evaluation	
By-Law Expiry Date			Last Underwater Inspection	
Min. Vertical Clearance	3.00	(m)	Last Condition Survey	

Rehab History : (Date/description)

HP Engineering Inc.

Municipal Structure Inspection Form **MTO Site Number:** **35-224**

Field Inspection Information:

Date of Inspection:	May 04, 2022
Inspector:	Tashi Dwivedi, P.Eng., (H.P. Engineering)
Others in Party:	Charlemagne Charles and Sagar Chhayani, (H.P. Engineering)
Equipment Used:	Hammer, Tape, Camera and Chest waders
Weather	Sunny
Temperature	11 °C

Additional Investigations Required		Priority			Estimated Cost
		None	Normal	Urgent	
Detailed Deck Condition Survey:		☐	☑	☐	$ 10,000.00
DART Survey:		☑	☐	☐	
Detailed Coating Condition Survey:		☑	☐	☐	
Underwater Investigation		☑	☐	☐	
Fatigue Investigation:		☑	☐	☐	
Seismic Investigation:		☑	☐	☐	
Structure Evaluation:		☐	☑	☐	$ 10,000.00
Load Posting - Estimated Load	0			Total Cost	$ 20,000.00

Special Notes:
Bridge was closed at the time of the inspection. Superstructure is generally in poor condition should be replaced. A rehabilitation / replacement study is recommended ($5,000.00). Existing deck barrier is substandard and should be replaced. Light to moderate scaling at water level. Medium diagonal crack at upper northwest corner of north abutment wall.
Medium vertical cracks with heavy efflorescence noted at south abutment wall. Stained cracks, localized delaminations, and light to moderate localized disintegration noted at wingwalls. Medium and wide horizontal cracks, large delaminations, and medium to severe spalls with exposed corroded reinforcement noted throughout floor beam. Numerous damp stains, medium & wide cracks, medium & large delaminations, large spalls noted at soffit. Light to moderate scaling with spalls and concrete disintegration observed on truss/ arches throughout.

Next Detailed Inspection: May 2024

HP Engineering Inc.

Municipal Structure Inspection Form **MTO Site Number:** **35-224**

Repair and Rehabilitation Required		Priority				Estimated Construction Cost
Element	Repair and Rehabilitation Required	6-10 years	1 - 5 years	Within 1 year	Urgent	
	Replace Structure	☐	☑	☐	☐	$967,000.00
		☐	☐	☐	☐	
		☐	☐	☐	☐	
		☐	☐	☐	☐	
		☐	☐	☐	☐	
		☐	☐	☐	☐	
		☐	☐	☐	☐	
		☐	☐	☐	☐	
						$967,000.00

Associated Work:	Comments	Estimated Cost
Approaches		
Detours		$ 100,000.00
Traffic Control		$60,000.00
Utilities		
Right of Way		
Environmental Study		$ 100,000.00
Other		
Contingencies		
	Total Cost	$ 260,000.00

Justification

Construction Cost	$967,000.00
Associated Costs	$ 260,000.00
TOTAL Estimated Cost	$1,227,000.00

Element Data

Element Group	900	Abutments				**Length**		
Element Name	901	Abutment Walls				**Width**	5.70	
Location	North and south underside of structure					**Height**	1.70	
Material	Cast-in-place concrete					**Count**	2	
Element Type	Conventional closed		**Element code**	1		**Total Qnty.**	19.38	
Environment	Moderate					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Sq. m.	0	17.38	2.00	0			

Comments:

Light to moderate scaling at water level. Medium diagonal crack at upper northwest corner of north abutment wall. Medium vertical cracks with heavy efflorescence noted at south abutment wall.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	-
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year ☐

Element Group	900	Abutments				**Length**	4.00	
Element Name	903	Wingwalls				**Width**		
Location	NE, NW, SE & SW side of structure					**Height**	1.40	
Material	Cast-in-place concrete					**Count**	4	
Element Type	Reinforced concrete		**Element code**	6		**Total Qnty.**	22.40	
Environment	Moderate					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Sq. m.	0	18.40	2.00	2.00			

Comments:

Stained cracks, localized delaminations, and light to moderate localized disintegration observed.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐

Element Group	1500	Signs				**Length**		
Element Name	1501	Sign				**Width**		
Location	NW, NE, SW, & SW of Structure					**Height**		
Material	Steel					**Count**	6	
Element Type	Hazard Signs x 4 Load Posting Signs x 2		**Element code**	N/A		**Total Qnty.**	6	
Environment	-					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Each	0	3	1	2			

Comments:

Small abrasions noted throughout. Southeast hazard sign leaning slightly. Northwest sign is damaged and north closing bridge sign is tilted.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	-
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year ☐

Element Data

Element Group	1600	Approaches				**Length**	6.00		
Element Name	1601	Wearing surface (app)				**Width**	4.90		
Location	North & South of Structure					**Height**			
Material	Gravel					**Count**	2		
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	58.8		
Environment	Severe					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	9	Rough riding surface		
	Sq. m.	0	52.8	3.0	3.0				

Comments:
Several small potholes noted throughout both approaches.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	12	Bridge surface repair
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year ☒	

Element Group	400	Barriers				**Length**	0.25		
Element Name	403	Posts				**Width**	0.25		
Location	East & West Sides of Deck & Wingwalls					**Height**	1.00		
Material	Cast-in-place concrete					**Count**	18		
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	18		
Environment	Severe					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	08	Pedestrian / Vehicular Hazard		
	Each	0	4	6	8				

Comments:
Two missing posts at southeast and southwest. Other posts exhibit wide cracks and spalls with exposed corroded reinforcement. Barrier is

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	400	Barriers				**Length**	22.00		
Element Name	402	Railing Systems				**Width**	0.15		
Location	East & west side of structure					**Height**	0.15		
Material	Cast-in-place concrete					**Count**	4		
Element Type	Concrete Post and Railing		**Element code**	6		**Total Qnty.**	88		
Environment	Severe					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	08	Pedestrian / Vehicular Hazard		
	m.	0	0	44	44				

Comments:
Numerous rails with wide cracks and spalls with exposed corroded reinforcement. Missing rails at south end. Barrier us substandard and should be replaced. Severe scaling also noted throughout.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐	

Municipal Structure Inspection Form **MTO Site Number** **35-224**

Element Data

Element Group	500	Beams/MLE's				**Length**	5.70	
Element Name	502	Floor Beams (Intermediate)				**Width**	0.30	
Location	Underside of structure					**Height**	0.30	
Material	Cast-in-place concrete					**Count**	6	
Element Type	Rectangular-solid		**Element code**	4		**Total Qnty.**	51.3	
Environment	Moderate					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	1	Load Carrying capacity	
	Sq. m.	0	41.3	5.0	5.0			

Comments:
Medium and wide horizontal cracks, large delaminations, and medium to severe spalls with exposed corroded reinforcement noted throughout. Concrete patchwork noted at some beam ends. One beam has been externally post tensioned.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	100	Decks				**Length**	14.00	
Element Name	102	Deck top (exposed)				**Width**	5.70	
Location	Top of deck					**Height**		
Material	Cast-in-place concrete					**Count**	1	
Element Type	Cast-in-place conc on supports, composite		**Element code**	1		**Total Qnty.**	79.8	
Environment	Severe					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	9	Rough riding surface	
	Sq. m.	0	0	39.9	39.9			

Comments:
Moderate scaling and small spalls noted throughout. Deck partially covered in gravel. Severe concrete disintegration and spalls with exposed corroded reinforcement on bridge deck.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	02	Bridge Cleaning
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year	☒

Element Group	100	Decks				**Length**	13.70	
Element Name	103	Soffit Thin Slab (Interior)				**Width**	5.70	
Location	Underside of deck					**Height**		
Material	Cast-in-place concrete					**Count**	1	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	78.09	
Environment	Benign					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Sq. m.	0	46.85	15.62	15.62			

Comments:
Numerous damp stains, medium & wide cracks, medium & large delaminations, and medium & large spalls with exposed corroded reinforcement noted throughout.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐	

HP Engineering Inc.

Municipal Structure Inspection Form **MTO Site Number** **35-224**

Element Data

Element Group	1400	Embankments and Streams				**Length**		
Element Name	1402	Embankments				**Width**		
Location	NE, NW, SE & SW of structrue					**Height**		
Material	Other					**Count**	4	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	4	
Environment	-					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Each	0	4	0	0			

Comments:
Embankments are moderately sloped, well vegetated. Minor erosion noted at northeast & northwest embankments. Sediment build up at northwest embankment.

Recommended Work:	Rehab ☐	Replace ☐		**Maint. Needs**	13	Erosion Control	
	Urgent ☐	1-5 yrs ☐	6-10 yrs ☐	Urgent ☐	1 year	☒	

Element Group	1400	Embankments and Streams				**Length**		
Element Name	1401	Streams and Waterways				**Width**		
Location	Under structure					**Height**		
Material	Native					**Count**	1	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	1	
Environment	-					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	All	0	1	0	0			

Comments:
Moderate volume and low flow from west to east with no visible obstructions noted at the time of inspection.

Recommended Work:	Rehab ☐	Replace ☐		**Maint. Needs**	-	-	
	Urgent ☐	1-5 yrs ☐	6-10 yrs ☐	Urgent ☐	1 year	☐	

Element Group	1300	Foundations				**Length**		
Element Name	1301	Foundation (below ground level)				**Width**		
Location	Below abutment walls					**Height**		
Material	Unknown					**Count**		
Element Type	Foundation		**Element code**			**Total Qnty.**	1	
Environment	-					**Limited Insp.**	X	
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	N/A	0	1	0	0			

Comments:
Foundations not visible; no signs of instability noted at time of inspection.

Recommended Work:	Rehab ☐	Replace ☐		**Maint. Needs**	-	-	
	Urgent ☐	1-5 yrs ☐	6-10 yrs ☐	Urgent ☐	1 year	☐	

Element Data

Element Group	600	Trusses/Arches					**Length**	14.60
Element Name	602	Bottom chords					**Width**	0.40
Location	East & West sides of structure						**Height**	0.50
Material	Cast-in-place concrete						**Count**	2
Element Type	Rectangular-solid			**Element code**	4		**Total Qnty.**	52.56
Environment	Severe						**Limited Insp.**	
Protection System	None						**Suspected Performance Deficiencies**	
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		-	-
	Sq. m.	0	42.56	5.00	5.00			

Comments: Light to moderate scaling throughout all exposed faces. Wide cracks at underside of west chord near south end. Large spall / disintegration at exterior vertical face at east chord. Large spall with exposed corroded reinforcement at interior vertical roadway face - east edge of deck.

Recommended Work:	Rehab	☐	Replace	☒	**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒ 6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	600	Trusses/Arches					**Length**	16.00	
Element Name	601	Top chords					**Width**	0.45	
Location	East & west sides of structure						**Height**	0.55	
Material	Cast-in-place concrete						**Count**	2	
Element Type	Rectangular-solid			**Element code**	4		**Total Qnty.**	64.00	
Environment	Severe						**Limited Insp.**		
Protection System	None						**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		-	-	
	Sq. m.	0	56.0	4.0	4.0				

Comments:
Light to moderate scaling at bases of arches and at top of west arch. Spalls noted on north side of west arch.

Recommended Work:	Rehab	☐	Replace	☒	**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒ 6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	600	Trusses/Arches					**Length**	0.20	
Element Name	603	Verticals/diagonals					**Width**	0.20	
Location	East & west sides of structure						**Height**	1.20 (avg.)	
Material	Cast-in-place concrete						**Count**	6	
Element Type	Rectangular-solid			**Element code**	4		**Total Qnty.**	5.76	
Environment	Severe						**Limited Insp.**		
Protection System	None						**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		1	Load Carrying capacity	
	Sq. m.	0	0	2.88	2.88				

Comments:
Severe spalls noted throughout, completely exposing corroded reinforcement. Some members have almost no concrete remaining over their entire height.

Recommended Work:	Rehab	☐	Replace	☒	**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒ 6-10 yrs ☐	Urgent ☐	1 year ☐	



Photo 1 Structure from north approach



Photo 2 Structure from south approach



Photo 3 North approach from centre of structure



Photo 4 South approach from centre of structure



Photo 5 East elevation



Photo 6 West elevation



Photo 7 Concrete disintegration with exposed corroded rebar at northwest of deck barrier post



Photo 8 Severe spalling with exposed corroded rebar at rail in deck barrier



Photo 9 Spalls in exposed concrete deck top



Photo 10 Spall with exposed corroded rebar and sheared railing in deck barrier at southeast corner



Photo 11 Spalls with exposed corroded rebar and delamination at soffit



Photo 12 Large spalls with exposed corroder reinforcement at underside of floor beams and post tensioning system



Photo 13 Large spalls with exposed corroded rebar noted at soffit in between girders



Photo 14 Moderate erosion and scaling were noted at and below the waterline on north abutment wall



Photo 15 Moderate erosion and scaling were noted at and below the waterline on south abutment wall



Photo 16 Wide cracks noted at underside of west chord near south end

Structure Condition Summary Form

Structure Name	5-E
Structure Number	TS-BR-00057
Date of Inspection	May 04, 2022
Project No.	18015
Consultant	HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Barriers	Barrier/ Parapet Walls (interior)	Sq.m	100.00	100.00	0.00	40.00	40.00	20.00	10000	4600	46	00	00
Decks	Deck Top - Thin Slab	Sq.m	120.00	100.00	0.00	10.00	50.00	40.00	12000	3300	28	00	00
	Soffit - Thin Slab	Sq.m	120.00	100.00	0.00	10.00	50.00	40.00	12000	3300	28	00	00
Beams/ Main Longitudinal Elements	Girders	Sq.m	200.00	100.00	0.00	10.00	50.00	40.00	20000	5500	28	00	00
	Floor Beams - Concrete	Sq.m	200.00	100.00	0.00	75.00	20.00	5.00	20000	12850	64	00	00
Abutment	Wingwalls	Sq.m	350.00	100.00	0.00	0.00	50.00	50.00	35000	7000	20	00	00
	Abutment Walls	Sq.m	900.00	100.00	0.00	70.00	20.00	10.00	90000	54450	61	00	00
									199000	91000			

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Township of Centre Wellington

Municipal Structure Inspection Form

Structure Name: 5-E
Structure No: TS-BR-00057
MTO Site No:

Inventory Data

Structure Name:	5-E	Hwy No.					
Crossing Over:	Road	Crossing Under:	Road				
Road Name:	Fourth Line						
Location:	Fourth Line						
Owner:	TCW, Township of Centre Wellington (100 %)						
		Heritage Status:	N				
Latitude/Northing:		Longitude/Easting:					
MTO Region:		Road Class:	5				
MTO District:		Lane Type:					
Old County:		Posted Speed:		Lanes:	2		Eramosa
Geo Twp.:	Eramosa	AADT:		Trucks:	0	%	<NONE>
Structure Type:	Through Girders	Min Vert. Clear.:	m				3&4
Material:	C - Cast In Place	No. of Spans:	1				<NONE>
Articulation:							
Deck Length:	13.3 m	Special Routes:	☐ Transit ☐ Truck				
Deck Width:	6.4 m		☐ School ☐ Bicycle				
Deck Area:	85.1 m2	Detour Length:	9.00 km	Skew Angle:	degrees		
Trav Deck Wdt	5.5 m		m	Structure Dir :	N-S		

Key Photo



Historical Data

Year Built: 1923 Superstruct. Year: Year of Last Major Rehab:

Last OSIM Inspection: Contract No. When Built:

Last Enhanced OSIM: Last Evaluation:

Last Enhanced Access: Current Load Limit: t t t

Last Underwater Insp. Bylaw No.:

Last Condition Survey:. Bylaw Exp. Date:

Township of Centre Wellington

Municipal Structure Inspection Form

Structure Name: 5-E
Structure No: TS-BR-00057
MTO Site No:

Field Inspection Information

Inspection Date: May 04, 2022 | Inspection Type ☒ OSIM ☐ Enhanced OSIM | BCI: 0.0

Inspector: Tashi Dwivedi, P.Eng., (H.P. Engineering) | Eng. Responsible:

Others in Party: Charlemagne Charles and Sagar Chhayani, (H.P. Engineering)

Access Equip: ☐ Lift ☐ Ladder ☐ Boat ☐ Bridge Master Other:

Other Equipment: Hammer, Tape, Camera, Chest waders

Weather: Sunny | Temperature: 18 °C

Additional Investigations Required

Investigation	Priority: None	Priority: Normal	Priority: Urgent	Estimated Cost
Detailed Deck Condition Survey	☒	☐	☐	0.00
Delamination Survey of Asphalt-Covered Deck	☒	☐	☐	0.00
Concrete Substructure Condition Survey	☒	☐	☐	0.00
Detailed Coating Condition Survey	☒	☐	☐	0.00
Detailed Timber Investigation	☒	☐	☐	0.00
Post-Tension Strand Investigation	☒	☐	☐	0.00
Underwater Investigation	☒	☐	☐	0.00
Fatigue Investigation	☒	☐	☐	0.00
Seismic Investigation	☒	☐	☐	0.00
Structure Evaluation	☒	☐	☐	0.00
Monitoring of Deformations, Movements and Settlements	☒	☐	☐	0.00
Monitoring of Crack Widths	☒	☐	☐	0.00
			Total Cost:	0.00

Overall Structure Notes

Recommended Work On Structure: Major Rehab / replacement

Timing of Recommended Work: ADEQ

Next Inspection Date: May 2024 | Estimated Load Limit: 0 t 0 t 0 t

Overall

It is recommended that a rehabilitation /replacement study ($20,000.00)

BCI Change

Justification

The inspection was conducted on May 04, 2022 by Charlemagne Charles (HP Engineering), Sagar Chhayani (HP Engineering). The bridge was closed at the time of the inspection. The following was noted during the inspection:

- The current approach barriers are substandard, severely damaged and should be replaced. Severe concrete desintegration, severe spalls with exposed corroded reinforcement.
- Some post are detached from railings. .
- Severe concrete deterioration was observed at the base of both deck barriers.
- Moderate to severe scaling throughout the deck top with multiple medium spalls.
- A wide crack was noted at the north abutment.
- Spalls with exposed corroded reinforcement observed at both ends of the concrete girders.
- Areas of apparent delamination with wide horizontal cracks noted at both ends of the concrete floor beams.
- Several large spalls with exposed corroded rebar noted at the soffit; scaling, delamination, cracks and spalls noted throughout.
- Spalls, scaling and concrete disintegration and severe honeycombing at NE and NW wingwalls.
- Post missing at southwest approach.
- Conduit on west side of the structure observed broken at the time of inspection.
- Large spall with exposed corroded rebar noted on top of southwest concrete barriers
- Abutments: two wide cracks at mid-section and 1 vertical caral at northeast cornet of north abutment.

Township of Centre Wellington

Municipal Structure Inspection Form

Structure Name: 5-E
Structure No: TS-BR-00057
MTO Site No:

Element Data

Repair/Rehabilitation Required

Associated Work

	Comments	Estimated Cost
Approaches		0.00
Detours		100.000.00
Traffic Control		60,000.00
Utilities		0.00
Right-of-Way		0.00
Environmental Study		100,000.00
Other		0.00
Contingencies	10%	0.00
Engineering		0.00

Total Associated Work Cost	260,000.00
Total Repair/Rehabilitation Cost	979,000.00
Total Cost	1,239,000.00



Photo 1 Structure from north approach



Photo 2 Structure from south approach



Photo 3 North approach from centre of structure



Photo 4 South approach from centre of structure



Photo 5 East elevation



Photo 6 West elevation



Photo 7 Severe concrete deterioration at base of deck barrier



Photo 8 Full depth disintegration of concrete post in approach barrier system



Photo 9 Underside of structure



Photo 10 Severe spalling with exposed corroded rebar at underside of girder



Photo 11 Spalling with exposed corroded rebar at soffit



Photo 12 Severe concrete disintegration at NE wingwall



Photo 13 Wide crack, scaling and spall at north abutment wall



Photo 14 South abutment wall

Structure Condition Summary Form

Structure Name	THIRD LINE
Structure Number	7-E
Date of Inspection	May 04, 2022
Project No.	18015
Consultant	HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approaches	Wearing Surface	Sq.m	6.00	60.00	0.00	60.00	0.00	0.00	360	270	75	00	00
	Wearing Surface	Sq.m	25.00	50.00	0.00	47.00	0.00	3.00	1250	881	71	00	12
Decks	Deck Top - Thin Slab	Sq.m	120.00	50.00	0.00	23.00	15.00	12.00	6000	2790	47	08	00
	Soffit - Thin Slab	Sq.m	120.00	53.94	0.00	35.94	10.00	8.00	6473	3715	57	01	00
Beams/ Main Longitudinal	Girders	Sq.m	200.00	82.00	0.00	0.00	41.00	41.00	16400	3280	20	01	00
Elements	Floor Beams - Concrete	Sq.m	200.00	28.71	0.00	18.71	5.00	5.00	5742	3207	56	01	00
Abutment	Abutment Walls	Sq.m	900.00	19.72	0.00	10.72	5.00	4.00	17748	9036	51	00	00
									53973	23178			

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Structure Name 7-E

THIRD LINE

HP Engineering Inc.

Municipal Structure Inspection Form

MTO Site Number: 35-282

BCI: 45.00

Inventory Data:

Structure Name:	7-E						
Main Hwy/Road #		On ☑ / Under ☐	Crossing Type:	Navig. Water ☑	Non-Navig Water ☐	Rail ☐	Ped. ☐	Road ☐	Other ☐
Road Name	Third Line						
Structure Location	1.6 km South of Sideroad 30						
Latitude	N 43° 41' 14.7"		Longitude	W 80° 17' 22.7"			
Owner(s)	Township of Centre Wellington		Heritage Designation	Not Cons. ☐	Cons. /not App ☐	List/not Desig. ☐	Desig./not List ☐	Desig.& List ☐
MTO Region *	-	-	Road Class	Freeway ☐	Collector ☐	Arterial ☐	Local ☑
MTO District *	-	-	Posted Speed	80	No. of Lanes:	1		
Current County*	-	-	AADT	1533	% Trucks	2.00%		
Geographic Twp. *		Eramosa	Special Routes:	Transit ☐	School ☐	Truck ☐	Bicycle ☐		
Structure Type*	5	Half-through Beams of Girders		Detour Length	9	(km)		
Total Deck Length	10	(m)		Fill on Structure		(m)		
Overall Str. Width	5.8	(m)		Skew Angle		(degrees)		
Total Deck Area	58	(sq. m)		Direction of Structure	N-S			
Roadway Width	4.8	(m)		No. of Spans	1			
Span Lengths.	8.5					(m)		

Historical Data:

Year Built	1920		Last Biennial Inspection	30/07/2018
Current Load Limit	10	(tonnes)	Last BridgeMaster Inspection	
Load Limit By-Law #			Last Evaluation	
By-Law Expiry Date			Last Underwater Inspection	
Min. Vertical Clearance		(m)	Last Condition Survey	

Rehab History : (Date/description)

Field Inspection Information:

Date of Inspection:	May 04, 2022	
Inspector:	Tashi Dwivedi, P.Eng., (H.P. Engineering)	
Others in Party:	Charlemagne Charles and Sagar Chhayani, (H.P. Engineering)	
Equipment Used:	Hammer, tape, Camera, Chest waders	
Weather	Sunny	
Temperature	19	°C

Additional Investigations Required		Priority			Estimated Cost
		None	Normal	Urgent	
Detailed Deck Condition Survey:					
DART Survey:					
Detailed Coating Condition Survey:					
Underwater Investigation					
Fatigue Investigation:					
Seismic Investigation:					
Rehabilitation/Replacement Study:					$20,000.00
Load Posting - Estimated Load	0			Total Cost	$20,000.00

Special Notes:

Spalls with exposed corroded reinforcement noted at ends of girders. Several areas of delamination noted at underside of girders. Delamination was noted throughout soffit, and a large spall with exposed corroded reinforcement was observed at the south end of the soffit. It is recommended that this structure be replaced within 1 to 5 years.

Next Detailed Inspection: May 2024

Municipal Structure Inspection Form **MTO Site Number:** 35-282

Repair and Rehabilitation Required		Priority				Estimated Construction Cost
Element	Repair and Rehabilitation Required	6-10 years	1 - 5 years	Within 1 year	Urgent	
	Replacement of Structure		X			$667,000.00
						$667,000.00

Associated Work:	Comments	Estimated Cost
Approaches		
Detours		$100,000.00
Traffic Control		$60,000.00
Utilities		
Right of Way		
Environmental Study		$100,000.00
Other		
Contingencies		
	Total Cost	$260,000.00

Justification

Replacement cost is based on the same geometry as the existing structure. Other unknown project constraints could result in significant escalation of the estimated cost. A replacement/rehabilitation study should also be conducted.

Construction Cost	$667,000.00
Associated Costs	$260,000.00
TOTAL Estimated Cost	$927,000.00

Municipal Structure Inspection Form **MTO Site Number** **35-282**

Element Data

Element Group	900	Abutments				**Length**		
Element Name	901	Abutment Walls				**Width**	5.80	
Location	North & south sides of structure					**Height**	1.70	
Material	Cast-in-place concrete					**Count**	2	
Element Type	Conventional closed		**Element code**	1		**Total Qnty.**	19.72	
Environment	Moderate					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Sq. m.	0	10.72	5	4			

Comments:
Medium vertical cracks on bottom portion of abutment wall. Medium cracks and map cracks with efflorescence at SE abutment. Northeast, southwest and northwest wingwall could not be inspected due to vegetation grown around it.

Recommended Work:	Rehab	☐	Replace	☒	**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒ 6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	1500	Signs				**Length**		
Element Name	1501	Sign				**Width**		
Location	NE, NW, SE & SW of structrue					**Height**		
Material	Steel					**Count**	10	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	10	
Environment	-					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Each	0	8	0	2			

Comments:
All signs appeared to be in generally good condition with hazard signs at SE and NW corners leaning. 4 new signs added for road closure.

Recommended Work:	Rehab	☐	Replace	☐	**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☐ 6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	1600	Approaches				**Length**	15.00	
Element Name	1606	Barriers (app)				**Width**		
Location	East & west sides of structure					**Height**		
Material	Steel					**Count**	4	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	60	
Environment	Severe					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	m.	0	0	40	20			

Comments:
Light to medium checks and splits noted throughout. Severe rot noted on 16 posts. Severe impact damage at southwest and southeast, near end treatment. End treatments and barriers are substandard and should be replaced.

Recommended Work:	Rehab	☐	Replace	☒	**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒ 6-10 yrs ☐	Urgent ☐	1 year ☐	

Municipal Structure Inspection Form **MTO Site Number** **35-282**

Element Data

Element Group	1600	Approaches					**Length**	6.00	
Element Name	1601	Wearing surface (app)					**Width**	5.00	
Location	North & south sides of structure						**Height**		
Material	Gravel						**Count**	2	
Element Type	N/A			**Element code**	N/A		**Total Qnty.**	60	
Environment	Severe						**Limited Insp.**		
Protection System	None						**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		-	-	
	Sq. m.	0	60	0	0				

Comments:

The gravel wearing surface appeared to be in generally good condition with some vegetation growing along the side of roadway.

Recommended Work: Rehab ☐ Replace ☐ Urgent ☐ 1-5 yrs ☐ 6-10 yrs ☐

Maint. Needs - - Urgent ☐ 1 year ☐

Element Group	500	Beams/MLE's					**Length**	5.80	
Element Name	502	Floor Beams					**Width**	0.35	
Location	Underside of structure						**Height**	0.30	
Material	Cast-in-place concrete						**Count**	3	
Element Type	Rectangular-solid			**Element code**	4		**Total Qnty.**	28.71	
Environment	Moderate						**Limited Insp.**		
Protection System	None						**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		1	Load Carrying capacity	
	Sq. m.	0	18.71	5	5				

Comments:

Spalls with exposed corroded reinforcement noted at ends of girders. Several areas of delamination noted at underside of girders.

Medium horizontal cracks noted at the bottom section of floor beams.

Recommended Work: Rehab ☐ Replace ☒ Urgent ☐ 1-5 yrs ☒ 6-10 yrs ☐

Maint. Needs - - Urgent ☐ 1 year ☐

Element Group	1600	Barrier					**Length**	10	
Element Name	1601	Deck barrier					**Width**		
Location	East & west sides of structure						**Height**	0.85	
Material	Concrete						**Count**	0	
Element Type	Concrete barrier wall			**Element code**	#N/A		**Total Qnty.**	8.5	
Environment	Severe						**Limited Insp.**		
Protection System	None						**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		8	Pedestrian & vehicular hazard	
	Sq. m.	0	0	0	8.5				

Comments:

Severe disintegration noted throughout with exposed corroded reinforcement. Top concrete walls are severely disintegrated with exposed corroded reinforcement. Steel beam railing is placed in front of concrete wall.

Recommended Work: Rehab ☐ Replace ☒ Urgent ☐ 1-5 yrs ☒ 6-10 yrs ☐

Maint. Needs - - Urgent ☐ 1 year ☐

Municipal Structure Inspection Form **MTO Site Number** **35-282**

Element Data

Element Group	500	Beams/MLE's				**Length**	10.00		
Element Name	501	Girders				**Width**	0.40		
Location	Underside of structure					**Height**	1.45		
Material	Cast-in-place concrete					**Count**	2		
Element Type	Rectangular-solid		**Element code**	4		**Total Qnty.**	82		
Environment	Severe					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	1	Load Carrying capacity		
	Sq. m.	0	0	41	41				

Comments:

Severe concrete deterioration noted throughout. Reinforcing steel is exposed for entire length. Localized spalls noted at underside.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-	
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐		

Element Group	100	Decks				**Length**	10.00		
Element Name	102	Deck top				**Width**	5.00		
Location	Top of deck					**Height**			
Material	Cast-in-place concrete					**Count**	1		
Element Type	Cast-in-place conc on supports, composite		**Element code**	1		**Total Qnty.**	50		
Environment	Severe					**Limited Insp.**	X		
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	08	Pedestrain/ Vehicular Hazard		
	Sq. m.	0	23	15	12				

Comments:

The concrete deck top could not be observed at the time of the inspection due to the gravel wearing surface. Condition data is based on the condition of the deck sofffit.

Recommended Work:	Rehab	☒	Replace	☐		**Maint. Needs**	-	-	
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐		

Element Group	100	Decks				**Length**	9.30		
Element Name	103	Soffit Thin Slab				**Width**	5.80		
Location	Underside of deck					**Height**			
Material	Concrete					**Count**	1		
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	53.94		
Environment	Benign					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	1	Load Carrying capacity		
	Sq. m.	0	35.94	10	8				

Comments:

Several wide longitudianl cracks at corners of deck soffit. Delamination was noted throughout. A large spall with exposed corroded reinforcement was observed at the south end of the soffit.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-	
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐		

Municipal Structure Inspection Form **MTO Site Number** **35-282**

Element Data

Element Group	100	Decks				**Length**	10.00		
Element Name	101	Wearing surface				**Width**	5.00		
Location	Top of deck					**Height**			
Material	Gravel					**Count**	1		
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	50		
Environment	Severe					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-		
	Sq. m.	0	47	0	3				

Comments:

The gravel wearing surface was in good condition with small potholes noted throughout. Accumulation of debris / sand along the edge of roadway.

Recommended Work: Rehab ☐ Replace ☐ **Maint. Needs** 12 Bridge Surface Repair

Urgent ☐ 1-5 yrs ☐ 6-10 yrs ☐ Urgent ☐ 1 year ☒

Element Group	1400	Embankments and Streams				**Length**			
Element Name	1403	Slope Protections				**Width**			
Location	NE, NW, SE & SW sides of structure					**Height**			
Material	Other					**Count**	0		
Element Type	Vegetation		**Element code**	11		**Total Qnty.**	0		
Environment	-					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-		
	Each	0	0	0	0				

Comments:

No slope protection was observed at the time of the inspection.

Recommended Work: Rehab ☐ Replace ☐ **Maint. Needs** - -

Urgent ☐ 1-5 yrs ☐ 6-10 yrs ☐ Urgent ☐ 1 year ☐

Element Group	1400	Embankments and Streams				**Length**			
Element Name	1401	Streams and Waterways				**Width**			
Location	Under structure					**Height**			
Material	Other					**Count**	1		
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	1		
Environment	-					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-		
	All	0	1	0	0				

Comments:

The stream flowed from west to east with low flow and a medium volume of water. No flow obstructions noted.

Recommended Work: Rehab ☐ Replace ☐ **Maint. Needs** - -

Urgent ☐ 1-5 yrs ☐ 6-10 yrs ☐ Urgent ☐ 1 year ☐

Municipal Structure Inspection Form **MTO Site Number** **35-282**

Element Data

Element Group	1400	Embankments and Streams				**Length**		
Element Name	1402	Embankments				**Width**		
Location	NE, NW, SE & SW of structure					**Height**		
Material	Other					**Count**	4	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	4	
Environment	-					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Each	0	0	4	0			

Comments:

The embankments were very steep, well vegetated and eroded.

Recommended Work:	Rehab		Replace			**Maint. Needs**	-	-
	Urgent		1-5 yrs		6-10 yrs		Urgent	1 year

Element Group	1300	Foundations				**Length**		
Element Name	1301	Foundation (below ground level)				**Width**		
Location	Below structure					**Height**		
Material	Unknown					**Count**		
Element Type	Spread		**Element code**	4		**Total Qnty.**	1	
Environment	-					**Limited Insp.**	X	
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	N/A	0	1	0	0			

Comments:

The foundation could not be observed at the time of the inspection. No sign of instability was noted.

Recommended Work:	Rehab		Replace			**Maint. Needs**	-	-
	Urgent		1-5 yrs		6-10 yrs		Urgent	1 year



Photo 1 Structure from north approach



Photo 2 Structure from south approach



Photo 3 North approach from centre of structure



Photo 4 South approach from centre of structure



Photo 5 East elevation



Photo 6 West elevation



Photo 7 Collision damage noted at west approach barrier



Photo 8 Traffic Barrier Disintegration with exposed corroded reinforcing



Photo 9 Delamination and spalls with exposed corroded reinforcing on soffit



Photo 10 Medium cracks and map cracks with efflorescence



Photo 11 Spall with exposed corroded reinforcing and efflorescence on girder & floor beam



Photo 12 Exposed corroded reinforcement with severe scaling noted at ballast wall



Photo 13 Spalls noted at south abutment and southeast wingwall interface.

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BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix A.7

Heritage Impact Assessment, Bridge 3-E

Heritage Impact Assessment, Bridge 3-E Municipal Class Environmental Assessment, Township of Centre Wellington, Ontario

Project Number: 2024-0053

Report Type: Original

Report Date: August 19, 2024

Parslow Heritage Consultancy Inc.
883 St. Clair Ave. West, Toronto, ON, M6C 1C4

R.J. Burnside & Associates Limited
3 Ronell Crescent, Collingwood, ON, L9Y 4J6

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Appendices

Appendix A – Qualifications

Appendix B – OSIM Inspection Report

Executive Summary

Parslow Heritage Consultancy, Inc. (PHC) was retained by R.J. Burnside & Associates Limited, on behalf of the Township of Centre Wellington (the Proponent) to undertake a Heritage Impact Assessment (HIA) for Bridge 3-E, Township of Centre Wellington, Ontario. The bridge is located on Sixth Line, approximately 1.9 km north of Wellington Road 22 in the southeast portion of the Township of Centre Wellington. The HIA was completed as a component of a Municipal Class Environmental Assessment (MCEA).

The purpose of the HIA is to review the cultural heritage value or interest (CHVI) of Bridge 3-E, as identified in the Cultural Heritage Evaluation Report (CHER) (PHC 2024) and to evaluate potential direct and indirect impacts to the bridge based on the proposed changes. Bridge 3-E is currently part of a study which is evaluating several alternatives for the currently closed bridge, including removal, rehabilitation, and replacement.

Evaluation of Bridge 3-E in the CHER (PHC 2024) found the bridge to be a candidate for Listing under Section 27 of the OHA, or Designation under Section 29 of the OHA. The bridge also exceeded the 60-point threshold for heritage value based on the Ontario Ministry of Transportation's (MTO) bridge assessment standards.

At the time of the cultural heritage evaluation site visit undertaken for the CHER, Bridge 3-E had been permanently closed to vehicular traffic. The bridge retains examples of all original finishes but exhibited significant degradation resulting in the exposure of the underlying square steel reinforcement bar. A single steel tie beam has been added to the upper limit of the arches, thereby imposing a height restriction to the structure that was not part of the original design. Visual inspection shows all components of the original structure to be present, but to be in varying degrees of degradation resulting in exfoliation of concrete structure and exposure of the internal rebar. A 2022 Ontario Structure Inspection Manual (OSIM) report recommended the bridge be replaced within 1-5 years

The evaluation of potential direct and indirect impacts to Bridge 3-E through the proposed removal, remediation, or replacement options found that removal of Bridge 3-E would result in the loss of physical heritage attributes and lead to impacts to the view toward the bridge. Remediation of Bridge 3-E is anticipated to result in minimal to no impacts to the physical heritage attributes of the bridge (pending final design plans). The evaluation of impacts found replacement would result in the loss of the physical heritage attributes of Bridge 3-E and may also lead to impacts to the view towards the bridge (pending final design).

Bridge 3-E is visually appealing and largely retains its as-built form. As such, the bridge reflects the design and style of a past time and contributes to the rural agricultural landscape of the area. As such, the following recommendations are made for Bridge 3-E, based on the options for improvements being considered as part of study:

Removal

1. **Prior to removal, architectural drawings of the extant bridge be completed and provided to local historical societies, libraries, and the municipal archives, at the discretion of the Township of Centre Wellington**
2. **The CHER and HIA reports be provided to local historical societies, libraries, and the municipal archives, at the discretion of the Township of Centre Wellington.**

Rehabilitation

1. **Rehabilitation of the bridge in its current form allow for the retention of all identified heritage attributes.**
2. **The Township consider Designation of the bridge under Part IV of the Ontario Heritage Act.**
3. **The CHER and HIA reports be provided to local historical societies, libraries, and the municipal archives, at the discretion of the Township of Centre Wellington.**

Replacement

1. **Prior to replacement, architectural drawings of the extant bridge be completed and provided to local historical societies, libraries, and the municipal archives, at the discretion of the Township of Centre Wellington**
2. **Any replacement of Bridge 3-E be designed to reflect the existing "rainbow arch" design, thereby providing a conservation measure for the identified physical heritage attributes.**
3. **An interpretive plaque be affixed to the replacement bridge to identify the original bridge (see Figure 9), thereby providing a conservation measure for the identified historical and contextual value.**
4. **The CHER and HIA reports be provided to local historical societies, libraries, and the municipal archives, at the discretion of the Township of Centre Wellington.**

The *Provincial Policy Statement* (2020) notes that CHVI is identified for cultural heritage resources by communities. Thus, the system by which heritage is administered in Ontario places emphasis on the decision-making of local municipalities in determining CHVI. It is hoped that the information presented in this report will be useful in those determinations.

Project Personnel

Carla Parslow, Ph.D., CAHP	Senior Cultural Resource Specialist
Christopher Lemon, B.Sc., Dip. Heritage, CAHP	Lead Cultural Heritage Specialist
Jamie Lemon, M.A.	Project Manager

Acknowledgements

Andrew Dawson	R.J. Burnside & Associates Limited

Project Context

Parslow Heritage Consultancy, Inc. (PHC) was retained by R.J. Burnside & Associates Limited, on behalf of the Township of Centre Wellington (the Proponent) to undertake a Heritage Impact Assessment (HIA) for Bridge 3-E, Township of Centre Wellington, Ontario. The bridge is located on Sixth Line, approximately 1.9 km north of Wellington Road 22 in the southeast portion of the Township of Centre Wellington. The HIA was completed as a component of a Municipal Class Environmental Assessment (MCEA).

The purpose of the HIA is to review the cultural heritage value or interest (CHVI) of Bridge 3-E, as identified in the Cultural Heritage Evaluation Report (CHER) (PHC 2024) and to evaluate potential direct and indirect impacts to the bridge based on the proposed changes. Bridge 3-E is currently part of a study which is evaluating several alternatives for the currently closed bridge, including removal, rehabilitation, and replacement.

Bridge 3-E was included in the 2013 publication “Arch, Truss & Beam: The Grand River Watershed Heritage Bridge Inventory” and was identified as being of increased historical interest based on age, design, construction method or overall scarcity.

A site visit was conducted on April 29, 2024, to document the bridge and surrounding landscape. Documentation took the form of high-resolution photographs using a Nikon D5600 DSLR camera the collection of field notes and the production of measured drawings. The assessment strategy was derived from the National Parks and Sites Branch Canadian Inventory of Historic Buildings (Parks Canada 1980), Well Preserved: The Ontario Heritage Foundation Manual on the Principles and Practice of Architectural Conservation (Fram 2003), the Guide to Field Documentation (HABS 2011), and the Standards and Guidelines for the Conservation of Historic Places in Canada (Parks Canada 2010).

This HIA was written for a project located on the Treaty lands and Territory of the Mississaugas of the Credit First Nation and the traditional territory of the Haudenosaunee and the Attiwandaronk.

Site Description and Context

Bridge 3-E is located on 6 Line in the road allowance between Lot 29 Concession 5 and Lot 29 Concession 6, in the former township of Eramosa, now Township of Centre Wellington, Ontario.

Applicant Contact Information

R.J. Burnside & Associated Limited c/o Andrew Dawson

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Township of Centre Wellington c/o Adam Dickieson

1MacDonald Square, Elora, ON N0B 1S0

Email: adickieson@centrewellington.ca

Location of Bridge



Legislative and Policy Framework

The following assessment reviews municipal legislation and policies designed to protect cultural heritage resources that may be affected by development in the Township of Centre Wellington.

Municipal Policies

Township of Centre Wellington Municipal Official Plan

Section C.2 of the Official Plan (OP) of Centre Wellington (consolidated January 2023) outlines four Goals and Objectives to the management of Cultural Heritage Resources.

1. To protect the Township's heritage resources from neglect, deterioration, demolition, alteration, redevelopment or changes in use which threaten their existence or integrity
2. To encourage and support the functional and economic use of heritage buildings
3. To identify, and protect and enhance natural areas
4. To encourage public awareness and appreciation of the heritage resources of the Township and the value of protecting these resources to both residents and visitors

County of Wellington Official Plan

Section 4.1 of the County of Wellington Official Plan deals with cultural heritage and archaeological resources:

Cultural heritage and archaeological resources form an important and in many cases highly visible part of the community fabric. These resources are a source of civic pride for the residents, a benefit to the local economy through tourism, and are important to our understanding of the settlement of the County. The policies of this Plan, in conjunction with the Ontario Heritage Act, provide a framework for the protection and enhancement of cultural heritage resources in Wellington.

Built Heritage

Wellington has a rich history reflected in many buildings and structures, either individually or in groups, which are considered to be architecturally or historically significant to the community, county, province or country.

Cultural Heritage Landscapes

A cultural heritage landscape is a defined geographical area of heritage significance which has been modified by human activities and is valued by a community. It involves a grouping(s) of individual heritage features such as structures, spaces, archaeological sites and natural elements, which together form a significant type of heritage form, distinctive from that of its constituent elements or parts. Examples may include, but are not limited to, heritage conservation districts designated under the Ontario Heritage Act, and villages, parks, gardens, battlefields, mainstreets and neighbourhoods, cemeteries, trailways and industrial complexes of cultural heritage value.

For cultural heritage landscapes to be significant, they must be valued for the important contribution they make to our understanding of a place, an event, or a people.

Section 4.1.5 provides policy direction related to cultural heritage resources:

a) significant built heritage resources and significant cultural heritage landscapes shall be conserved. Conserved means the identification, protection, use and/or management of heritage and archeological resources in such a way that their heritage values, attributes and integrity are retained. This may be addressed through a conservation plan or heritage impact assessment in accordance with Section 4.6.7.

b) The need for a Heritage Impact Assessment and/or Conservation plan will be based on the heritage attributes or reasons for which the resource is identified as significant, and will normally be identified in pre-consultation on development applications.

c) Wellington County will work with its local municipalities to identify significant cultural heritage landscapes. The identification of significant cultural heritage landscapes shall be implemented through at least one of the following options:

i. Added to an Official Plan through an Amendment that shows the resource as an overlay designation on the Schedule, and adds site-specific policies where needed;

ii. included in the municipal register of properties that Council considers to be of cultural heritage value or interest but have been designated;

iii. Designated under the Ontario Heritage Act.

d) The need for a Heritage Impact Assessment.

e) Wellington will encourage the conservation of significant built heritage resources through heritage designations and planning policies which protect these resources.

f) The re-use of heritage buildings is often a valid means of ensuring their restoration, enhancement or future maintenance. Projects to re-use heritage buildings may be given favourable consideration if the overall results are to ensure the long term protection of a heritage resource and the project is compatible with surrounding land uses and represents an appropriate use of land.

g) Where a property has been identified as a protected heritage property, development and site alteration may be permitted on adjacent lands where the proposed development and site alteration has been evaluated and it has been demonstrated that the heritage attributes of the protected heritage property will be conserved. Mitigative measures and/or alternative development approaches may be required in order to conserve the heritage attributes of the protected heritage property affected by the adjacent development or site alteration.

h) The County recognizes the important cultural significance of the Grand River as a Canadian Heritage River, and the need to conserve its inherent values.

Existing Conditions Review

Design and Construction

Bridge 3-E is an example of a bowstring through arch bridge constructed of reinforced concrete. This style of bridge is colloquially referred to as a 'rainbow arch bridge'. The Grand River Watershed Heritage Bridge Inventory attributes the construction date to 1919 (GRCA 2013). Bridge 3-E represents one of the few remaining 'rainbow arch bridges' that Wellington County was once known for. The bowstring through arch design was developed in the early 20th century and reached its height of popularity in the 1920's and 1930's. The design was popular as it required minimal material, was relatively simple to install and could easily accommodate vehicular traffic. The bowstring design was well suited to situations where riverbanks were low and there was limited room for below deck support. The bowstring design was popularized by Fergus architect Charles Mattaini. Mr. Mattaini was born in Italy and emigrated to Canada in 1892. Following his emigration to Canada, he settled in Fergus and started an engineering and construction firm where he employed the engineering skills he had developed while constructing tunnels through the Alps. Mattaini developed the bowstring design and his company eventually built close to 70 bowstring bridges in Southern Ontario, with a high number of them being constructed in Wellington and Waterloo counties (Brennan 2019).

Current Condition

At the time of the cultural heritage evaluation site visit undertaken for the CHER, Bridge 3-E had been permanently closed to vehicular traffic. The bridge retains examples of all original finishes but exhibited significant degradation resulting in the exposure of the underlying square steel reinforcement bar. A single steel tie beam has been added to the upper limit of the arches, thereby imposing a height restriction to the structure that was not part of the original design. Visual inspection shows all components of the original structure to be present, but to be in varying degrees of degradation resulting in exfoliation of concrete structure and exposure of the internal rebar. A 2022 Ontario Structure Inspection Manual (OSIM) report recommended the bridge be replaced within 1-5 years (Appendix B).

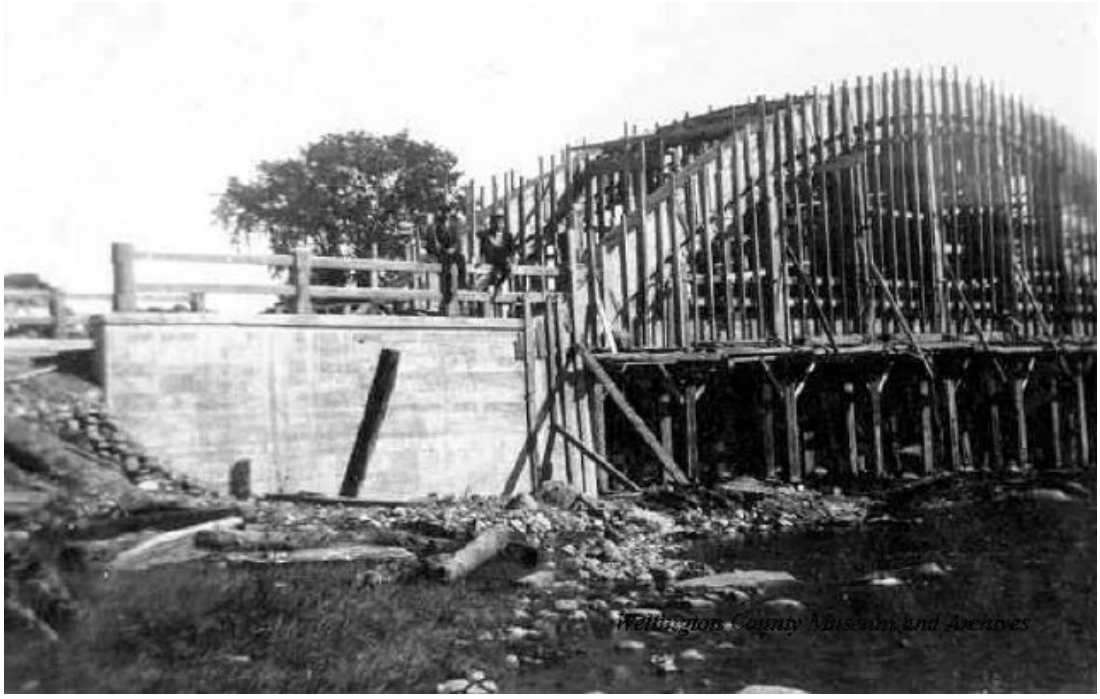

FIGURE 1: UNDATED HISTORIC IMAGE OF THE CONSTRUCTION OF A BOWSTRING BRIDGE, IMAGE 3032, PART OF THE MATTAINI FOND ON FILE WITH WELLINGTON COUNTY MUSEUM AND ARCHIVES



FIGURE 2: BRIDGE 3-E, SOUTH SIDE OF BRIDGE, FACING NORTH



FIGURE 3: BRIDGE 3-E, SOUTHSIDE OF BRIDGE, FACING NORTH



FIGURE 4: BRIDGE 3-E, TYPICAL GUARDRAIL, SOUTH SIDE



FIGURE 5: BRIDGE 3-E, TYPICAL GUARDRAIL NORTH SIDE



FIGURE 6: BRIDGE 3-E, BRIDGE DECK, FACING NORTHWEST



FIGURE 7: BRIDGE 3-E, TYPICAL EXAMPLE OF DETERIORATION, EXAMPLE IS OF SUPERSTRUCTURE CENTRAL SUPPORT



FIGURE 8: BRIDGE 3-E, UNDERSIDE OF BRIDGE DECK

Bridge 3-E Draft Statement of Cultural Heritage Value

Bridge 3-E is located on Sixth Line, approximately 1.9 km north of Wellington Road 22, in the road allowance between Lot 29 Concession 5 and Lot 29 Concession 6, in the former township of Eramosa, now Township of Centre Wellington, Ontario. Bridge 3-E is an example of a bowstring through arch bridge constructed of reinforced concrete. This style of bridge is colloquially referred to as a 'rainbow arch bridge'. The Grand River Watershed Heritage Bridge Inventory attributes the construction date to 1919 (GRCA 2013). Bridge 3-E represents one of the few remaining 'rainbow arch bridges' that Wellington County was once known for. The bowstring through arch design was developed in the early 20th century and reached its height of popularity in the 1920's and 1930's. The design was popular as it required minimal material, was relatively simple to install and could easily accommodate vehicular traffic. The bowstring design was popularized by Fergus architect Charles Mattaini. Mr. Mattaini was born in Italy and emigrated to Canada in 1892. Following his emigration to Canada, he settled in Fergus and started an engineering and construction firm where he employed the engineering skills he had developed while constructing tunnels through the Alps. Mattaini developed the bowstring design and his company eventually built close to 70 bowstring bridges in Southern Ontario, with a high number of them being constructed in Wellington and Waterloo counties (Brennan 2019).

The bridge retains examples of all original finishes but exhibits significant degradation resulting in the exposure of the underlying square steel reinforcement bar. A single steel tie beam has been added to the upper limit of the arches, thereby imposing a height restriction to the structure that was not part of the original design.

Evaluation of Bridge 3-E found the bridge to be a candidate for Listing under Section 27 of the OHA, or Designation under Section 29 of the OHA. The bridge also exceeded the 60-point threshold for heritage value based on the MTO bridge assessment standards.

Defining Elements

- 'Rainbow Arch Bridge' design
- Decorative guardrail pillars
- Designed and possibly constructed by local well-known architect Charles Mattaini

Heritage Impact Assessment

Description of Proposed Work

Bridge 3-E is currently part of a study which is evaluating several alternatives for the currently closed bridge, including removal, rehabilitation, and replacement. The structure has deteriorated to a point of significant structural concern, which has resulted in its current closure to traffic and, even if rehabilitated, it would still have limited load and traffic carrying capacity. No design plans for the options under consideration are available at this time.

Impact on CHVI

Bridge 3-E was found in the CHER (PHC 2024) to exhibit physical value, historical/associative value, and contextual value. The following heritage attributes were specifically identified:

- 'Rainbow Arch Bridge' design

- Decorative guardrail pillars

- Designed and possibly constructed by local well-known architect Charles Mattaini

To evaluate the potential impacts of the proposed improvements to Bridge 3-E, the guidelines of the MCM's *Info Sheet #5 Heritage Impact Assessment and Conservation Plans*, were reviewed (MCM 2006b):

Destruction of any, or part of any significant heritage attributes or features:

- Proposed removal of Bridge 3-E would result in the loss of physical heritage attributes.
- Pending final design plans, the proposed remediation of Bridge 3-E may result in the loss of physical heritage attributes.
- The proposed replacement of Bridge 3-E will result in the loss of physical heritage attributes.

Alteration that is not sympathetic, or incompatible, with the historic fabric and appearance:

- Proposed removal of Bridge 3-E would result in the loss of physical heritage attributes.
- Proposed remediation of Bridge 3-E should consider approaches that avoid alteration to physical heritage attributes.
- Proposed replacement of Bridge 3-E should consider design plans that reflect and pay tribute to the original design of the bridge.

Shadows created that alter the viability of a heritage attribute or an associated nature feature or plantings, such as a garden:

- Proposed removal of Bridge 3-E would result in the loss of physical heritage attributes.
- It is not anticipated proposed remediation would create new shadows that would impact physical heritage attributes.
- Proposed replacement would remove physical heritage attributes, rendering the impact of shadows not applicable.

Isolation of a heritage attribute from its surrounding environment, context, or a significant relationship:

- Proposed removal would not result in isolation of a heritage attribute, but would result in the loss of physical heritage attributes.
- It is not anticipated proposed remediation would lead to isolation of physical heritage attributes.
- Proposed replacement would remove physical heritage attributes, rendering the impact of isolation as not applicable.

Direct or indirect obstruction of significant views or vistas within, from, or of built and natural features:

- Proposed removal would impact views towards the bridge.
- It is not anticipated proposed remediation would lead to indirect or direct obstruction of views and vistas.
- Proposed replacement could impact views towards the bridge, particularly if a design is chosen that does not reflect the original design.

A change in land use where the change may impact the property's CHVI:

- A change in land use is not being proposed through the proposed options.

Land disturbances such as a change in grade that alters soils and drainage patterns that may adversely affect archaeological and/or cultural heritage resources:

- It is not anticipated that changes in grade through proposed remediation will occur that would adversely affect archaeological and/or cultural heritage resources.
- Proposed removal or replacement would remove physical heritage attributes, rendering the impact of land disturbances as not applicable.

Mitigation Options and Recommendations

Bridge 3-E has been permanently closed to vehicular traffic since 2022. The bridge retains examples of all original finishes but exhibited significant degradation resulting in the exposure of the underlying square steel reinforcement bar. A single steel tie beam has been added to the upper limit of the arches, thereby imposing a height restriction to the structure that was not part of the original design. Visual inspection shows all components of the original structure to be present, but to be in varying degrees of degradation resulting in exfoliation of concrete structure and exposure of the internal rebar. A 2022 Ontario Structure Inspection Manual (OSIM) report recommended the bridge be replaced within 1-5 years.

Evaluation of Bridge 3-E in the CHER (PHC 2024) found the bridge to be a candidate for Listing under Section 27 of the OHA, or Designation under Section 29 of the OHA. The bridge also exceeded the 60-point threshold for heritage value based on the MTO bridge assessment standards.

The evaluation of potential direct and indirect impacts to Bridge 3-E through the proposed removal, remediation, or replacement options found that removal of Bridge 3-E would result in the loss of physical heritage attributes and lead to impacts to the view toward the bridge. Remediation of Bridge 3-E is anticipated to result in minimal to no impacts to the physical heritage attributes of the bridge (pending final design plans). The evaluation of impacts found replacement would result in the loss of the physical heritage attributes of Bridge 3-E and may also lead to impacts to the view towards the bridge (pending final design).

The *Ontario Heritage Bridge Guidelines* (MTO 2008) provides a listing of conservation options, ranked in order of degree of intervention (minimum to maximum). These conservation options are presented below:

1) Retention of existing bridge with no major modifications undertaken;

2) Restoration of missing or deteriorated elements where physical or documentary evidence (e.g. photographs or drawings) exists for their design;

3) Retention of existing bridge with sympathetic modification;

4) Retention of existing bridge with sympathetically designed new structure in proximity;

5) Retention of existing bridge no longer in use for vehicular purposes but adapted for a new use. For example, prohibiting vehicle or restricting truck traffic or adapting for pedestrian walkways, cycle paths, scenic viewing, etc.;

6) Retention of bridge as a heritage monument for viewing purposes only;

7) Relocation of smaller, lighter single span bridges to an appropriate new site for continued use (see 4) or adaptive re-use (see 5);

8) Bridge removal and replacement with a sympathetically designed structure (See Section 4.4):

   a. Where possible, salvage elements/members of bridge for incorporation into new structure or for future conservation work or displays;

   b. Undertake full recording and documentation of existing structure.

Under the current study, Conservation Option 8 would be the most appropriate. In reviewing Section 4.4 of the *Ontario Heritage Bridge Guidelines* (MTO 2008) (Detailed Conditions for Conservation Option 8 – Removal or Replacement), Bridge 3-E can be considered to be in a

state of which “the safety of the existing structure is compromised to the extent that rehabilitation is not a practical option” and “Replacement is required to meet demand requirements that are not achievable through rehabilitation or upgrading of the existing structure”, for the following reasons:

- The structure is a single-load-path structure in which the failure of a single primary component or connection would cause the structure to collapse. Failure of one of the trusses would cause this structure to collapse. Single-load-path structures are not recommended under current practices due to their risk of catastrophic failure.
- The structure was designed in early 1900s, to a design vehicle lighter than current standards. In order to address concerns related to loss of capacity due to corrosion of reinforcing steel, or to increase the load carrying capacity of the truss to meet the capacity to carry current vehicle loads, the truss would be required to be replaced in its entirety, which would require all heritage attributes of the structure to be replaced and thereby altering significantly altering the bridge from its original form.
- The narrow bridge driving platform (4.9 m) does not meet the capacity requirements of a two-lane bridge under current standards. Widening of the structure to meet the minimum width for two-lanes is not feasible without removing the arch truss heritage features. Retaining the bridge as a one-lane, two-way bridge is a safety hazard.

The Township of Centre Wellington has replaced several bowstring through arch bridges in recent years. Examples photos are provided as Figures 9 and 10. In these two examples, The Township of Centre Wellington employed designs of the replacement bridges that reflected the original bowstring through arch bridge.



FIGURE 9: BRIDGE 24-WG, TOWNSHIP OF CENTRE WELLINGTON



FIGURE 10: BRIDGE 4-F, TOWNSHIP OF CENTRE WELLINGTON

Recommendations

Bridge 3-E is visually appealing and largely retains its as-built form. As such, the bridge reflects the design and style of a past time and contributes to the rural agricultural landscape of the area. As such, the following recommendations are made for Bridge 3-E, based on the options for improvements being considered as part of study:

Removal

1. **Prior to removal, architectural drawings of the extant bridge be completed and provided to local historical societies, libraries, and the municipal archives, at the discretion of the Township of Centre Wellington**
2. **The CHER and HIA reports be provided to local historical societies, libraries, and the municipal archives, at the discretion of the Township of Centre Wellington.**

Rehabilitation

1. **Rehabilitation of the bridge in its current form allow for the retention of all identified heritage attributes.**
2. **The Township consider Designation of the bridge under Part IV of the Ontario Heritage Act.**

3. **The CHER and HIA reports be provided to local historical societies, libraries, and the municipal archives, at the discretion of the Township of Centre Wellington.**

Replacement

1. **Prior to replacement, architectural drawings of the extant bridge be completed and provided to local historical societies, libraries, and the municipal archives, at the discretion of the Township of Centre Wellington**
2. **Any replacement of Bridge 3-E be designed to reflect the existing "rainbow arch" design, thereby providing a conservation measure for the identified physical heritage attributes.**
3. **An interpretive plaque be affixed to the replacement bridge to identify the original bridge (see Figure 9), thereby providing a conservation measure for the identified historical and contextual value.**
4. **The CHER and HIA reports be provided to local historical societies, libraries, and the municipal archives, at the discretion of the Township of Centre Wellington.**

The *Provincial Policy Statement* (2020) notes that CHVI is identified for cultural heritage resources by communities. Thus, the system by which heritage is administered in Ontario places emphasis on the decision-making of local municipalities in determining CHVI. It is hoped that the information presented in this report will be useful in those determinations.

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Appendix A

Qualifications

Senior Heritage Specialist – Carla Parslow, PhD, CAHP Member in Good Standing: Dr. Carla Parslow has over 20 years of experience in the cultural heritage resource management (CHRM) industry in Canada. As the President of PHC Inc., Dr. Parslow is responsible for the for the management of CHRM projects, as well as the technical review and quality assurance of all archaeological and cultural heritage projects completed by PHC. Throughout her career, Carla has managed both large and small offices of CHRM professionals and has mobilized both large (50+) and small (4+) teams of CHRM and Environmental projects offices throughout the province of Ontario. Dr. Parslow has served as either Project Manager or Project Director on hundreds of Archaeological and Cultural Heritage Assessments. Dr. Parslow is a professional member of the Canadian Association of Heritage Professionals (CAHP).

Dr. Parslow is responsible for the overall quality assurance.

Project Manager – Jamie Lemon, MA: Jamie Lemon is a Senior Archaeologist and Project Manager with PHC and is responsible for managing archaeological and heritage projects across Ontario. She is the primary or secondary author of numerous heritage and archaeological license reports and is proficient at artifact and archaeobotanical analysis. In addition, she is a former field technician and field director with experience on precontact Indigenous and historical Euro-Canadian sites. She has worked on archaeological and heritage projects for mining, land development, transportation, aggregates, and energy sectors. Jamie received a BA in Anthropology from the University of Waterloo in 2007, an MA from Trent University in 2014, and has been active in Cultural Resource Management in Ontario for 17 years. Jamie holds a valid professional license with the Ontario Ministry of Citizenship and Multiculturalism (MCM). Jamie regularly assists clients with navigating the life cycle of archaeological and heritage assessments as it relates to their Project, including interpretation of MCM Standards and Guidelines and engaging with Indigenous communities and other stakeholder groups.

Ms. Lemon is responsible for project management and client relations.

Heritage Specialist – Chris Lemon, B.Sc., Dip. CAHP Member in Good Standing: Chris Lemon is a Cultural Heritage Specialist and Licensed Archaeologist (R289) with 18 years' experience. He received an Honours B.Sc. in Anthropology from the University of Toronto and has completed course work towards an M.A. from the University of Western Ontario. Mr. Lemon has a Diploma in Heritage Carpentry and Joinery and a Certificate in Heritage Planning from Algonquin College. During his career Mr. Lemon has participated in cultural heritage assessments across Ontario as both a Senior Field Director in archaeology and as a Built Heritage Practitioner. Chris's previous experience includes representation on Joint Health and Safety Committees; he is dedicated to maintaining a safety-first focus on all job sites. Chris is a professional member of the Canadian Association of Heritage Professionals (CAHP).

Mr. Lemon is responsible for research, reporting and analysis.

Appendix B

OSIM Inspection Report

Structure Condition Summary Form

Structure Name	SIXTH LINE
Structure Number	3-E
Date of Inspection	May 04, 2022
Project No.	18015
Consultant	HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approach	Wearing Surface	Sq.m	6.00	58.80	0.00	52.80	3.00	3.00	353	245	69	09	12
Barriers	Railing Systems	m	200.00	88.00	0.00	0.00	44.00	44.00	17600	3520	20	08	00
	Posts (Steel/Concrete)	Each	200.00	18.00	0.00	4.00	6.00	8.00	3600	1080	30	08	00
Trusses/ Arches	Top Chords	Sq.m	300.00	64.00	0.00	56.00	4.00	4.00	19200	13080	68	00	00
	Verticals	Sq.m	300.00	5.76	0.00	0.00	2.88	2.88	1728	346	20	01	00
	Bottom Chords	Sq.m	300.00	52.56	0.00	42.56	5.00	5.00	15768	10176	65	00	00
Decks	Deck Top - Thin Slab	Sq.m	120.00	79.80	0.00	0.00	39.90	39.90	9576	1915	20	09	02
	Soffit - Thin Slab	Sq.m	120.00	78.09	0.00	46.85	15.62	15.62	9371	4966	53	00	00
Beams/ Main Longitudinal	Floor Beams - Concrete	Sq.m	200.00	51.30	0.00	41.30	5.00	5.00	10260	6595	64	01	00
Abutment	Wingwalls	Sq.m	350.00	22.40	0.00	18.40	2.00	2.00	7840	5110	65	00	08
	Abutment Walls	Sq.m	900.00	19.38	0.00	17.38	2.00	0.00	17442	12452	71	00	00
									112738	59484			

Bridge Condition Index (BCI) 52.76

Structure Name 3-E

SIXTH LINE

Municipal Structure Inspection Form

MTO Site Number: 35-224

BCI: 52.76

Inventory Data:

Structure Name:	3-E						
Main Hwy/Road #		On ☑ / Under ☐	Crossing Type:	Navig. Water ☑	Non-Navig Water ☐		
				Rail ☐	Ped. ☐		
				Road ☐	Other ☐		
Road Name	Sixth Line						
Structure Location	1.1 km South of Sideroad 30						
Latitude	N 43° 43' 8.8"		Longitude	W 80° 15' 42.9"			
Owner(s)	Township of Centre Wellington	Heritage Designation	Not Cons. ☐	Cons. /not App ☐			
			List/not Desig. ☐	Desig./not List ☐			
				Desig.& List ☐			
MTO Region *	- -	Road Class	Freeway ☐	Collector ☐			
			Arterial ☐	Local ☑			
MTO District *	- -	Posted Speed	80	No. of Lanes:	2		
Current County*	- -	AADT	<Null>	% Trucks	<Null>		
Geographic Twp. *	Eramosa	Special Routes:	Transit ☐	School ☐			
			Truck ☐	Bicycle ☐			
Structure Type*	1 Bowstring Arch		Detour Length	9	(km)		
Total Deck Length	14.5	(m)	Fill on Structure		(m)		
Overall Str. Width	5.8	(m)	Skew Angle		(degrees)		
Total Deck Area	84.1	(sq. m)	Direction of Structure	N-S			
Roadway Width	4.9	(m)	No. of Spans	1			
Span Lengths.	13.7				(m)		

Historical Data:

Year Built	1919		Last Biennial Inspection	June 18, 2020
Current Load Limit	Bride is closed	(tonnes)	Last BridgeMaster Inspection	
Load Limit By-Law #			Last Evaluation	
By-Law Expiry Date			Last Underwater Inspection	
Min. Vertical Clearance	3.00	(m)	Last Condition Survey	

Rehab History : (Date/description)

HP Engineering Inc.

Municipal Structure Inspection Form **MTO Site Number:** **35-224**

Field Inspection Information:

Date of Inspection:	May 04, 2022
Inspector:	Tashi Dwivedi, P.Eng., (H.P. Engineering)
Others in Party:	Charlemagne Charles and Sagar Chhayani, (H.P. Engineering)
Equipment Used:	Hammer, Tape, Camera and Chest waders
Weather	Sunny
Temperature	11 °C

Additional Investigations Required		Priority			Estimated Cost
		None	Normal	Urgent	
Detailed Deck Condition Survey:		☐	☑	☐	$ 10,000.00
DART Survey:		☑	☐	☐	
Detailed Coating Condition Survey:		☑	☐	☐	
Underwater Investigation		☑	☐	☐	
Fatigue Investigation:		☑	☐	☐	
Seismic Investigation:		☑	☐	☐	
Structure Evaluation:		☐	☑	☐	$ 10,000.00
Load Posting - Estimated Load	0			Total Cost	$ 20,000.00

Special Notes:
Bridge was closed at the time of the inspection. Superstructure is generally in poor condition should be replaced. A rehabilitation / replacement study is recommended ($5,000.00). Existing deck barrier is substandard and should be replaced. Light to moderate scaling at water level. Medium diagonal crack at upper northwest corner of north abutment wall.
Medium vertical cracks with heavy efflorescence noted at south abutment wall. Stained cracks, localized delaminations, and light to moderate localized disintegration noted at wingwalls. Medium and wide horizontal cracks, large delaminations, and medium to severe spalls with exposed corroded reinforcement noted throughout floor beam. Numerous damp stains, medium & wide cracks, medium & large delaminations, large spalls noted at soffit. Light to moderate scaling with spalls and concrete disintegration observed on truss/ arches throughout.

Next Detailed Inspection: May 2024

HP Engineering Inc.

Municipal Structure Inspection Form **MTO Site Number:** **35-224**

Repair and Rehabilitation Required		Priority				Estimated Construction Cost
Element	Repair and Rehabilitation Required	6-10 years	1 - 5 years	Within 1 year	Urgent	
	Replace Structure	☐	☑	☐	☐	$967,000.00
		☐	☐	☐	☐	
		☐	☐	☐	☐	
		☐	☐	☐	☐	
		☐	☐	☐	☐	
		☐	☐	☐	☐	
		☐	☐	☐	☐	
		☐	☐	☐	☐	
						$967,000.00

Associated Work:	Comments	Estimated Cost
Approaches		
Detours		$ 100,000.00
Traffic Control		$60,000.00
Utilities		
Right of Way		
Environmental Study		$ 100,000.00
Other		
Contingencies		
	Total Cost	$ 260,000.00

Justification

Construction Cost	$967,000.00
Associated Costs	$ 260,000.00
TOTAL Estimated Cost	$1,227,000.00

Element Data

Element Group	900	Abutments				**Length**		
Element Name	901	Abutment Walls				**Width**	5.70	
Location	North and south underside of structure					**Height**	1.70	
Material	Cast-in-place concrete					**Count**	2	
Element Type	Conventional closed		**Element code**	1		**Total Qnty.**	19.38	
Environment	Moderate					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Sq. m.	0	17.38	2.00	0			

Comments:

Light to moderate scaling at water level. Medium diagonal crack at upper northwest corner of north abutment wall. Medium vertical cracks with heavy efflorescence noted at south abutment wall.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	-
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year ☐

Element Group	900	Abutments				**Length**	4.00	
Element Name	903	Wingwalls				**Width**		
Location	NE, NW, SE & SW side of structure					**Height**	1.40	
Material	Cast-in-place concrete					**Count**	4	
Element Type	Reinforced concrete		**Element code**	6		**Total Qnty.**	22.40	
Environment	Moderate					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Sq. m.	0	18.40	2.00	2.00			

Comments:

Stained cracks, localized delaminations, and light to moderate localized disintegration observed.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐

Element Group	1500	Signs				**Length**		
Element Name	1501	Sign				**Width**		
Location	NW, NE, SW, & SW of Structure					**Height**		
Material	Steel					**Count**	6	
Element Type	Hazard Signs x 4 Load Posting Signs x 2		**Element code**	N/A		**Total Qnty.**	6	
Environment	-					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Each	0	3	1	2			

Comments:

Small abrasions noted throughout. Southeast hazard sign leaning slightly. Northwest sign is damaged and north closing bridge sign is tilted.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	-
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year ☐

Element Data

Element Group	1600	Approaches				**Length**	6.00		
Element Name	1601	Wearing surface (app)				**Width**	4.90		
Location	North & South of Structure					**Height**			
Material	Gravel					**Count**	2		
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	58.8		
Environment	Severe					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	9	Rough riding surface		
	Sq. m.	0	52.8	3.0	3.0				

Comments:

Several small potholes noted throughout both approaches.

Recommended Work:	Rehab	☐	Replace	☐		**Maint. Needs**	12	Bridge surface repair	
	Urgent	☐	1-5 yrs	☐	6-10 yrs ☐	Urgent ☐	1 year ☒		

Element Group	400	Barriers				**Length**	0.25		
Element Name	403	Posts				**Width**	0.25		
Location	East & West Sides of Deck & Wingwalls					**Height**	1.00		
Material	Cast-in-place concrete					**Count**	18		
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	18		
Environment	Severe					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	08	Pedestrian / Vehicular Hazard		
	Each	0	4	6	8				

Comments:

Two missing posts at southeast and southwest. Other posts exhibit wide cracks and spalls with exposed corroded reinforcement. Barrier is substandard and should be replaced with code compliant barrier. Localized moderate scaling and spalls noted throughout.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-	
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐		

Element Group	400	Barriers				**Length**	22.00		
Element Name	402	Railing Systems				**Width**	0.15		
Location	East & west side of structure					**Height**	0.15		
Material	Cast-in-place concrete					**Count**	4		
Element Type	Concrete Post and Railing		**Element code**	6		**Total Qnty.**	88		
Environment	Severe					**Limited Insp.**			
Protection System	None					**Suspected Performance Deficiencies**			
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	08	Pedestrian / Vehicular Hazard		
	m.	0	0	44	44				

Comments:

Numerous rails with wide cracks and spalls with exposed corroded reinforcement. Missing rails at south end. Barrier us substandard and should be replaced. Severe scaling also noted throughout.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-	
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐		

Municipal Structure Inspection Form **MTO Site Number** **35-224**

Element Data

Element Group	500	Beams/MLE's				**Length**	5.70	
Element Name	502	Floor Beams (Intermediate)				**Width**	0.30	
Location	Underside of structure					**Height**	0.30	
Material	Cast-in-place concrete					**Count**	6	
Element Type	Rectangular-solid		**Element code**	4		**Total Qnty.**	51.3	
Environment	Moderate					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	1	Load Carrying capacity	
	Sq. m.	0	41.3	5.0	5.0			

Comments:
Medium and wide horizontal cracks, large delaminations, and medium to severe spalls with exposed corroded reinforcement noted throughout. Concrete patchwork noted at some beam ends. One beam has been externally post tensioned.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	100	Decks				**Length**	14.00	
Element Name	102	Deck top (exposed)				**Width**	5.70	
Location	Top of deck					**Height**		
Material	Cast-in-place concrete					**Count**	1	
Element Type	Cast-in-place conc on supports, composite		**Element code**	1		**Total Qnty.**	79.8	
Environment	Severe					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	9	Rough riding surface	
	Sq. m.	0	0	39.9	39.9			

Comments:
Moderate scaling and small spalls noted throughout. Deck partially covered in gravel. Severe concrete disintegration and spalls with exposed corroded reinforcement on bridge deck.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	02	Bridge Cleaning
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year	☒

Element Group	100	Decks				**Length**	13.70	
Element Name	103	Soffit Thin Slab (Interior)				**Width**	5.70	
Location	Underside of deck					**Height**		
Material	Cast-in-place concrete					**Count**	1	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	78.09	
Environment	Benign					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Sq. m.	0	46.85	15.62	15.62			

Comments:
Numerous damp stains, medium & wide cracks, medium & large delaminations, and medium & large spalls with exposed corroded reinforcement noted throughout.

Recommended Work:	Rehab	☐	Replace	☒		**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒	6-10 yrs ☐	Urgent ☐	1 year ☐	

HP Engineering Inc.

Municipal Structure Inspection Form **MTO Site Number** **35-224**

Element Data

Element Group	1400	Embankments and Streams				**Length**		
Element Name	1402	Embankments				**Width**		
Location	NE, NW, SE & SW of structrue					**Height**		
Material	Other					**Count**	4	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	4	
Environment	-					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	Each	0	4	0	0			

Comments:
Embankments are moderately sloped, well vegetated. Minor erosion noted at northeast & northwest embankments. Sediment build up at northwest embankment.

Recommended Work:	Rehab ☐	Replace ☐		**Maint. Needs**	13	Erosion Control	
	Urgent ☐	1-5 yrs ☐	6-10 yrs ☐	Urgent ☐	1 year	☒	

Element Group	1400	Embankments and Streams				**Length**		
Element Name	1401	Streams and Waterways				**Width**		
Location	Under structure					**Height**		
Material	Native					**Count**	1	
Element Type	N/A		**Element code**	N/A		**Total Qnty.**	1	
Environment	-					**Limited Insp.**		
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	All	0	1	0	0			

Comments:
Moderate volume and low flow from west to east with no visible obstructions noted at the time of inspection.

Recommended Work:	Rehab ☐	Replace ☐		**Maint. Needs**	-	-	
	Urgent ☐	1-5 yrs ☐	6-10 yrs ☐	Urgent ☐	1 year	☐	

Element Group	1300	Foundations				**Length**		
Element Name	1301	Foundation (below ground level)				**Width**		
Location	Below abutment walls					**Height**		
Material	Unknown					**Count**		
Element Type	Foundation		**Element code**			**Total Qnty.**	1	
Environment	-					**Limited Insp.**	X	
Protection System	None					**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**	-	-	
	N/A	0	1	0	0			

Comments:
Foundations not visible; no signs of instability noted at time of inspection.

Recommended Work:	Rehab ☐	Replace ☐		**Maint. Needs**	-	-	
	Urgent ☐	1-5 yrs ☐	6-10 yrs ☐	Urgent ☐	1 year	☐	

Element Data

Element Group	600	Trusses/Arches					**Length**	14.60
Element Name	602	Bottom chords					**Width**	0.40
Location	East & West sides of structure						**Height**	0.50
Material	Cast-in-place concrete						**Count**	2
Element Type	Rectangular-solid			**Element code**	4		**Total Qnty.**	52.56
Environment	Severe						**Limited Insp.**	
Protection System	None						**Suspected Performance Deficiencies**	
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		-	-
	Sq. m.	0	42.56	5.00	5.00			

Comments: Light to moderate scaling throughout all exposed faces. Wide cracks at underside of west chord near south end. Large spall / disintegration at exterior vertical face at east chord. Large spall with exposed corroded reinforcement at interior vertical roadway face - east edge of deck.

Recommended Work:	Rehab	☐	Replace	☒	**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒ 6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	600	Trusses/Arches					**Length**	16.00	
Element Name	601	Top chords					**Width**	0.45	
Location	East & west sides of structure						**Height**	0.55	
Material	Cast-in-place concrete						**Count**	2	
Element Type	Rectangular-solid			**Element code**	4		**Total Qnty.**	64.00	
Environment	Severe						**Limited Insp.**		
Protection System	None						**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		-	-	
	Sq. m.	0	56.0	4.0	4.0				

Comments:
Light to moderate scaling at bases of arches and at top of west arch. Spalls noted on north side of west arch.

Recommended Work:	Rehab	☐	Replace	☒	**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒ 6-10 yrs ☐	Urgent ☐	1 year ☐	

Element Group	600	Trusses/Arches					**Length**	0.20	
Element Name	603	Verticals/diagonals					**Width**	0.20	
Location	East & west sides of structure						**Height**	1.20 (avg.)	
Material	Cast-in-place concrete						**Count**	6	
Element Type	Rectangular-solid			**Element code**	4		**Total Qnty.**	5.76	
Environment	Severe						**Limited Insp.**		
Protection System	None						**Suspected Performance Deficiencies**		
Condition Data	**Units**	**Ex.**	**Good**	**Fair**	**Poor**		1	Load Carrying capacity	
	Sq. m.	0	0	2.88	2.88				

Comments:
Severe spalls noted throughout, completely exposing corroded reinforcement. Some members have almost no concrete remaining over their entire height.

Recommended Work:	Rehab	☐	Replace	☒	**Maint. Needs**	-	-
	Urgent	☐	1-5 yrs	☒ 6-10 yrs ☐	Urgent ☐	1 year ☐	



Photo 1 Structure from north approach



Photo 2 Structure from south approach



Photo 3 North approach from centre of structure



Photo 4 South approach from centre of structure



Photo 5 East elevation



Photo 6 West elevation



Photo 7 Concrete disintegration with exposed corroded rebar at northwest of deck barrier post



Photo 8 Severe spalling with exposed corroded rebar at rail in deck barrier



Photo 9 Spalls in exposed concrete deck top



Photo 10 Spall with exposed corroded rebar and sheared railing in deck barrier at southeast corner



Photo 11 Spalls with exposed corroded rebar and delamination at soffit



Photo 12 Large spalls with exposed corroder reinforcement at underside of floor beams and post tensioning system



Photo 13 Large spalls with exposed corroded rebar noted at soffit in between girders



Photo 14 Moderate erosion and scaling were noted at and below the waterline on north abutment wall



Photo 15 Moderate erosion and scaling were noted at and below the waterline on south abutment wall



Photo 16 Wide cracks noted at underside of west chord near south end

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BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix A.8

Stage 1 Archaeological Assessment Report

Stage 1 Archaeological Assessment: Municipal Class Environmental Assessment for Four Bridges (2-WG, 7-E, 5-E, 3-E), Part of Municipal ROWs between Concessions 2 and 6, former Townships of Eramosa and Garafraxa, now Township of Centre Wellington, Wellington County, Ontario

Project Number: 2024-0053

PIF: P1056-0263-2024

Report Type: Original

Report Date: June 24, 2024

Licensee: Jamie Lemon, MA (P1056)

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Executive Summary

Parslow Heritage Consultancy Inc. (PHC) was retained by R.J. Burnside & Associates Limited (the Proponent) to conduct a Stage 1 archaeological assessment for four bridges in the Township of Centre Wellington, identified as 2-WG, 7-E, 5-E, and 3E, former Townships of Eramosa and Garafraxa, now Township of Centre Wellington, County of Wellington, Ontario. The four bridges are located within municipally owned road right-of-way (ROW) of 3 Line (2-WG), Third Line (7-E), Fourth Line (5-E), and 6 Line (3-E) (Map 1, Map 2) and are located between the following historical lots:

- 2-WG – Between Lot 1, Concession 3 and Lot 1, Concession 4, Former Township of Garafraxa
- 7-E – Between Lot 28, Concession 2 and Lot 28, Concession 3, Former Township of Eramosa
- 5-E – Between Lot 28, Concession 3 and Lot 28, Concession 4, Former Township of Eramosa
- 3-E – Between Lot 29, Concession 5 and Lot 29, Concession 6, Former Township of Eramosa

The objectives of the Stage 1 archaeological assessment are defined in the Ministry of Citizenship and Multiculturalism's (MCM) *Standards and Guidelines for Consultant Archaeologists* (2011). A Stage 1 archaeological assessment provides compiled information about the study area's geography, history, current land conditions as well as any previous archaeological research and listed archaeological sites on or within the vicinity, as well as specific direction for the protection, management and/or recovery of these resources.

The study areas consist of municipal ROWs, which include gravel roads with manicured lawn on either side, steep ditches, and overgrown shorelines. A negative indicator of archaeological potential is extensive, below-grade land disturbance. Disturbance associated with soil manipulation, grading, and stockpiling of soils were encountered in association with the construction of the bridges and gravel roads within the study areas. Areas of low archaeological potential were also encountered in the form of low-lying wet environments and steep ditches.

A property inspection was conducted by Chris Lemon (R289) on 13 May 2024, under favourable weather conditions. Based on the findings of the property inspection, it has been determined that the study areas have been subject to extensive disturbance.

Based on the results of the Stage 1 archaeological assessment, the following recommendations are provided:

1. The study areas were identified to exhibit low archaeological potential due to previous disturbance or poorly drained conditions. The study areas are considered free of archaeological concerns and no further archaeological assessment is recommended (Map 6).

It is requested that this report be entered into the Ontario Public Register of Archaeological Reports, as provided for in Section 65.1 of the Ontario Heritage Act.

Project Personnel

Project Manager/Licensee	Jamie Lemon, M.A. (P1056)
Field Director	Chris Lemon, B.Sc., Dip. Heritage, CAHP (R289)
Report Preparation	Jamie Lemon
Graphics	Gabriel Dunk-Gifford

Acknowledgements

Andrew Dawson	R.J. Burnside and Associates Ltd.

Project Context

This section of the report provides the context for the archaeological assessment and covers three areas: development context, historical context, and archaeological context.

Development Context

Parslow Heritage Consultancy Inc. (PHC) was retained by R.J. Burnside & Associates Limited (the Proponent) to conduct a Stage 1 archaeological assessment for four bridges in the Township of Centre Wellington, identified as 2-WG, 7-E, 5-E, and 3E, former Townships of Eramosa and Garafraxa, now Township of Centre Wellington, County of Wellington, Ontario. The four bridges are located within municipally owned road right-of-way (ROW) of 3 Line (2-WG), Third Line (7-E), Fourth Line (5-E), and 6 Line (3-E) (Map 1, Map 2) and are located between the following historical lots:

- 2-WG – Between Lot 1, Concession 3 and Lot 1, Concession 4, Former Township of Garafraxa
- 7-E – Between Lot 28, Concession 2 and Lot 28, Concession 3, Former Township of Eramosa
- 5-E – Between Lot 28, Concession 3 and Lot 28, Concession 4, Former Township of Eramosa
- 3-E – Between Lot 29, Concession 5 and Lot 29, Concession 6, Former Township of Eramosa

The objectives of the Stage 1 archaeological assessment are to gather information about the study area's geography, history, current land conditions, as well as any previous archaeological research and listed archaeological sites on or within the vicinity. Methods to achieve these objectives include:

- Review of relevant historic and environmental literature pertaining to the study area
- Review of an updated listing of archaeological sites within 1 km from the Ontario Archaeological Sites Database (OASD)
- Review of all archaeological assessments within 50 m of the study area
- Consultation with individuals knowledgeable about the study area, as necessary
- Review of historic maps and aerial imagery of the study area
- A property inspection

Permission to access the study area was provided by the Proponent and no limits were placed on this access. All archaeological work documented in this report was completed under the Ministry of Citizenship and Multiculturalism's (MCM) *Standards and Guidelines for Consultant Archaeologists* (2011).

Historical Context

This section describes the past and present land use and settlement history of the property, and any other relevant historical information gathered through the background research.

Indigenous History

Most of the archaeological record found in Ontario – the tools, animals, plants, structures, soils, and contexts recovered from the landscape – are the direct heritage of the Indigenous communities that currently live in south-central Ontario and adjacent provinces and states. Archaeology is the sole non-verbal means of reconstructing this ancient past; thus, understanding the lives and histories of these early peoples is both a challenge and a responsibility. Every new site identified and documented provides a unique opportunity to learn more about the over 11,000-year history in Ontario. Table 1 provides an archaeological timeline for the presence of Indigenous people in Ontario, drawn from Ellis and Ferris (1990).

TABLE 1: OVERVIEW OF THE CULTURAL CHRONOLOGY OF SOUTHERN ONTARIO

Period	Characteristics	Time	Comments
Early Paleo	Fluted Points	9,000 – 8,400 BC	Caribou hunters
Late Paleo	Hi-Lo Points	8,400 – 8,000 BC	Smaller but more numerous sites
Early Archaic	Kirk, Nettling, and Bifurcate Base Points	8,000 – 6,000 BC	Slow population growth
Middle Archaic I	Stanley/Neville, Stemmed Points	6,000 – 4,000 BC	Environment similar to present
Middle Archaic II	Thebes, Otter Creek Points	4,000 – 3,000 BC	
Middle Archaic III	Brewerton Side and Corner Notched Points	3,000 – 2,000 BC	
Late Archaic I	Narrow Point (Lamoka, Normanskill)	2,000 – 1,800 BC	Increasing site size

	Broad Point (Genesee, Adder Orchard) Small Point (Crawford Knoll, Innes, Ace-of-Spades)	1,800 – 1,500 BC 1,500 – 1,100 BC	Large chipped lithic tools Introduction of bow hunting
Terminal Archaic	Hind Points	1,100 – 950 BC	Emergence of true cemeteries
Early Woodland	Meadowood Points	950 – 400 BC	Introduction of pottery
Middle Woodland	Dentate/Pseudo-Scallop Pottery Princess Point	400 BC – AD 500 AD 550 – 900	Increased sedentism Introduction of corn
Late Woodland	Early Ontario Middle Ontario Late Ontario (Neutral)	AD 900 – 1,300 AD 1,300 – 1,400 AD 1,400 – 1,650	Emergence of agricultural villages Large longhouses (100m+) Tribal warfare and displacement
Contact	Various Algonkian and Iroquoian Groups	AD 1,700 – 1,875	Early written records and treaties

Paleo and Archaic Time Periods

The first human settlement in south-central Ontario can be traced back 11,000 years, just after the end of the Wisconsin Glacial Period, when this area was settled by Indigenous groups that had been living south of the Great Lakes. The period of these first inhabitants is known as the Paleo (Ellis and Deller 1990), a time in which bands of small hunter gatherer, consisting of probably no more than 25-35 individuals, followed a pattern of seasonal mobility extending across wide-ranging territories shaped extensively by the ebb and flow of glaciers.

The Paleo period was a time of rapid environmental change. As the glaciers retreated sparse tundra and evergreen forests gave way to extensive deciduous forests and water levels in the Great Lakes rose dramatically (Ellis et al 1990). By the end of this period (8000 BC), many of the large game species that Paleo hunters had relied upon either moved further north, or as in the case of the mastodons and mammoths, become extinct. Thus, the end of the Late Paleo Period was heralded by numerous technological and cultural innovations, likely as responses to the dynamic nature of the post-glacial environment and region-wide population increases. These innovations continue to be found in sites belonging to the direct descendants of the Paleo, groups of people known by archaeologists as “Archaic.”

The term “Archaic” designates preagricultural sites lacking in pottery and other specific artefact forms (Ellis et al 1990) and are primarily distinguished from Paleo sites by a significantly greater degree of artefact diversity and regional variety. Archaic people began to make stone tools out of coarser raw material by laboriously grinding the rock into the desired shape. The introduction of ground stone tools such as celts and axes, suggests the beginnings of a simple woodworking industry and an increased use of localized stone sources indicates that Archaic populations may have been less nomadic than their Paleo ancestors (Munson and Jamieson 2013). It is likely that gradual infilling of the landscape resulting from rising water levels and population growth necessitated the development of strategies to support more people from smaller areas of liveable land.

During the Late Archaic Period (2,500-950 BC) the trends towards decreased territory size, a broadening subsistence base, population growth and increasing sedentism continued and it is during this period that the first true cemeteries appeared. During the Late Archaic Period, if an individual died while his or her group happened to be at some distance from their group cemetery, the bones would be kept until they could be placed in the cemetery, suggesting that people returned with greater frequency to the same areas. These first cemeteries may have served as visible reminders of a group’s cultural history and demarcated their rights to an area. Living in a time before farming or pottery, early hunter gatherers hunted, fished, and travelled in a land that was dynamic, ever-changing, and far removed from modern or historic ways of life.

Woodland Time Period

The Early Woodland Period (950 to 400 BC) is distinguished from the Late Archaic Period primarily by the gradual adoption of ceramic technology. However, in many ways the life ways of people in this period show a high degree of continuity with the preceding Late Archaic and it is not until the Middle Woodland (300 BC to AD 500) that there is an evident shift in settlement and subsistence patterns towards a sedentary way of life.

Middle Woodland peoples relied much more extensively on ceramic technology and vessels were often heavily decorated with hastily impressed designs covering the entire exterior surface and upper portion of the vessel interior. The Middle Woodland provides a major point of departure from the Archaic and Early Woodland; fish was becoming an increasingly important part of diets and sites along the margins of major lakes and rivers

appear to have functioned as base camps instead of seasonally utilized locations, indicating a greater degree of sedentism and reliance on fishing technology.

The Late Woodland Period is widely accepted as the beginning of a truly agricultural way of life in south-central Ontario. Researchers have suggested that a warming trend during this period may have encouraged the spread of maize into southern Ontario by providing a greater number of frost-free days (Stothers and Yarnell 1977). The presence of carbonized corn kernels and cob fragments recovered from sub-floor storage pits indicates that agriculture was becoming a vital part of the Early Iroquoian economy.

The Middle Ontario Iroquoian Period (AD 1300-1400) witnessed several interesting developments in terms of settlement patterns and artefact assemblages. The size of villages and houses increased dramatically, with house lengths almost doubling to an average of 30m. Possible explanations for these shifts involve changes in economic and socio-political organization (Dodd et al. 1990); small villages may have amalgamated to form larger communities for mutual defence (Dodd et al. 1990). These large villages were often heavily defended with numerous rows of wooden palisades, suggesting that defence may have been one of the rationales for smaller groups banding together.

By the late 1400s major villages covered as many as 4-5 hectares and would have contained over 2,000 individuals each. A change in the orientation of longhouses at this time may indicate the initial development of the tribes and nations which were a characteristic of the historically known Iroquoian peoples (Dodd et al. 1990).

After AD 1450, house lengths begin to decrease, with houses dating between AD 1500-1580 averaging a mere 30 m in length. The even shorter houses witnessed on Historical Period sites can be at least partially attributed to the population reductions associated with the introduction of European diseases such as smallpox (Lennox and Fitzgerald 1990) which, in the span of a few years, had reduced the population to a mere 30,000 people. With the deaths of many bearers of oral history in the 1630's much of the ancient oral history in Ontario was lost. Archaeology provides an alternative means of understanding pre-European history by providing unique information on the movement of people throughout the landscape, their interactions with one another and with the environment, over the course of 13,000 years.

Historic Indigenous Period

At the time of first contact with the French, in 1615 AD, the traditional territory of the Huron-Wendat, known as Wendake, roughly stretched between the Canadian Shield, Lake Ontario and the Niagara Escarpment; it has been suggested the Huron-Wendat population at this time was approximately 30,000 individuals (Warrick 2008; Heidenreich 1978).

In the 1640s the Haudenosaunee, whose territory was located south of the lower Great Lakes, invaded Huron-Wendat territory, largely due to the decrease of available beaver pelts. The majority of the Huron-Wendat population sought sanctuary within the communities of the Petun, Neutral and other neighbouring groups, after numerous Huron-Wendat village were destroyed (Stone and Chaput 1978). Commencing in the 1660s, the Haudenosaunee controlled most of southern Ontario (Schmalz 1991;

Williamson 2013). Four hundred years ago Ontario was home to an estimated 75,000 Indigenous people, divided into two major cultural groups – Algonquians (Anishinaabeg or Anishinaabe) and Iroquoians (Haudenosaunee).

During the mid-17th century, several Algonquin-speaking linguistic and cultural groups within the Anishinaabeg (or Anishinaabe) began to challenge the Haudenosaunee dominance in the region (Johnston 2004; Gibson 2006). Prior to this, the Anishinaabeg were located primarily inland from the north shore of Lake Huron (MCFN nd). From 1653 to 1662, following a series of attacks against the Haudenosaunee by groups within the Anishinaabeg, Haudenosaunee dominance in the region began to fail (Warrick 2008; Schmalz 1991). By the 1690s, Haudenosaunee settlements along the northern shores of Lake Ontario were abandoned (Williamson 2013). Following several battles throughout southern Ontario, the Anishinaabeg replaced the Haudenosaunee in area at the start of the 18th century (Gibson 2006; Schmalz 1991).

European Treaties and Deeds

The study areas are located on lands that were part of the Between the Lakes Treaty (Treaty 3, 1792) as well as lands that were part of Treaty 4, 1793, known as the Simcoe Patent. As described by Wybenga (2017:6):

> *Recognizing that under the terms of the Royal Proclamation of 1763 the land needed to be purchased from its owners before the resettlement of the Grand River Valley could begin, Col. John Butler was sent to negotiate with the Mississaugas at the western end of Lake Ontario. On May 22, 1784, for the sum of £1180 worth of trade goods, the Mississaugas of the Credit ceded to the Crown approximately 3 000 000 acres of land located between Lakes Huron, Ontario, and Erie. Of those lands, some 550 000 acres were granted to the Six Nations in the Haldimand Proclamation of October 25, 1784, with the remainder to be utilized for the settlement of other Loyalists.*

The British issued the Haldimand Proclamation in 1784. The Proclamation granted a tract of land, often referred to as the Haldimand Tract, to the Six Nations in recognition of their support of the Crown during the American Revolution (Filice 2016). This tract of land extended for 10 km on either side of the Grand River. In May of 1784, Haldimand signed an accord with the Mississauga chiefs to cede, with the largest portion of this going to the Haudenosaunee (Filice 2016).

In 1791, the Crown appointed surveyor Augustus Jones to refine the boundaries of the tract. During this process, Jones established straight-lined boundaries, rather than following the curves of the river; thus, reducing the boundaries of the Haldimand Tract. (Filice 2016). With the reduction in territory, the Thayendanegea petitioned John Graves Simcoe to gain control over the Haldimand Tract. Simcoe made the decision to remedy the situation by creating a compromise between the Crown and Six Nations (Filice 2016).

The Simcoe Patent, which was issued in 1793, confirmed the newly established boundaries as marked by Augustus Jones. The patent imposed a limit of 111,000 hectares on the Haldimand Tract, which was to be used exclusively by the Six Nations.

After the Haudenosaunee had ceded some of their land to the Crown, the remaining land was available to be leased, surrendered or sold. According to the patent, any land transactions of the Six Nations had to be approved by the Crown. Nevertheless, the document allowed the Six Nations to sell parts of the territory to the government when needed (Filice 2016).

The Simcoe Patent, however, did not address the issue of land title to the territories by the headwaters of the Grand River resulting in a continuing dispute between the Haudenosaunee and the Ontario government. Still, the Thayendangegea of the Six Nations view this patent as a reinforcement of the Crown's trusteeship interpretation of the title; rejecting the Simcoe Patent claiming it was not binding on them (Filice 2016).

Euro-Canadian Settler History

Following The Clergy Endowments (Canada) Act of 1791, what was then the Province of Quebec (including the study area) was divided into four political districts within the Province of Upper Canada; the four political districts were renamed Eastern, Midland, Home, and Western, after previously being called Kunenburg, Mechlenburg, Nassau, and Hesse (Hall 2023). The study area fell within the former Hesse District and later the Western District.

The Western District initially included all lands between an arbitrary "north and south line intersecting the extreme projection of Long Point into the Lake Erie, on the northerly side of the said Lake Erie" (Lloyd 1906). In 1793, John Graves Simcoe, the first Lieutenant Governor of Upper Canada, further subdivided each district into counties and townships, and European settlement began shortly after (Hunter 1909). The study area is located in the County of Wellington, in the former Geographic Townships of Eramosa and Garafraxa, now the Township of Centre Wellington.

Wellington County and the Townships of Eramosa and Garafraxa

Initially set apart from the Western District in 1838, the District of Wellington was formed to contain the present counties of Wellington, Waterloo, and Grey, as well as a portion of the County of Dufferin (Lloyd 1906). By 1852, Wellington separated from Waterloo, and a year later Wellington County was established consisting of several townships and towns, including, Amaranth, Arthur, Eramosa, Erin, Guelph, Garafraxa, Maryborough, Nichol, Peel, Pilkington, and Puslinch (Wellington County 2023). By 1879, the City of Guelph was incorporated and withdrawn from the county. The amalgamation of the county in 1999 resulted in the formation of seven new municipalities, including the Township of Centre Wellington which included the town of Fergus, Village of Elora and the Townships of Nichol, Pilkington, West Garafraxa and a portion of Eramosa.(Wellington County 2023).

The Township of Eramosa was first surveyed in 1819 by Samuel Ryckman. It is thought that Robert Ramsey was the first European descendant settler in Eramosa, on Lot 1, Concession 3. In 1827, there were 27 households in the township, with a population of 112. The township was regarded as one of the finest farming areas in Ontario (Middleton 1927). Settlement was slow in Eramosa in the first few decades after the 1819 survey. Initially lots were offered free to settlers (with settlement conditions); a large portion of the township was granted to United Empire Loyalists, who held the land

for speculation (Chapple 1964). More rapid settlement in the township commenced in the 1840s, mostly immigrants from the British Isles; in this decade small urban hamlets developed to serve the surround farm areas (Chapple 1964). From 1851 to 1871, Eramosa experienced a period of prosperity, attributed in part to the establishment of the Grand Trunk Railway through Eramosa, including a station in Rockwood. The population of Eramosa peaked in 1871, and then steadily declined until the 1951 census.

Garafraxa Township was surveyed in 1821 by Samuel Ryckman. Like Eramosa Township, European descendant settlement in the first half of the 19th century was slow, with no major urban centres established in the township. In 1869, the eastern portion of the township was ceded to Dufferin County, creating West Garafraxa (including bridge 2-WG) and East Garafraxa. A key feature of the Geographic Township of West Garafraxa is Lake Belwood, located northwest of the bridge. Lake Belwood is a reservoir on the Grand River created by the construction of the Shand Dam in 1942 for flood control and the generation of hydroelectricity.

Past and Current Land Uses of Study Areas

The study areas are situated within the right-of-way (ROW) between the following historical lots:

- 2-WG – Between Lot 1, Concession 3 and Lot 1, Concession 4, Former Township of Garafraxa
- 3-E – Between Lot 29, Concession 5 and Lot 29, Concession 6, Former Township of Eramosa
- 5-E – Between Lot 28, Concession 3 and Lot 28, Concession 4, Former Township of Eramosa
- 7-E – Between Lot 28, Concession 2 and Lot 28, Concession 3, Former Township of Eramosa

Table 2 provides an overview of the owners of each lot and concession as well as notable archaeological features associated with the 1861 *County Map of Wellington County* and the 1877 *Illustrated Historical Atlas of Wellington County* maps (Map 3, Map 4). No archaeological features are depicted within the study areas on either map; this does not mean the properties were vacant, only that the landowners did not subscribe to the map publisher.

TABLE 2: OVERVIEW OF LOT AND CONCESSION OWNERSHIP

Bridge Identifier	Lot	Con.	1861 Map Occupants	1877 Map Occupants
2-WG	1	3	Part Lot 1, Concession 3 illustrated as ‘Non-resident’, no historical features are depicted.	J. *Illegible* shown as owning the east quarter of lot; no historical features are depicted.

	1	4	William Rutherford shown as owning lot, no historical features are depicted.	O. Allen shown as owning the west half of lot; one residential structure illustrated, north of study area (and possibly representing extant house north of study area).
3-E	29	5	Isaac Williams shown as owning the east half of lot; no historical features are depicted.	John Leslie shown as owning the east half of lot; Shiloh post office depicted within lot, north of study area.
	29	6	John Awrey shown as owning the entire lot; a school house is illustrated in the northwest corner of the lot, outside the study area.	No owner shown as owning west half of the lot; sawmill depicted, possibly within study area and school house illustrated north of study area.
5-E	28	3	Phil Frewre shown as owning the east half of lot; no historical features are depicted.	F. Fruer shown as owning the east half of lot; no historical features are depicted.
	28	4	Patrick Malone shown as owning the west half of lot; no historical features are depicted.	P. Mellon shown as owning the west half of lot; one residential structure illustrated north of study area.
7-E	28	2	John Wood shown as owning the east half of lot; no historical features are depicted.	No owner shown as owning east half of the lot; no historical features are depicted.
	28	3	James Armstrong shown as owning the west half of lot; no historical features are depicted.	J. Wood shown as owning the west half of lot; one residential structure illustrated southeast of study area.

A review of the 1954 aerial photograph depicts the study areas as unmodified during this time, no structures are illustrated within or immediately adjacent to the study areas.

Archaeological Context

Archaeological Sites and Previous Assessments

The registered archaeological site records kept by the MCM were consulted so that an inventory of archaeological resources could be compiled. In Ontario, information

concerning archaeological sites is stored in the Ontario Archaeological Sites Database maintained by the MCM. This database contains archaeological sites registered according to the Borden system. Under the Borden system, Canada is divided into grid blocks based on latitude and longitude. A Borden block is approximately 13km east to west and approximately 18.5km north to south. Each Borden block is referenced by a four-letter designator, and sites within a block are numbered sequentially as they are found.

According to the *Standards and Guidelines for Consultant Archaeologists*, all registered or known archaeological sites within a minimum 1 km distance from the study areas must be listed. No archaeological sites were found within 1 km of the bridges.

A search on archaeological fieldwork carried out within the limits of, or immediately adjacent (within 50 metres) to, the study areas was conducted. No archaeological reports have been registered adjacent to, or within the study areas.

The Natural and Physical Environment

The study areas are situated within the Guelph Drumlin Field physiographic region, which is described as:

> *The drumlins of this field are not so closely grouped as those of some other areas and there is more intervening low ground, which is largely occupied by fluvial materials. The till in these drumlins is loamy and calcareous, and was derived mostly from dolostone of the Amabel Formation so strategically exposed along the Niagara Cuesta…The till throughout is rather stony, with large surface boulders being more numerous in some localities than others…The ice which moulded this drumlin field advanced from the southeast and the front of the melting receding glacier was at right angles to this, that is, down slope of the plain. The drainage of the ice front was consequently able to find progressively lower and lower outlets, so that the drumlin field is furrowed by more or less parallel valleys running almost at right angles to the trend of the drumlins themselves. There are also numerous interconnecting cross valleys which occupy deeper depressions between drumlins. Along the sides of these valleys there are broad sand and gravel terraces, while the bottoms are often swampy…Incidental to this pattern are the several gravel ridges or eskers which cross the plain in the same general direction as the drumlins.*
>
> Chapman and Putnam 1984:138

The soil of the bridge study areas consist of the following types:

- 2-WG – Fox Sandy Loam and Guelph Loam
- 3-E – Brady Sandy Loam and Gilford Loam
- 5-E – Brady Sandy Loam and Gilford Loam
- 7-E – Guelph Loam and muck soils

The Guelph Loam soil series is a well-draining soil forming gently rolling hills and steeply rolling drumlins throughout the region. Generally, these soils are ideal for agriculture. The Fox Sandy Loam series is a calcareous sand with good natural drainage deposited as glacial outwash and is often found beside present-day streams, often associated with gently undulating topography. Brady series soils are imperfectly drained and are similar in composition to the Fox series; these soils are found in smooth areas with very little slope. Gilford series soils are outwash soils with poor natural drainage and are found in depressional areas. All soil series descriptions are taken from (Hoffman and Matthews (1963).

The study areas are located within the Grand River watershed and are located on tributaries of the Grand River. The study areas are located between approximately 3-6.6 km east and southeast of the Grand River. The study areas range from approximately 392-425 m above sea level.

Field Methods

The Stage 1 archaeological assessment was conducted under archaeological consulting license P1056 issued to Jamie Lemon by the MCM (P1056-0263-2024). Field director duties were delegated to Chris Lemon (R289) per Section 12 of the MCM 2013 *Terms and Conditions for Archaeological Licenses*, issued in accordance with clause 48(4)(d) of the *Ontario Heritage Act*.

The Stage 1 property assessment was conducted on 13 May 2024. Assessment conditions were good and at no time were the field, weather, or lighting conditions detrimental to the recovery of archaeological material. The weather was cloudy, with a temperature of 10°C.

The study areas consist of municipal ROWs, which include gravel roads with steep ditches, overgrown shorelines, and in some cases manicured lawn. A negative indicator of archaeological potential is extensive, below-grade land disturbance. Disturbance associated with soil manipulation, grading, and stockpiling of soils were encountered in association with the construction of the bridges and gravel roads within the study areas. Areas of low archaeological potential were also encountered in the form of low-lying wet environments and steep ditches.

The property inspection was carried out systematically, reviewing the extent of the existing road ROW to identify the presence or absence of archaeological potential, for a distance of 20 m from the end of each bridge. Photographic images of the study areas are presented within Images 1 - 16. Location and orientation information associated with all photographs taken in the field is provided on Map 6.

Record of Documentation

TABLE 4 - RECORD OF DOCUMENTATION

Document Type	Location of Document	Additional Comments	Quantity
Field Notes	PHC Office	1 lined sheet stored in project file	1 page
Maps Provided by Client	PHC Office	In project file (Site Map)	1 map
Digital Photographs	PHC Office	Stored digitally in project file	156 photographs

Analysis and Conclusion

Archaeological Potential

Archaeological Potential for the Study Area

Archaeological potential is established by determining the likelihood that archaeological resources may be present on a subject property. In accordance with the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* the following are features or characteristics that indicate archaeological potential:

- Previously identified archaeological sites;
- Water sources:
  - Primary water sources (lakes, rivers, streams, creeks);
  - Secondary water sources (intermittent streams and creeks; springs; marshes; swamps);
  - Features indicating past water sources (e.g. glacial lake shorelines indicated by the presence of raised gravel, sand, or beach ridges; relic river or stream channels indicated by clear dip or swale in the topography; shorelines of drained lakes or marshes; and cobble beaches);
  - Accessible or inaccessible shoreline (e.g. high bluffs, swamps or marsh fields by the edge of a lake; sandbars stretching into marsh);
- Elevated topography (eskers, drumlins, large knolls, plateaux);
- Pockets of well drained sandy soil, especially near areas of heavy soil or rocky ground; Distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases (there may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings);
- Resource areas including:
  - Food or medicinal plants;
  - Scarce raw minerals (e.g. quartz, copper, ochre or outcrops of chert);
  - Early Euro-Canadian industry (fur trade, mining, logging);
  - Areas of Euro-Canadian settlement; and,
  - Early historical transportation routes.

In recommending a Stage 2 property survey based on determining archaeological potential for a study area, MCM stipulates the following:

- No areas within 300 m of a previously identified site; water sources; areas of early Euro-Canadian Settlement; or locations identified through local knowledge or informants can be recommended for exemption from further assessment;

- No areas within 100 m of early transportation routes can be recommended for exemption from further assessment; and,
- No areas within the property containing an elevated topography; pockets of well-drained sandy soil; distinctive land formations; or resource areas can be recommended for exemption from further assessment.

Archaeological Integrity

A negative indicator of archaeological potential is extensive land disturbance. This includes widespread earth movement activities that would have eradicated or relocated any cultural material to such a degree that the information potential and cultural heritage value or interest has been lost.

Section 1.3.2 of the MCM 2011 Standards and Guidelines for Consultant Archaeologists states that:

> *Archaeological potential can be determined not to be present for either the entire property or a part(s) of it when the area under consideration has been subject to extensive and deep land alterations that have severely damaged the integrity of any archaeological resources (MCM 2011:18)*

The types of disturbance referred to above include, but are not restricted to, quarrying, sewage and infrastructure development, building footprints, and major landscaping involving grading below topsoil.

Potential for Archaeological Resources Within Study Area

Following the criteria outlined above to determine archaeological potential, background research identified the study area to exhibit archaeological potential for the following reasons:

- Tributaries of the Grand River flow through the study areas.
- The majority of the soils of the study areas would have been suitable for Indigenous and Euro-Canadian agricultural practices.
- The study areas are located along historical transportation routes.
- A 19th century sawmill was located within or adjacent to 3-E.

Conclusion

The study areas consist of municipal ROWs, which include gravel roads with steep ditches to poorly drained environs. Although background research indicated the potential for archaeological research, a negative indicator of archaeological potential is extensive, below-grade land disturbance. Disturbance associated with soil manipulation and grading were encountered in association with the construction of the bridges and gravel roads within the study areas. Areas of low archaeological potential were also encountered in the form of low-lying wet environments and steep ditches, the result of extensive soil disturbance.

Recommendations

Based on the results of the Stage 1 archaeological assessment, the following recommendations are provided:

1. The study areas were identified to exhibit low archaeological potential due to previous disturbance or poorly drained conditions. The study areas are considered free of archaeological concerns and no further archaeological assessment is recommended (Map 6).

It is requested that this report be entered into the Ontario Public Register of Archaeological Reports, as provided for in Section 65.1 of the Ontario Heritage Act.

Advice on Compliance with Legislation

Advice on the compliance with legislation is not part of the archaeological record. However, for the benefit of the proponent and approval authority in the land use planning and development process, the report must include the following standard statements:

- This report is submitted to the Minister of Heritage, Sport, Tourism and Cultural Industries as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c O.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection, and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issue by the ministry stating that there are no further concerns with regards to alterations to archaeological sites by the proposed development.
- It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.
- Should previously undocumented archaeological resources be discovered, they may be representative of a new archaeological site or sites and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the *Ontario Heritage Act*.
- The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33, requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ministry of Consumer Services is also immediately notified.

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Images



IMAGE 1: 2-WG WITH STEEP DITCHES TO POORLY DRAINED ENVIRONS, FACING SOUTHEAST



IMAGE 2: 2-WG WITH STEEP DITCHES, FACING SOUTH



IMAGE 3: 2-WG WITH STEEP DITCHES, FACING NORTH



IMAGE 4: 2-WG WITH STEEP DITCHES, FACING SOUTHEAST



IMAGE 5: 3-E WITH STEEP DITCHES TO POORLY DRAINED ENVIRONS, FACING NORTHWEST



IMAGE 6: 3-E WITH STEEP DITCHES TO POORLY DRAINED ENVIRONS, FACING SOUTHEAST



IMAGE 7: 3-E WITH STEEP DITCHES TO POORLY DRAINED ENVIRONS, FACING SOUTHEAST



IMAGE 8: 3-E WITH STEEP DITCHES TO POORLY DRAINED ENVIRONS, FACING NORTHWEST



IMAGE 9: 5-E WITH STEEP DITCHES TO POORLY DRAINED ENVIRONS, FACING SOUTHEAST



IMAGE 10: 5-E WITH STEEP DITCHES TO POORLY DRAINED ENVIRONS, FACING NORTHWEST



IMAGE 11: 5-E WITH STEEP DITCHES TO POORLY DRAINED ENVIRONS, FACING NORTHWEST



IMAGE 12: 5-E WITH STEEP DITCHES TO POORLY DRAINED ENVIRONS, FACING NORTHWEST



IMAGE 13: 7-E WITH STEEP DITCHES TO POORLY DRAINED ENVIRONS, FACING SOUTHEAST



IMAGE 14: 7-E WITH STEEP DITCHES TO POORLY DRAINED ENVIRONS, FACING NORTHWEST



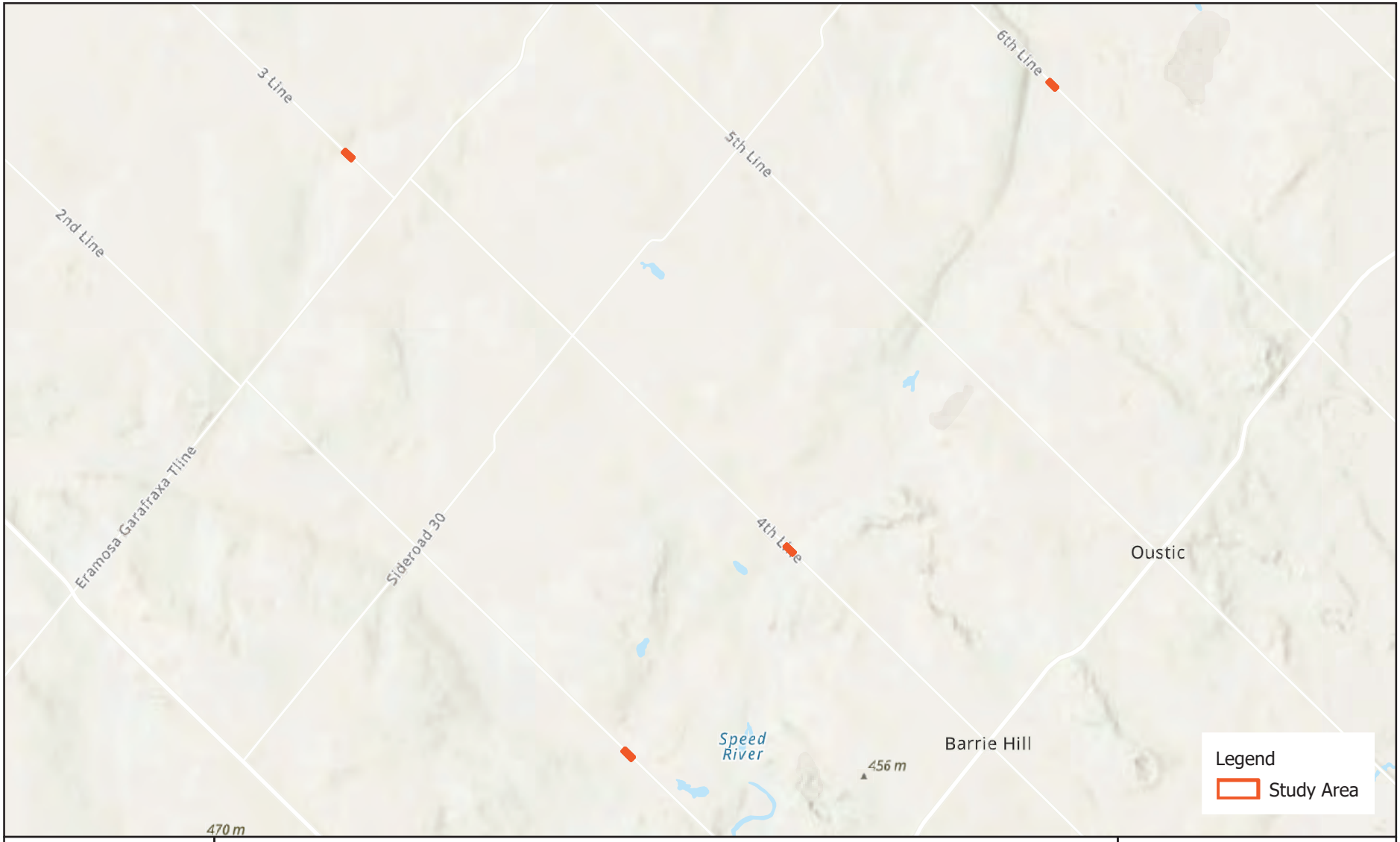
IMAGE 15: 7-E WITH STEEP DITCHES TO POORLY DRAINED ENVIRONS, FACING SOUTHEAST



IMAGE 16: 7-E WITH STEEP DITCHES TO POORLY DRAINED ENVIRONS, FACING NORTHWEST

Maps

All maps on subsequent pages.



Stage 1 Archaeological Assessment
Centre Wellington Bridges

Map 1 - Study Area on Topographic Map

Esri, NASA, NGA, USGS, FEMA, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, NRCan, Parks Canada

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

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0 500 1,000 Meters

0 0.75 1.5 Km



Stage 1 Archaeological Assessment Centre Wellington Bridges

Map 2 - Study Area on Modern Aerial Image

Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/ NASA, USGS, EPA, NPS, US Census Bureau, USDA, NRCan, Parks Canada, Maxar

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

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Stage 1 Archaeological Assessment Centre Wellington Bridges

Map 3 - Study Areas on 1861 Map of Wellington County

Maxar

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

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0 0.5 1 Km



Stage 1 Archaeological Assessment Centre Wellington Bridges

Map 4 - Study Areas on 1877 Illustrated Historical Atlas

Maxar

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

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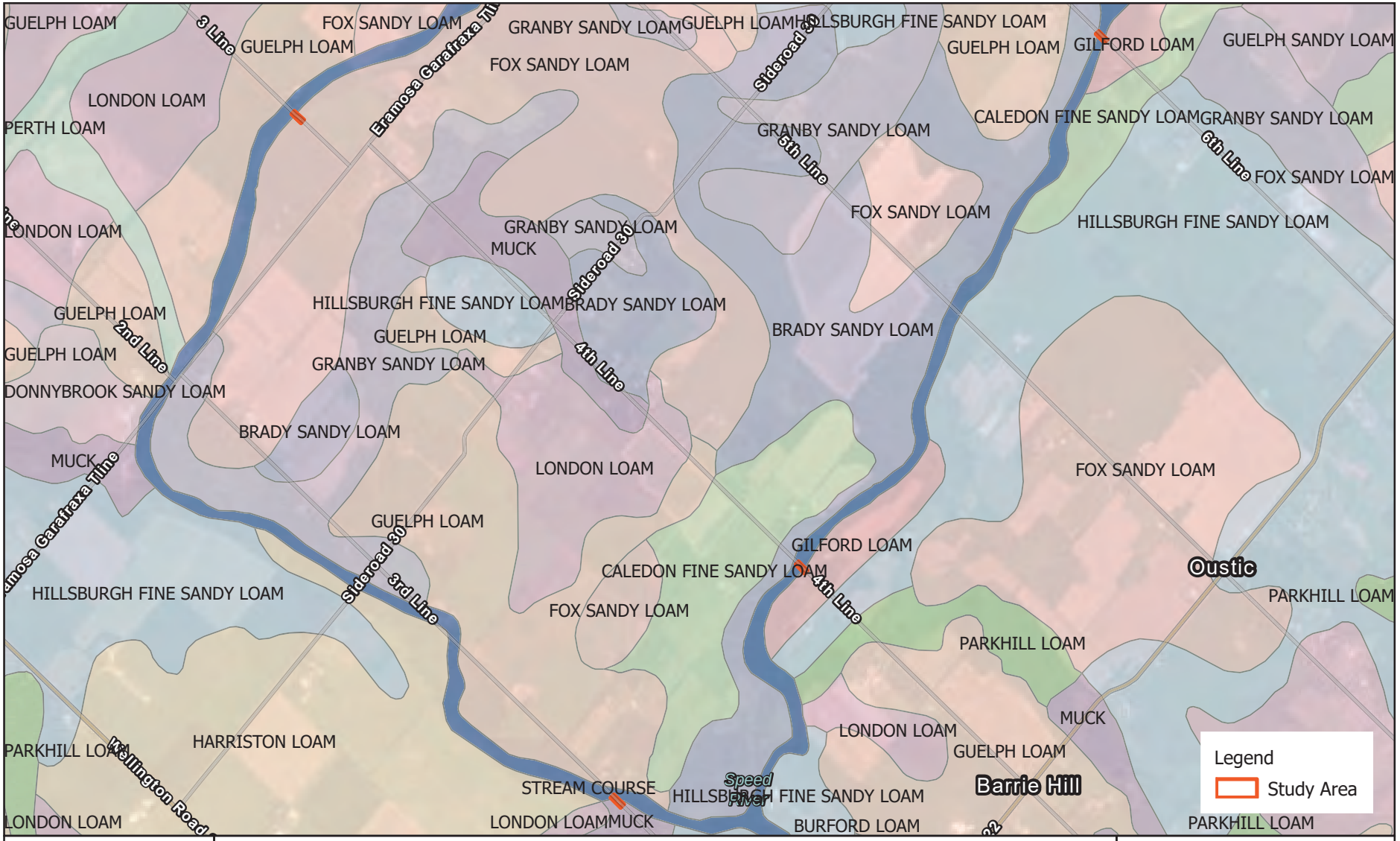

Stage 1 Archaeological Assessment
Centre Wellington Bridges

Map 5 - Study Areas on Soils Map

Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/ NASA, USGS, EPA, NPS, US Census Bureau, USDA, NRCan, Parks Canada, Maxar

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

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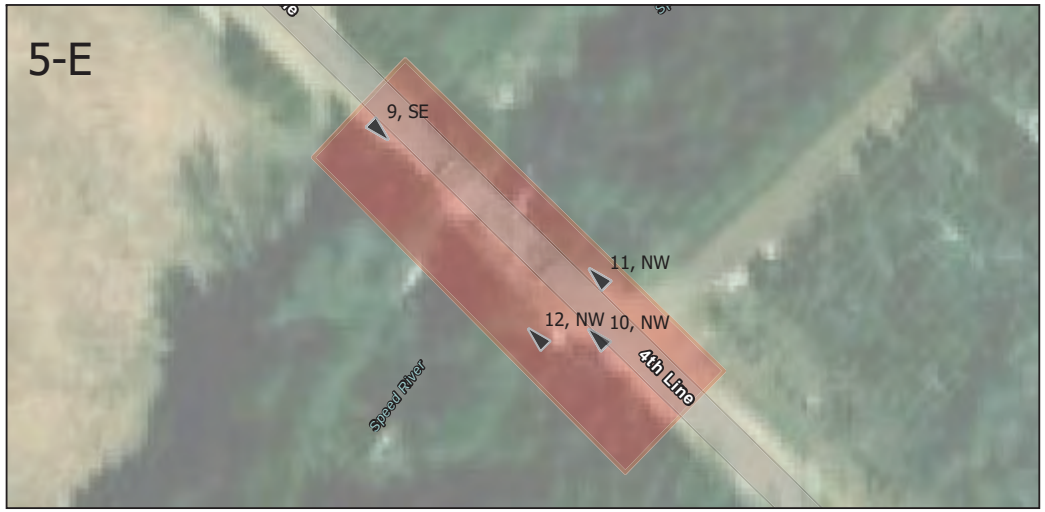

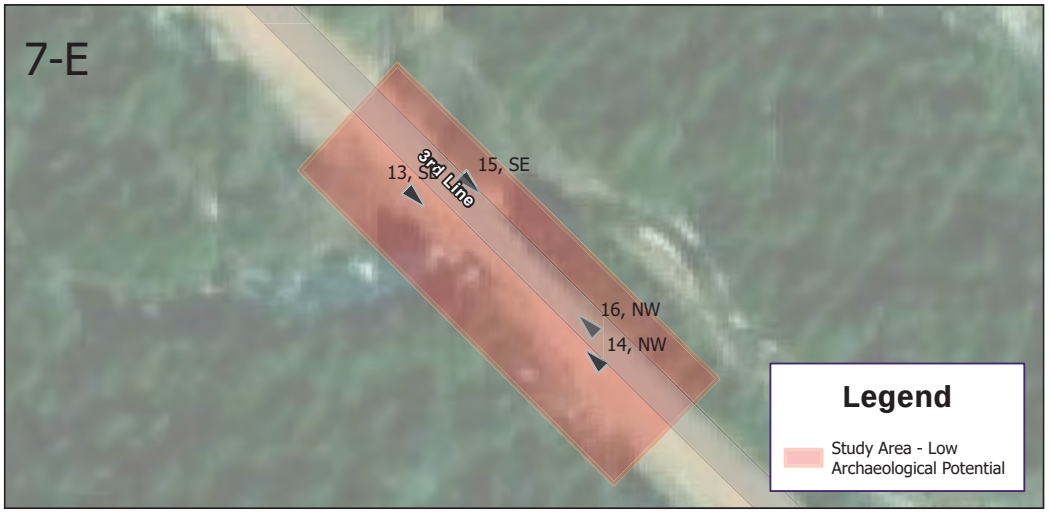

Stage 1 Archaeological Assessment Centre Wellington Bridges

Map 6 - Stage 1 Assessment Results, Photo Locations and Directions

Maxar, Microsoft, Region of Waterloo, Maxar, Microsoft, Esri Community Maps Contributors, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, NRCan, Parks Canada

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

N

0 25 50 Meters

0 0.03 0.07 Km

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BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix A.9

Technical Memorandum – Preliminary Construction Cost Estimate

R.J. Burnside & Associates Limited 292 Speedvale Avenue West Unit 20 Guelph ON N1H 1C4 CANADA
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Technical Memorandum – Preliminary Construction Cost Estimates

Date: December 20, 2024 **Project No.:** 300058117.0000

Project Name: Bridge and Transportation Network Study for Bridges 2-WG, 3-E, 5-E, and 7-E

Client Name: Township of Centre Wellington

Submitted To: Project File Report

Submitted By: Andrew Dawson, P.Eng.

Reviewed By: Matthew Brooks, P.Eng.

1.0 Context

As part of the Bridge and Transportation Network Study for Bridges 2-WG, 3-E, 5-E, and 7-E, R.J. Burnside & Associates Limited (Burnside) has completed a high-level cost estimate for the removal and replacement of the four bridge structures. The purpose of these high-level estimates is for the evaluation of the alternative solutions and for consideration by the Township of Centre Wellington (Township) when determining the required budget allocations for the proposed works.

2.0 Assumptions

The geometries used for the replacement costs herein are in accordance with the preliminary preferred structure type and spans identified through the study, as outlined within the various technical memorandums included in the Project File Report. Preliminary geometric design has been completed to estimate the approximate limits of the road reconstruction required with each replacement. It is noted that this geometry or structure type may be subject to change during the detailed design of the bridges, where additional information such as geotechnical investigation recommendations and more refined hydraulic analysis and road design have been completed.

3.0 Geometry

As per the preliminary conceptual designs completed as part of this study, the proposed geometry used for estimating construction costs is summarized in Table 1 below.

Table 1: Geometry of Replacement Bridges

Bridge ID	Bridge Type	Total Bridge Length	Bridge Width	Bridge Deck Area	Road Work Length
2-WG	Concrete Rigid Frame	16.1 m	13.0 m	209.3 m^2	180 m
3-E	Prestressed Box Girder	20.2 m	9.8 m	198.0 m^2	250 m
5-E	Concrete Rigid Frame	16.1 m	13.0 m	209.3 m^2	120 m
7-E	Concrete Rigid Frame	12.6 m	13.0 m	163.8 m^2	200 m

4.0 Construction Cost Estimations

Construction cost estimates have been based on the 2021 MTO Parametric Estimating Guide (PEG), which allows work to be estimated on the basis of a unit cost per square metre. Unit costs are provided in the MTO PEG based on simple criteria such as structure type and total deck area. A range of historic unit costs is provided in the MTO PEG for reference when selecting the appropriate unit costs. It is recognized that the cost data provided in the MTO's guide is based on historical costs for bridges within the Ministry's inventory and may vary as compared to the costs associated with bridges within municipalities. Burnside has reviewed the appropriate range of costs for the given deck areas and has used knowledge of the current industry standard costs taken from our previously completed projects to aid in the selection of appropriate unit costs from the MTO's range of costs.

The recommended unit cost ranges of the MTO PEG and Burnside's selected unit cost for each structure type carried forward for construction cost estimates are provided in Table 2 below.

Table 2: Unit Cost/m^2 of Deck Area for Structure Types

Bridge Type	MTO PEG Recommended Cost per m^2			Selected Unit Cost per m^2
	Overall Cost Range	Average Cost	Deck Area Cost Range	
Concrete Rigid Frame	$2,900.00 to $9,700.00	$6,300.00	$3,500.00 to $6,500.00	$6,300.00
Prestressed Box Girder	$4,500.00 to $11,100.00	$7,800.00	$7,000.00 to $10,000.00	$8,500.00

To adjust the unit costs from the 2021 reference data to current costs, Burnside has applied an additional 15% to the calculated costs of the bridge. The resulting costs for the bridge work (excluding approach road work) are provided in Table 3.

Table 3: Bridge Replacement Cost Estimates (excluding Roadwork)

Bridge ID	Construction Cost Calculation	Estimated Cost for Bridge Replacement (Rounded up to the nearest $10,000)
2-WG	209.3 m^2 x $6,300.00/$m^2$ x 115%	$1,520,000.00
3-E	198.0 m^2 x $8,500.00/$m^2$ x 115%	$1,940,000.00
5-E	209.3 m^2 x $6,300.00/$m^2$ x 115%	$1,520,000.00
7-E	163.8 m^2 x $6,300.00/$m^2$ x 115%	$1,190,000.00

In addition to the bridge replacement costs, the costs related to the road reconstruction on the approaches of the road can be estimated using the typical cost ranges for Road Reconstruction, as outlined in Table 4 of the MTO PEG. The typical cost from the MTO PEG ranges from $331,000.00 to $770,000.00 per kilometer of lane, with a provincial average of $550,000.00 per kilometer of lane. Given the relatively short runs of road reconstruction associated with the proposed alternatives, Burnside's experience has found that the typical cost per kilometer of lane for similar projects is approximately $700,000.00. Based on the above geometry and selected unit costs, the estimated costs, rounded up to the nearest $10,000.00 are provided in Table 4.

Table 4: Approach Road Construction Costs

Bridge ID	Construction Cost Calculation	Estimated Cost for Bridge Replacement (Rounded up to the nearest $10,000)
2-WG	180 m x 2 / 1,000 m x $700,000.00/km	$260,000.00
3-E	250 m x 2 / 1,000 m x $700,000.00/km	$350,000.00
5-E	120 m x 2 / 1,000 m x $700,000.00/km	$170,000.00
7-E	200 m x 2 / 1,000 m x $700,000.00/km	$280,000.00

Based on the combined cost for the bridge replacement and road reconstruction, the total construction costs are estimated in Table 5 below.

Table 5: Total Estimate Construction Costs

Bridge ID	Bridge	Approach Road	Total
2-WG	$1,520,000.00	$260,000.00	$1,780,000.00
3-E	$1,940,000.00	$350,000.00	$2,290,000.00
5-E	$1,520,000.00	$170,000.00	$1,690,000.00
7-E	$1,190,000.00	$280,000.00	$1,470,000.00

These estimated construction costs are within the cost range that Burnside would expect based on knowledge of current industry pricing for projects of comparable structure types and sizes within the Township of Centre Wellington and surrounding municipalities.

The estimated costs will be used in the evaluation of alternatives. For budgeting purposes, the Township may wish to apply an additional contingency to account for additional costs that may arise during detailed design, which may not be identifiable based on the high-level nature of these conceptual designs.

R.J. Burnside & Associates Limited



Andrew Dawson, P.Eng.
Project Engineer
AD:smm

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Appendix B

Public Consultation Records

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Indigenous Communities Consultation Records	B.5
Agency Consultation Records	B.6

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Appendix B.1

Project Contact Lists

Title	First Name	Last Name	Position	Organization	Address	City	Prov	Postal Code	Telephone	Email
Provincial & Federal Agency										
Sir/Madam			Class EA Form	Ministry of Environment, Conservation and Parks						eanotification.wcregion@ontario.ca
				Ministry of the Environment, Conservation and Parks - Environmental Assessment and Permissions Branch						MEA.NOTICES.EAAB@ontario.ca
	Joan	Del Villar Cuicas	Environmental Resource Planner & EA Coordinator (Acting)	Ministry of the Environment, Conservation and Parks, West Central Region	135 St Clair Ave W., 8th Floor	Toronto	ON	M4V 1P5		joan.delvillarcuicas@ontario.ca;
Ms.	Tammy	Verhaeghe	District Planner, Guelph District	Ministry of Natural Resources and Forestry	1 Stone Road West	Guelph	ON	N1G 4Y2	519-826-4931	tammy.verhaeghe@ontario.ca
Mr.	Dan	Minkin	Heritage Planner, -MCM	Ministry of Citizenship and Multiculturalism (MCM)	401 Bay Street	Toronto	ON	M7A 0A7	416-786-7553	dan.minkin@ontario.ca
Ms.	Jessica	Hill	Senior Advisor - Indigenous Relations Unit	Ministry of Indigenous Affairs	160 Bloor Street, Suite 400	Toronto	ON	M7A 2E6	416-326-4744	jessica.hill2@ontario.ca
Sir/Madam				Fisheries and Oceans Canada Centre for Inland Waters	867 Lakeshore Road	Burlington	ON	L7S 1A1	905-336-4999	info@dfo-mpo.gc.ca
Municipal Agency										
Mr.	Shawn	Watters	Mayor	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x295	mayor@centrewellington.ca
Ms.	Kerri	O'Kane	Manager of Legislative Services & Municipal Clerk	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x243	kokane@centrewellington.ca
Mr.	Dan	Wilson	Chief Administrative Officer	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x234	dwilson@centrewellington.ca
Ms.	Kendra	Martin	Communications Officer	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x220	kmartin@centrewellington.ca
Mr.	John	Gaddye	Superintendent of Public Works	Township of Centre Wellington	7444 Wellington Road 21	Elora	ON	N0B 1S0	519-846-9691 x313	jgaddye@centrewellington.ca
Ms.	Mariana	Iglesias	Manager of Planning	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x289	miglesias@centrewellington.ca
Mr.	Brett	Salmon	Managing Director of Planning & Development	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x297	bsalmon@centrewellington.ca
Mr.	Adam	McNabb	Managing Director of Coporate Services & Treasurer	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x224	amcnabb@centrewellington.ca
Ms.	Pat	Newson	Managing Director of Community Services	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x319	pnewson@centrewellington.ca
Mr.	Colin	Baker	Managing Director of Infrastructure Services	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S1	519-846-9691 x357	cbaker@centrewellington.ca
Ms.	Lisa	MacDonald	Township Councillor - Ward 1	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	226-384-2345	ward1@centrewellington.ca
Ms.	Kimberley	Jefferson	Township Councillor - Ward 2	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	226.332.5861	ward2@centrewellington.ca
Ms.	Barbara	Lustgarten-Evoy	Township Councillor - Ward 3	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	226.332.6005	ward3@centrewellington.ca
Ms.	Jennifer	Adams	Township Councillor - Ward 4	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519.827.5904	ward4@centrewellington.ca
Ms.	Bronwynne	Wilton	Township Councillor - Ward 5	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	226.332.6004	ward5@centrewellington.ca
Mr.	Denis	Craddock	Township Councillor - Ward 6	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	226.332.6214	ward6@centrewellington.ca
Mr.	Phil	Brown	Chair, Centre Wellington Heritage Committee	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0		
Mr.	Don	Kudo	County Engineer	Wellington County	74 Woolwich Street	Guelph	ON	N1H 3T9	519-837-2600 x2280	donk@wellington.ca
Mr.	Joe	de Koning	County Engineer	Wellington County	74 Woolwich Street	Guelph	ON	N1H 3T9	519-837-2600 x2270	joedk@wellington.ca
Mr.	Harry	Niemi	Director of Public Works	Township of Guelph Eramosa	8348 Wellington Rd Suite 124	Rockwood	ON	N0B 2K0	519-856-9596 x109	hniemi@get.on.ca
Emergency Services										
Mr.	Tom	Mulvey	Deputy Fire Chief	Township of Centre Wellington	250 Queen Street W	Fergus	ON	N1N 1S8	519-846-9691 x389	tmulvey@centrewellington.ca
Mr.	Jonathan	Karn	Deputy Fire Chief	Township of Centre Wellington	250 Queen Street W	Fergus	ON	N1N 1S8	519-846-9691 x387	jkarn@centrewellington.ca
Ms.	Chantalle	Pellizzari	Community Emergency Management Coordinator	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x241	cpellizzari@centrewellington.ca
Ms.	Shannon	Koestner	Community Emergency Management Coordinator	Township of Centre Wellington	1 MacDonald Square	Elora	ON	N0B 1S0	519-846-9691 x249	skoestner@centrewellington.ca
	Hurania	Melgar	Emergency Manager/CEMC	County of Wellington	536 Wellington Road 18 RR1	Fergus	ON	N1M 2W3	519-837-2600 x3322	huraniam@wellington.ca
Ms.	Marylin	Koch	Centre Wellington Operations Centre (Fergus) Detachment - Admin Assistant	Ontario Provincial Police	371 Charles Allan Way	Fergus	ON	N1M 2W3	519-846-5930	~~marilynkoch@opp.ca~~
Ms.	Cathy	McKeown	Centre Wellington Operations Centre (Fergus) Detachment - Admin Assistant	Ontario Provincial Police	371 Charles Allan Way	Fergus	ON	N1M 2W3		Carly.McKeown@opp.ca
Ms.	Sherry	Hoysa	Guelph Wellington Paramedic Services							sherry.hoysa@guelph.ca
Conservation Authority										
Ms.	Laura	Warner	Resource Planner	Grand River Conservation Authority	400 Clyde Road, PO Box 729	Cambridge	ON	N1R 5W6	519-621-2763 x 2231	~~lwarner@grandriver.ca~~
Mr.	Trevor	Heywood	Resource Planner	Grand River Conservation Authority	400 Clyde Road, PO Box 729	Cambridge	ON	N1R 5W6	519-621-2763 x 2292	theywood@grandriver.ca
Mr.	Dwight	Boyd	Director of Engineering	Grand River Conservation Authority	400 Clyde Road, PO Box 729	Cambridge	ON	N1R 5W6	519-621-2763 x2225	dboyd@grandriver.ca
School Boards & Student Transportation										
Ms.	Martha C.	Rogers	Director of Education	Upper Grand District School Board	500 Victoria Road North	Guelph	ON	N1E 6K2	519-822-4420 x721	amy.villeneuve@ugdsb.on.ca
Mr.	Michael	Glazier	Director of Education	Wellington Catholic District School Board	75 Woolwich Street	Guelph	ON	N1H 6H6	519-821-4640 x214	michael.glazier@wellingtoncdsb.ca
Sir/Madam				Wellington-Dufferin Student Transportation Services	66 Arrow Road	Guelph	ON	N1K 1T4	519-842-4119	
Businesses - 4 Bridge EA										
Ms.	Janet	Harrop	President	Wellington Federation of Agriculture	7764 Nichol Sdrd 5	Fergus	ON	N1M 2W3	519-820-9293	
				Herwynen Sawmill	5953 Sixth Line	Guelph/Eramosa	ON	N0B 2K0	519-856-2489	
				St. Peter's Church	8404 Fifth Line	Guelph/Eramosa	ON	N1M 2W5	519-833-9738	
				Stella-Jones Inc.	7818 Wellington Road 22	Guelph	ON	N1H 6J2	519-822-3901	
Utilities										
Mr.	Ahmad	Nouman	Supervising Distribution Tech.	Hydro One -Guelph					519-535-7361	ahmad.nouman@hydroone.com
Mr.	Bill	Downes	Bell Implementation Manager	Bell Canada	Flr 3,20 Cork St East	Guelph	ON	N1H 2W7	226-750-5389	william.downes1@bell.ca
Ms	Katelyn	Creed	Bell Implementation Manager	Bell Canada	Flr 3,20 Cork St East	Guelph	ON	N1H 2W7	226-388-0180	katelyn.creed@bell.ca

Indigenous Communities										
Chief	Sherri-Lyn	Hill	Chief	Six Nations of the Grand River	1695 Chiefswood Rd., PO Box 5000	Ohsweken	ON	N0A 1M0	519-445-2201	sngr.chief@sixnations.ca sherri-lyn_hillpierce@sixnations.ca
	Lonny	Bomberry	Lands and Resources Director	Six Nations Lands and Resources	2498 Chiefswood Rd., PO Box 5000	Ohsweken	ON	N0A 1M0		lonnybomberry@sixnations.ca
	Peter	Graham	Consultation Supervisor	Six Nations Lands and Resources	2498 Chiefswood Rd., PO Box 5000	Ohsweken	ON	N0A 1M0	519-753-0665 x 5425	LRCS@sixnations.ca; cc
Ms.	Dawn	LaForme		Six Nations Lands and Resources	2498 Chiefswood Rd., PO Box 5000	Ohsweken	ON	N0A 1M0	519-445-2201	dlaforme@sixnations.ca
	Tanya	Hill-Montour		Six Nations Lands and Resources	2498 Chiefswood Rd., PO Box 5000	Ohsweken	ON	N0A 1M0	519-445-2201	tanyahill-montour@sixnations.ca
Chief	Claire	Sault	Chief	Mississaugas of the Credit First Nation (MCFN)	2789 Mississauga Road	Hagersville	ON	N0A 1H0	905-768-1133	claires@mncfn.ca
	Abby	LaForme	Consultation Manager (MCFN, DOCA) Departmer	Mississaugas of the Credit First Nation (MCFN)	2789 Mississauga Road	Hagersville	ON	N0A 1H0	905-768-4260	abby.laforme@mncfn.ca
	Adam	LaForme	Archaeology/FLR Participation Contact	Mississaugas of the Credit First Nation (MCFN)	2789 Mississauga Road	Hagersville	ON	N0A 1H0		adam.laforme@mncfn.ca
	Jesse	Fieldwebster	Manager of Lands, Resources and Consultations	Métis Nation of Ontario	Unit 10 & 11, 845 King Street	Midland	ON	L4R 0B7	(705)-529-6000	consultations@metisnation.org jessef@metisnation.org
				Haudenosaunee Development Institute	16 Sunrise Court, Suite 600, P.O. Box 714	Ohsweken	ON	N0A 1M0	(519) 755-2769	info@hdi.land
Hohahes	Leroy	Hill	Secretary to the Haudenosaunee Confederacy	Haudenosaunee Confederacy	16 Sunrise Court, Suite 600, P.O. Box 714	Ohsweken	ON	N0A 1M0	519-445-4222	iocko@sixnationsns.com; info@hdi.land;
	Raechelle (Janice)	Williams	Environmental Supervisor	Haudenosaunee Confederacy	16 Sunrise Court, Suite 600, P.O. Box 714	Ohsweken	ON	N0A 1M0	519-445-4222	janicewilliams@hdi.land
	Todd	Williams								williams.todde@gmail.com

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Appendix B.2

Public Open House No. 1 Summary

R.J. Burnside & Associates Limited 292 Speedvale Avenue West Unit 20 Guelph ON N1H 1C4 CANADA
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Public Open House No. 1 – Summary Report

Client Name:	Township of Centre Wellington	**Project No.:**	300058117.0000
Project Name:	Bridge and Transportation Network Study for Bridges 2-WG, 3-E, 5-E, & 7-E		
Meeting Date:	July 24, 2024		
Location:	Centre Wellington Community Sportsplex – Gord Brown Hall 550 Belsyde Avenue East, Fergus		
Time:	6:00 p.m. to 8:00 p.m.		
Project Team Members Present:	Adam Gilmore – Township of Centre Wellington Adam Dickieson – Township of Centre Wellington Matthew Brooks – R.J. Burnside & Associates Limited Andrew Dawson – R.J. Burnside & Associates Limited Tricia Radburn – R.J. Burnside & Associates Limited		
Prepared By:	Andrew Dawson & Mishaal Rizwan		

1.0 Introduction and Background

R.J. Burnside & Associates Limited (Burnside) has been retained by the Township of Centre Wellington (Township) to complete a Bridge and Transportation Network Study for Bridges 2-WG, 3-E, 5-E, and 7-E, located in the southeast quadrant of the Township. As part of the study process, the Township elected to complete a Public Open House to consult with the local community and stakeholders to hear their input on the problems and opportunities presented through the consideration of improvements or permanent closure to the four bridges being reviewed.

2.0 Method of Notification

Details of the purpose of the study and the date, time, and location of the in-person meeting and details for accessing the online version of the meeting were delivered to the public and stakeholders through a Notice of Public Open House. A copy of the notice is included in Appendix A. The method of notification and / or advertisement is as follows:

- By mail to all applicable mailing addresses for all properties located within the Study Area.
- By email to agencies, municipalities, and any local members of the public who had provided contact information following the notice of project initiation.
- By registered mail and email to Indigenous Communities.

- By publishing in the Wellington Advertiser on July 11, 2024. A copy of the advertisement is provided in Appendix B.
- Online by posting to the project-specific web page of the Township's 'Connect CW' online platform.

3.0 Public Meeting Format

3.1 In-Person Public Open House

An in-person Public Open House (POH) was arranged as a "drop-in" style session where representatives from the study team were available to answer questions and discuss the project with interested members of the public. Attendees were greeted upon arrival, were encouraged to sign the registration sheet, and were provided with a comment form to provide comments on any aspect of the project.

The open house began at 6:00 p.m. on July 24, 2024. Display boards were placed around the room and representatives from the project team were available to answer any questions and discuss the project with attendees. A copy of the display boards is provided in Appendix C. The display boards covered the following topics:

- Study Area, Objectives, and Process
- Background Information on Each Bridge
- Maps of Properties within the Study Area
- Alternative Solutions For Improvements at Each Bridge
- Criteria to be Considered for Evaluation of Alternatives
- Summary of Completed Archaeological and Cultural Studies
- Overview of Upcoming Investigations and Background Studies
- Next Steps
- Invitation for Participation / Comment

Participants were asked to identify their uses of the bridge and how they would be impacted by improvements or potential closures to the structures. Aerial maps of the study areas were provided for participating members to identify specific areas of concern or land use types and how they will be impacted. Participants were requested to provide input to the process by completing the available comment forms. If individuals wished to provide comments at a later date, the option to do so via email was made available by the contact information provided on the display boards for Project Team members Andrew Dawson and Adam Dickieson. All comments were requested to be submitted by August 23, 2024.

3.2 Online Presentation

A narrated online presentation was also made available for the public to access on their own time, should they not be able to attend the in-person meeting. The online presentation provided

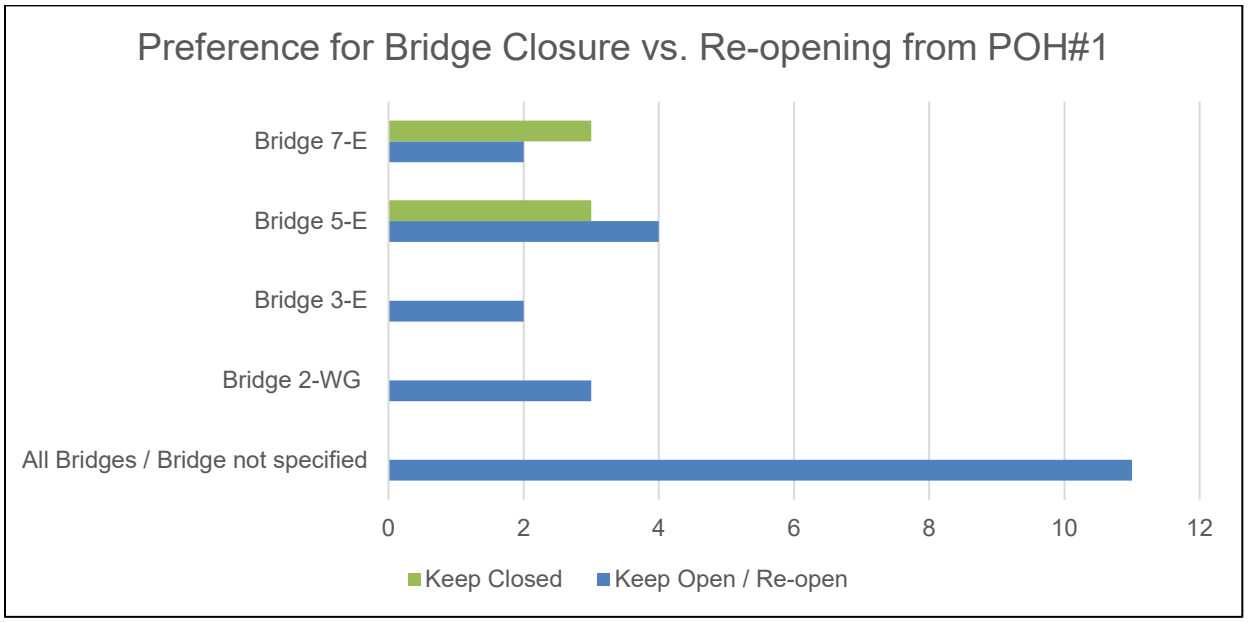
information on the same topics presented through the display boards, as summarized in Section 3.1 above. The narrated presentation was posted online at the project-specific webpage on the Township's 'ConnectCW' platform. A copy of the presentation slides, with the narrated text, is provided in Appendix D. At the time of this report, the video had been viewed 45 times. An online forum for questions was available on the Township web page; however, no comments were received through this method of consultation.

4.0 Participation Levels and Summary of Comments Received

A total of 47 people registered on the sign-in sheet for the in-person POH. 23 comment forms were submitted during the Public Open House, as well as a written letter from a property owner. All comments are documented in Appendix E. The key issues noted within the written responses relate to:

- Delayed response times for emergency services.
- Disruption to farm access and length of driving time required for farm equipment.
- Lack of turn-around space at closed bridges.
- Complicated routing for service vehicles such as school buses, snow ploughs, garbage collection, mail / parcel delivery, etc.
- Ineffective signage at closed bridges resulting in vehicles travelling down road and turning around.
- Taxes not being spent fairly / appropriately within this area of the Township.
- Increased commute times.
- Concerns related to increased traffic and speed if bridges are re-opened.
- Conflict with pedestrians, cyclists, and horseback riders if bridges are re-opened.
- Opportunity for cost savings if culverts or single-lane bridges are used.
- Desire for continued pedestrian use if bridges are closed to vehicular traffic.

In addition to the problems and opportunities identified by the public, some attendees also indicated a preference for the opening or closure of structures within their comment forms. There was a strong preference to keep open or re-open all or some of the bridges. A small number of respondents requested bridges 7-E and 5-E to remain closed for use by pedestrians, cyclists, and horseback riders, and to keep traffic levels low on the 3rd Line and 4th Line. These preferences are summarized below:



5.0 Next Steps

Comments and concerns received at the POH will be used to understand current conditions, current challenges, and problems or opportunities associated with the various alternatives under consideration.

The study will conduct additional supporting studies to help in evaluating the noted problems or opportunities in a quantifiable manner, where applicable. For example, the comments regarding travel times and farm equipment detours will be addressed through the Transportation Network Study planned as part of this overall study.

The comments collected will be kept on file and a summary of all comments received and how each comment was addressed or considered in the final decision will be included in the final Project File Report.

AD:smm

Enclosure(s) Appendix A – Notice of Public Open House No. 1
Appendix B – Wellington Advertiser Notice – July 11, 2024
Appendix C – Public Open House No. 1 Display Boards
Appendix D – Online Presentation Slide Show with Text
Appendix E – Comment Sheets

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Appendix A

Notice of Public Open House No. 1

Notice of Public Open House

Bridge and Transportation Network Study for Four Bridges

This notice was first issued on July 12, 2024

You Are Invited!

The Township would like to welcome your attendance at Public Open House. Information will be presented about four bridges located southeast of Fergus. This Open House will provide information to the community and stakeholders and will be an avenue for you to provide your comments relating to the role of these structures within the local community.

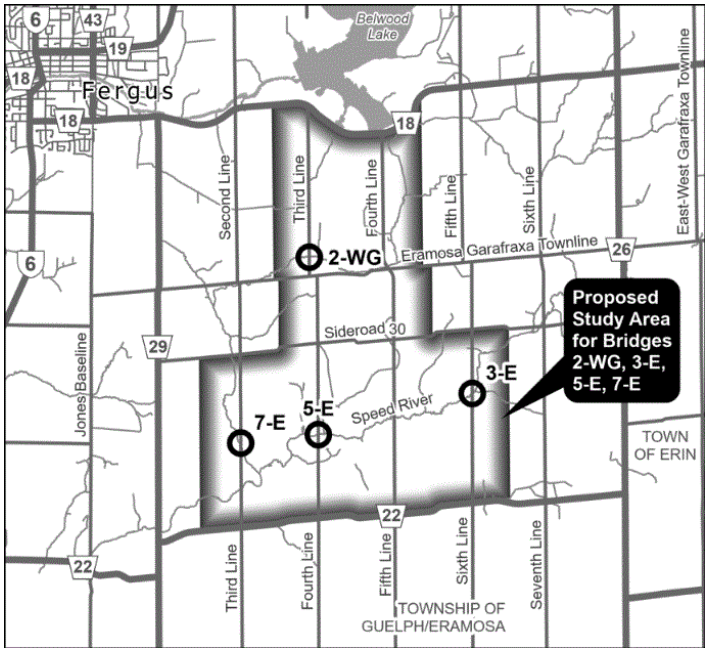
Date & Time: July 24 2024, 6:00 pm – 8:00 pm

Location: Centre Wellington Community Sportsplex - Gord Brown Hall
550 Belsyde Avenue East, Fergus

The Project

The Township of Centre Wellington has initiated a Bridge and Transportation Network Study for Four Bridges. This study will evaluate the role of these structures within the overall transportation network and connectivity in the community and determine the most suitable alternative at each location.

Three of the four bridges (3-E, 5-E, 7-E) are temporarily closed due to poor condition. The fourth bridge (2-WG) is open with load restrictions. The locations of the structures are shown in the key plan herein. The study will evaluate whether each bridge should be closed permanently, rehabilitated (with minor upgrades and modifications), or replaced.



The Study Process

The project will include consultation with agencies, stakeholders, Indigenous communities and public; an evaluation of alternative solutions to address the problem; development of a design concept for the preferred solution; an assessment of potential environmental impacts; and identification of reasonable measures to mitigate any potential adverse impacts. At the conclusion of the study, a report summarizing findings will be prepared for public review.

Township of Centre Wellington 1 MacDonald Square, Elora ON N0B1S0 | 519.846.9691 Fax 519.846.9858

centrewellington.ca

Consultation and Input

At the open house, background information of the project will be provided, and attendees will have the opportunity to direct any comments or questions related to the project directly to the Project Team.

If you are unable to attend the open house, a webpage containing study information is available. The presentation boards will be available on the ConnectCW website following the open house to allow those unable to attend to review material. To review ongoing project updates, visit the webpage at:

https://www.connectcw.ca/bridge-transportation-network-study-four-bridges

If you have questions or comments regarding the study, or would like to be included on the mailing list to receive future notices and study updates, please contact one of the Project Team members below:

Adam Dickieson	**Andrew Dawson, P. Eng.**
Engineering Services Coordinator	Consultant Project Manager
Township of Centre Wellington	R.J. Burnside & Associates Ltd.
1 MacDonald Square, Elora, ON N0B 1S0	292 Speedvale Ave W. #20, Guelph, ON N1H 1C4
519-846-9691 x 355	705-797-4310
adickieson@centrewellington.ca	andrew.dawson@rjburnside.com

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[THE DIFFERENCE IS OUR PEOPLE]

Appendix B

Wellington Advertiser Notice – July 11, 2024

Help Wanted

The Corporation of the County of Wellington
Employment Opportunities

Wellington County consistently ranks as one of the safest communities in Canada and is home to vibrant economies, active and inclusive communities, and beautiful landscapes.

We are committed to building and maintaining a respectful, inclusive and equitable workplace that is representative of the community we proudly serve. The County is looking for individuals who are committed to public service, enjoy collaborating with others and share the County's values. We value applicants with a diverse range of skills, experiences, and competencies, and are looking forward to welcoming new members to our talented team.

The County offers generous compensation, benefits and pension packages. We also offer ongoing career and development opportunities to our employees, with a commitment to health and well-being.

Current Employment Opportunities:

Cook – Child Care Centre, Full Time Regular - #1336
Social Services, Children's Early Years - 95 Willow Road, Guelph ON
The Child Care Cook position reports to the Manager of Directly Operated Programmes and the Child Care Centre Supervisor and is responsible for the daily preparation of meals and snacks for children attending the Centre. Duties include, but are not limited to, purchasing and storing adequate food supplies, keeping records of purchases, and cleaning the kitchen area. This position offers a comprehensive benefit package and an annual salary range of $52,925.60 - $61,698.00 on the Union Compensation Grid based on a 35-hour work week. Posting closes on July 17.

Nutrition Services Cook, Part Time Regular - #1344
Wellington Terrace, 474 Charles Allan Way, Fergus ON
The Nutrition Services Cook is responsible for the preparation of meals as per posted menus and to carry out established nutrition service programmes. In the absence of the Nutrition Services Manager and Nutrition Services Supervisor, the Cook is responsible for the daily function of the Main Kitchen. This position offers a comprehensive benefit package and an hourly range of $31.04 - $36.30 on the Non-Union Compensation Grid. This position works 30 hours bi-weekly; flexibility of hours may be required. Posting closes on July 16, 2024.

Manager of Directly Operated Programmes, Full Time Regular - #1349
Social Services, Children's Early Years - 552 Wellington Rd 18, Fergus Ontario
The Manager of Directly Operated Programmes reports to the Director of Children's Early Years and is responsible for overseeing all licensed child care programmes that are directly operated by the Corporation of the County of Wellington. Duties include but are not limited to administrative and financial duties, liaising with community agencies and committees, building tenants and contractors, and adhering to the College of ECE's Standards of Practice and Code of Ethics. This position offers a comprehensive benefit package and an annual salary range of $99,335.60 - $116,207.00 on the Non-Union Compensation Grid based on a 35-hour work week. Posting closes on July 21.

Registered Nurse, Five Month Contract - #1351
Wellington Terrace Long Term Care Home – Nursing Division, 474 Charles Allan Way, Fergus
The Registered Nurse has an advanced foundation of knowledge in clinical practice to coordinate and deliver complex care with the focus of practice being on decision-making, analysis, critical thinking, and leadership. The Registered Nurse provides resident care, including administration of medications and treatments, by applying the principles of resident focused care. This position offers a benefit package and an hourly range of $54.35 - $62.80 on the Non-Union Compensation Grid. Must also be available to work night shift, including weekends and holidays. Posting closes on July 21.

Visit our website at careers.wellington.ca for position details including minimum qualifications, and to apply.

Personal information is collected pursuant to the Municipal Freedom of Information and Protection of Privacy Act and will be used only to evaluate the suitability of applicants for employment.

The County of Wellington is an equal opportunity employer, dedicated to creating a workplace culture of inclusiveness that reflects the diverse communities we proudly serve. Accommodation for disabilities is available for all parts of the recruitment process. Applicants must make their needs known in advance. Alternate formats available upon request.

Human Resources Department, County of Wellington Administration Centre
74 Woolwich Street, Guelph ON N1H 3T9

Apt. For Rent

2 BEDROOM Apartment available for rent in August in Moorefield adult building. No pets/smoking. $1200 inc heat/-hydro. Laundry facility on site. Please contact 519-638-3054.

Condos For Rent

SENIOR CONDO for rent at Drayton Village on the Ridge. 3 bedrooms, 2 bathrooms, 2 walkout balcony condo is located on 2nd floor. All appliances and utilities inc. Heated indoor parking. $3000/-month. Contact 519-748-8705

Wanted To Rent

ROOM/BACHELOR APT. wanted. $500-$700/month for mature male w/friendly dog in exchange for jobs around property (grass cutting etc.). Farm background. 1-249-360-3291

Mortgages

THE MORTGAGE PEOPLE- We do difficult mortgages. 1st, 2nd & 3rd mortgages. Residential, Commercial, Industrial, Farms & Land. Good credit, bad credit, self-employed. We will come to you. We use your equity in your home to get you approved. Mortgages are cheaper than your credit card. REVERSE MORTGAGES. No fees up front. One week to complete after everything is signed. Could be sooner! Call Don Madill #M08004349 or Nicholas Seibert #M19000535 519-743-5361 or 1-800-361-5114 (Lic#10300) www .themortgagepeople.ca

Storage

Wee Stor SELF STORAGE LOW RATES
- Heated and Non-Heated Units
- Moving Supplies
- Discounts for Students & Seniors

2 GUELPH LOCATIONS: 140 Regal Road, 175 Dawson Road
Call Today! 519-836-5501 www.weestor.ca

20FT SHIPPING containers for sale or rent. Also, 40FT Shipping containers for sale. Merlin Rice 519-323-8670

SWAVING STORAGE- Mobile Storage units 16ft. to 22ft. long. Delivery and pick-up. 519-843-1299 Website: www.swaving.ca Email: mike@swaving.ca

NOTICES

NOTICE OF THE PASSING OF AMENDMENTS TO THE DEVELOPMENT CHARGES BY-LAWS

Guelph/Eramosa Township

On April 10, 2024, the Province on Ontario released proposed changes to the Development Charges Act (D.C.A.) via Bill 185: Cutting Red Tape to Build More Homes Act, 2024. The Bill received Royal Assent on June 6, 2024, therefore,

TAKE NOTICE that the Council of the municipality of Guelph/Eramosa passed amendments to the municipal-wide development charges By-laws No. 24,25,26,27,28/2023 on the 8th day of July 2024 under section 2 (1) of the Development Charges Act, 1997, S.O., 1997 c. 27, as amended. The amendments occurred via amending By-laws No.27,28,29,30,31/2024.

The amendments to the development charges imposed by the by-laws, which came into effect on July 8, 2024 are as follows:

- Revise the definition of capital cost to include studies as per the D.C.A.;
- Add a charge for Growth Studies; and
- Repeal the mandatory phase-in section.

No map is provided as all amending by-laws apply to the entire municipality.

Copies of the amending by-laws can be found on the Township's website, **www.get.on.ca.**

Amanda Knight,
Clerk/Director of Legislative Services
8348 Wellington Road 124, P.O. Box 700, Rockwood, ON N0B 2K0
T: 519-856-9596 ext. 125
E: aknight@get.on.ca

NOTICES

Centre Wellington

Notice of Public Open House
Bridge and Transportation Network Study for Four Bridges

This notice was first issued on July 11, 2024

You Are Invited!

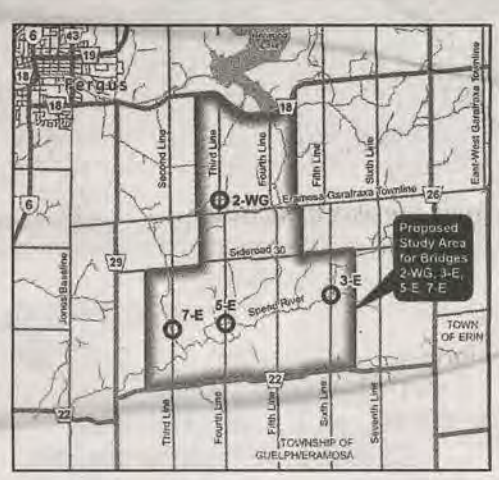
The Township would like to welcome your attendance at Public Open House. Information will be presented about four bridges located southeast of Fergus. This Open House will provide information to the community and stakeholders and will be an avenue for you to provide your comments relating to the role of these structures within the local community.

Date & Time: July 24, 2024, 6:00 pm – 8:00 pm

Location: Centre Wellington Community Sportsplex - Gord Brown Hall
550 Belsyde Avenue East, Fergus

The Project

The Township of Centre Wellington has initiated a Bridge and Transportation Network Study for Four Bridges. This study will evaluate the role of these structures within the overall transportation network and connectivity in the community and determine the most suitable alternative at each location.



Three of the four bridges (3-E, 5-E, 7-E) are temporarily closed due to poor condition. The fourth bridge (2-WG) is open with load restrictions. The locations of the structures are shown in the key plan herein. The study will evaluate whether each bridge should be closed permanently, rehabilitated (with minor upgrades and modifications), or replaced.

The Study Process

The project will include consultation with agencies, stakeholders, Indigenous communities and public; an evaluation of alternative solutions to address the problem; development of a design concept for the preferred solution; an assessment of potential environmental impacts; and identification of reasonable measures to mitigate any potential adverse impacts. At the conclusion of the study, a report summarizing findings will be prepared for public review.

Consultation and Input

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Appendix C

Public Open House No. 1 Display Boards

Township of Centre Wellington

Bridge and Transportation Network Study for Four Bridges

Public Open House

July 24, 2024

Centre Wellington Community Sportsplex - Gord Brown Hall

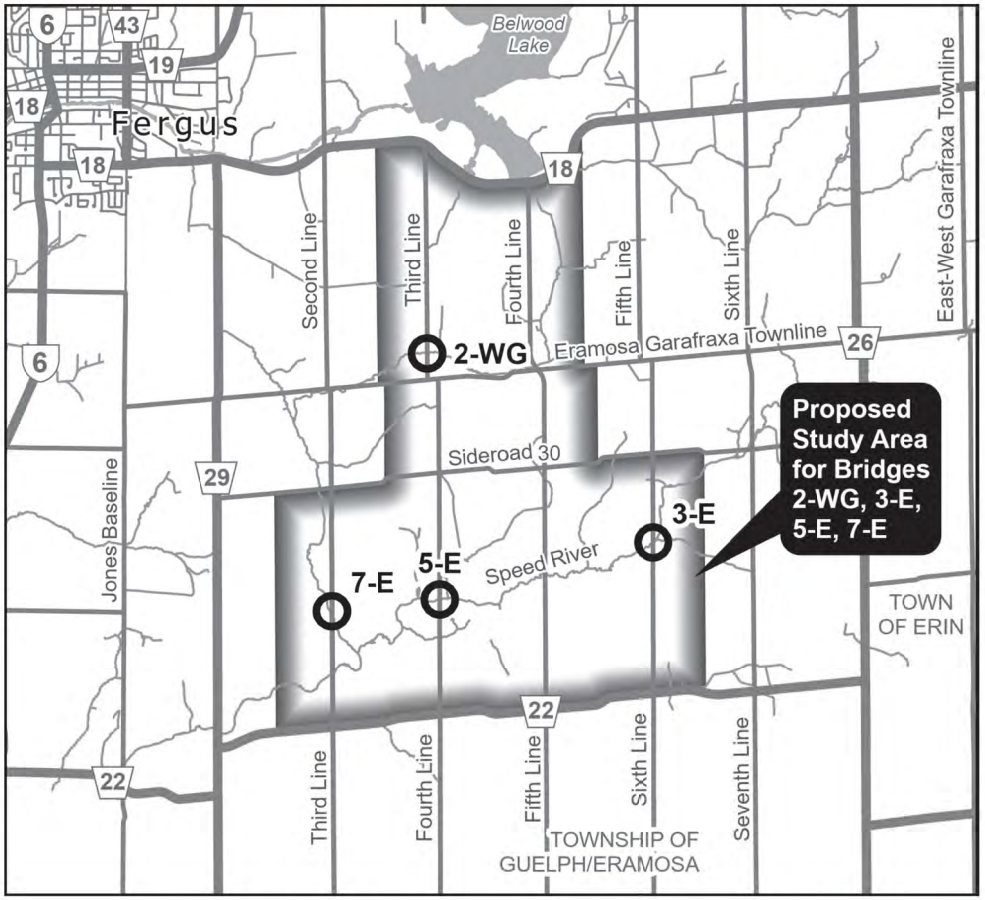
The Study

The Township of Centre Wellington has initiated a Bridge and Transportation Study to review options available for four bridges (Bridges 2-WG, 3-E, 5-E, 7-E), located in a localized area of the southeast region of the Township, which are currently closed to traffic or have load restrictions impacting the transportation network.

Study Objectives:

- Engage with Community to gain increased understanding of local needs for bridges
- Evaluate role of each bridge within the transportation network
- Gather background data to allow for meaningful review of effects of future work
- Review series of alternative solutions for bridges at each individual site
- Consider impacts of actions at one site on the others due to proximity
- Determine the most suitable alternative for the Study Area as a whole

Results of this study will guide the Township's capital planning for the future of the bridges.



Study Process

WE ARE HERE







Bridge 2-WG

- Third Line, 330m North of Eramosa-Garafraxa Townline
- Constructed circa 1921
- Closure Status: Open,15 Tonne load limit
- Structure Type: Reinforced Concrete Through Girder Bridge





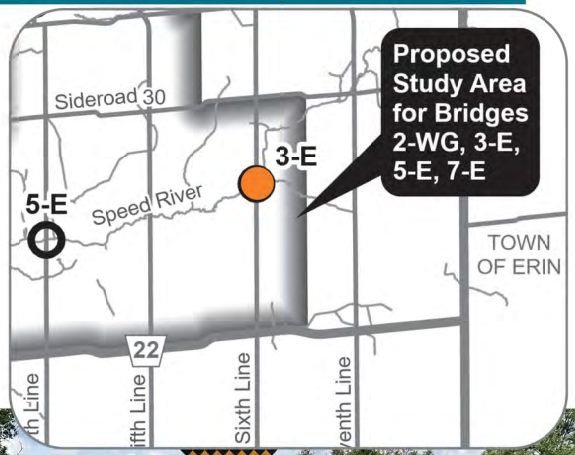




- Load capacity concerns related to loss of concrete, resulting in corrosion and reduced engagement of the reinforcing steel in main girder elements

Bridge 3-E

- Sixth Line, between Sideroad 30 and Wellington Road 22
- Constructed circa 1919
- Closed to Traffic: 2022
- Structure Type: Concrete Bowstring Arch Truss











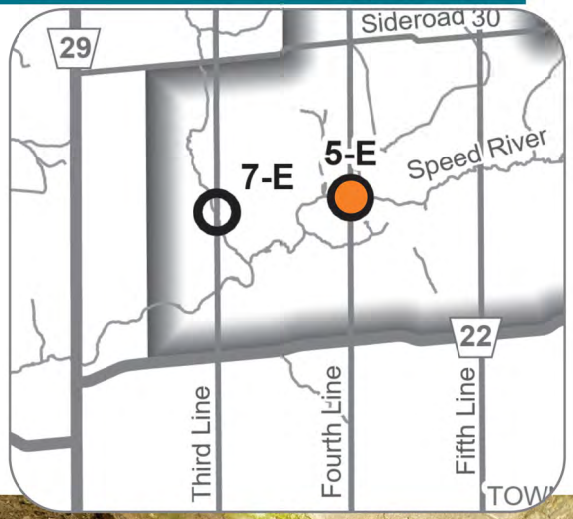
- Bridge was closed as it was noted to exhibit serious structural issues due to advanced deterioration

Centre Wellington

Bridge 5-E

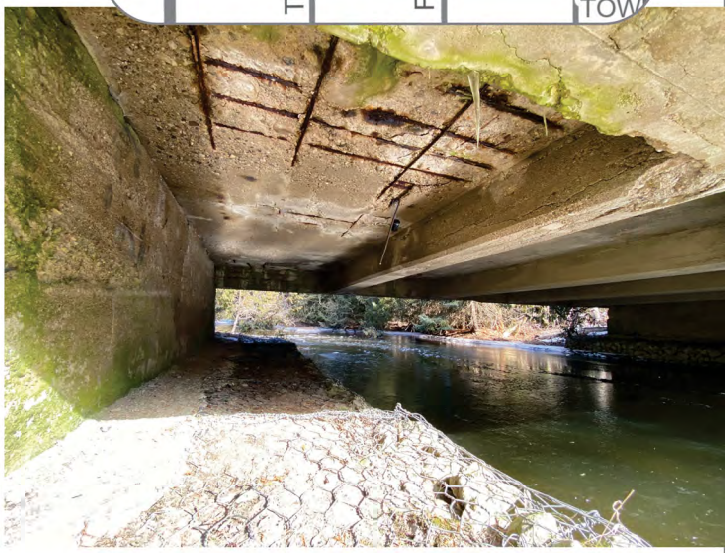
BURNSIDE

- Fourth Line, between Sideroad 30 and Wellington Road 22
- Constructed circa 1923
- Closed to Traffic: 2013
- Structure Type: Reinforced Concrete Through Girder Bridge









- Bridge was closed due to structural concerns and evidence of progressing cracks. Significant concerns noted for the floor beams and deck slab's ability to carry vehicle loads

Centre Wellington

Bridge 7-E

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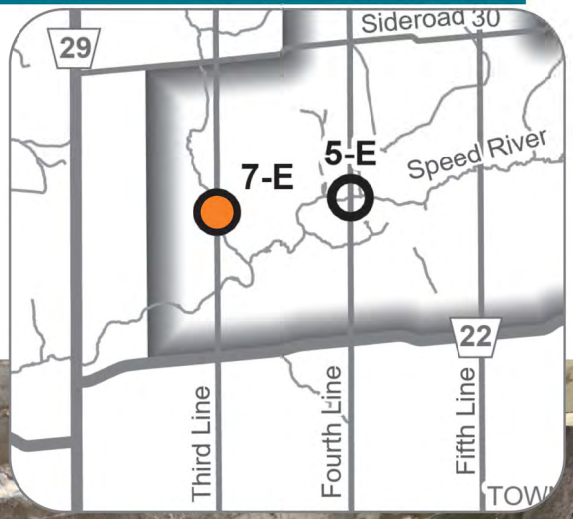
- Third Line, between Sideroad 30 and Wellington Road 22
- Constructed circa 1920
- Closed to Traffic: 2021
- Structure Type: Reinforced Concrete Through Girder Bridge







- Bridge closed due to the severe disintegration in the main load carrying elements (girders) and deck slab

Alternative Solutions

The following preliminary Alternative Solutions have been developed and will be evaluated for each site after appropriate studies & consultations have been complete:

Alternative 1: Do Nothing

Leave the existing structures in their current deteriorating state and continue to restrict public use.

Alternative 2: Permanent Removal of Structure

Removal of existing bridge structure resulting in no watercourse crossing at the current location moving forward

Alternative 3: Rehabilitate Existing Structure

Complete repairs to the existing structure to meet engineering and public safety standards and re-open the structure, if achievable.

Alternative 4: Replacement of Structure

Full removal of the existing bridge and replacement with a new bridge in the current location. Consideration will be given to full capacity two-lane bridge replacements, as well as low-volume bridges with limited load or traffic capacities.

The study will also evaluate several scenarios with different combinations of structures being closed (Alternative 1 or 2) or opened (Alternative 3 or 4) to assess the preferred alternatives from a transportation perspective.

Evaluation Criteria

The alternatives being assessed will be evaluated based on a series of considerations including, but not limited to:



Technical Environment

- Transportation Connectivity
- Bridge Capacity
- Hydraulic Performance
- Design Standards



Natural Environment

- Environmentally Sensitive Areas
- Wildlife Habitats
- Fisheries/Aquatic Habitat
- Species at Risk



Social & Cultural Environment

- Socio-Economic Conditions
- Archaeological, Built & Cultural Heritage
- Community Input



Economic Environment

- Capital Costs
- Operational and Maintenance Costs

Completed Investigations

The following investigations have been undertaken since the study commenced:

Stage 1 Archaeological Assessment

- All sites exhibit low archaeological potential due to previous disturbance
- All sites are considered free of archaeological concerns and no further archaeological assessment is recommended

Cultural Heritage Evaluation

- Bridges 2-WG, 5-E & 7-E not considered to have Cultural Heritage Value or Interest
- Bridge 3-E
  - One of the few remaining unique style bowstring arch bridges that were historically popular in Wellington County
  - 'Rainbow Arch' / Bowstring Arch bridge design was developed by local (Fergus) designer, Charles Mattaini
  - Considered to have Cultural Heritage Value / Interest
  - Candidate for Listing/Designation under Ontario Heritage Act
  - Heritage Impact Assessment recommended



Bridge 3-E

Upcoming Investigations

The additional investigations shown below will be undertaken as part of the study:

Heritage Impact Assessment (Bridge 3-E only)	▪ Determine heritage attributes of bridge ▪ Identify strategies for documenting, conserving and/or providing sympathetic design elements
Natural Environment	▪ Terrestrial Ecology Review ▪ Aquatic Ecology Review ▪ Species at Risk Review
Socio-Economic Environment	▪ Public Consultation ▪ Land Use and Transportation Master Plan Review
Structural Assessment	▪ Physical Condition Review ▪ Rehabilitation Feasibility Study ▪ Replacement Structure Options (geometry, bridge type, etc.)
Hydraulic Analysis	▪ Review conveyance capacity and flood risk under rainfall events ▪ Analysis of replacement structure geometry to meet standards
Transportation Connectivity Study	▪ Cross-Community Connectivity Study ▪ Emergency Response Time Analysis

Next Steps

Today (Open House #1)

- Public to provide comments to the Project Team:
  - How will the bridge opening or permanent closure affect your life, property, business, etc.
  - Identify interests, preferences and recommendations for the bridges

Summer 2024

- Additional Field Studies (Natural Environmental & Heritage)
- Transportation Connectivity Study
- Hydraulic Analysis and Structural Assessment
- Consultation with Heritage Centre Wellington
- Evaluation of Alternatives

Fall 2024

- Determine Preliminary Preferred Alternative
- **Public Open House #2** to share evaluation & Preferred Alternative
- Confirm Preferred Alternative

Winter 2024/2025

- Document summarizing study available for Public's review and comment
- Study Completion

Ongoing Public Consultation

Centre Wellington

BURNSIDE

We want to hear from you!

Invitation for Participation

You are invited to provide comments by completing a comment sheet and submitting it to the comment box today or emailing one of the Project Team members below by August 23rd, 2024:

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0
Tel: 519-846-9691 ext. 355
adickieson@centrewellington.ca

Andrew Dawson, P.Eng
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R. J. Burnside and Associates Limited
292 Speedvale Avenue West, Unit 20
Guelph, ON N1H 1C4
Tel: 705-797-4310
andrew.dawson@rjburnside.com

The display boards, a narrated slideshow and all project updates will be available on the Township's project webpage after the open house:

www.connectcw.ca/bridge-transportation-network-study-four-bridges

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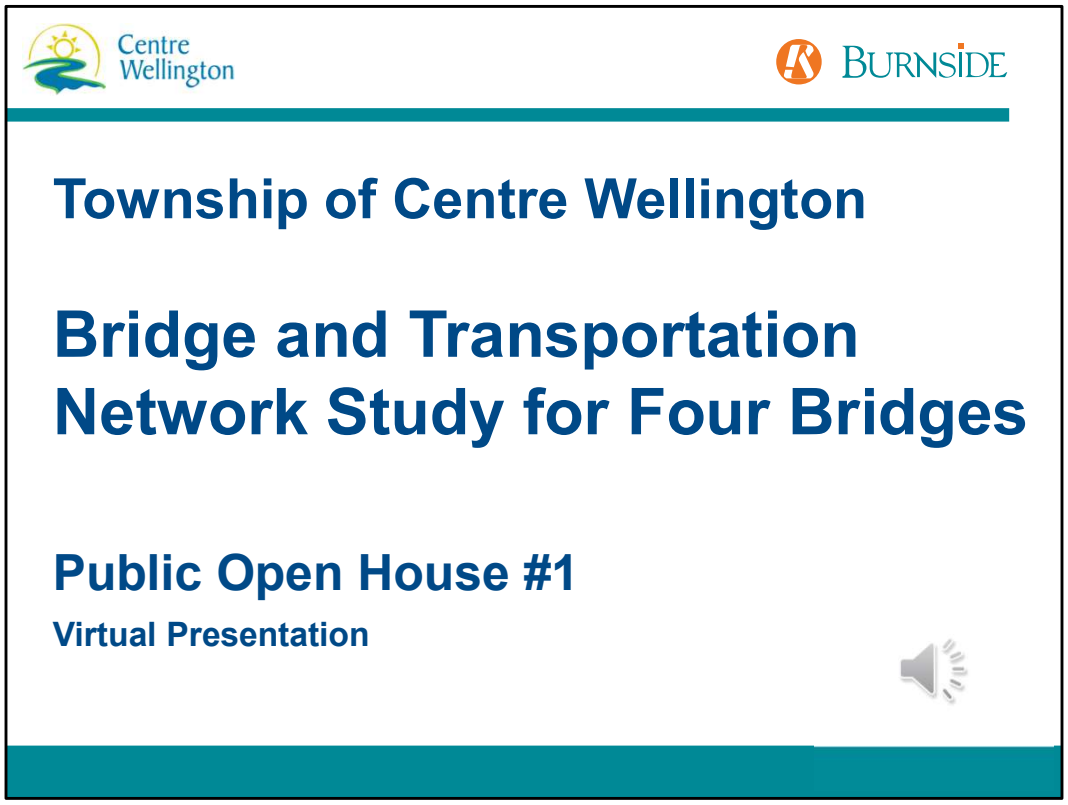
Appendix D

Online Presentation Slide Show with Text



Hello, and Welcome to the first public open house for the Township of Centre Wellington's Bridge and Transportation Network Study for Four Bridges.
My name is Andrew Dawson, I am a professional Engineer with R.J. Burnside & Associates Limited, also known as "Burnside". Burnside is the consulting engineering company that has been selected by the Centre Wellington to work with the Township and the community on this bridge study. Burnside will be presenting this virtual version of the first Public Open House material on behalf of the Township.
Thank you in advance for your time to review this presentation. We appreciate your interest in the project, as consultation with the community is a very important aspect of this study process.

The Study

The Township of Centre Wellington has initiated a Bridge and Transportation Study to review options available for four bridges (Bridges 2-WG, 3-E, 5-E, 7-E), located in a localized area of the southeast region of the Township, which are currently closed to traffic or have load restrictions impacting the transportation network.

Study Objectives:

- Engage with Community to gain increased understanding of local needs for bridges
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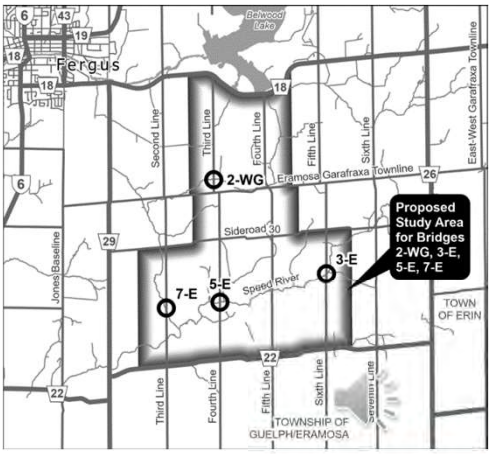


The Township of Centre Wellington has initiated a Bridge and Transportation Study to review options available for four bridges (Bridges 2-WG, 3-E, 5-E, 7-E), which are located in a localized area southeast of Fergus. The four bridge locations and an outline of the Study Area are shown in the key-map provided on this slide. The four bridges are watercourse crossings of the Speed River and its tributaries. Three of the bridges are located between Sideroad 30 and Wellington Road 22, on third line, fourth line and sixth line. The fourth structure is located on third line, just north of Eramosa-Garafraxa Townline. A closer look at each of the structures will be provided in the coming slides.

All four structures are over 100 years old and have deteriorated significantly, to the point of closure or significant load restrictions, as a result of concerns identified related to their remaining structural capacity.
As part of this study, the Township would like to engage with the community to gain an increased understanding on how these bridges serve the local stakeholders such as property owners and businesses within the Study Area, users of the road networks related to these bridges and agencies or organizations with an interest or regulation over the works, such as conservation authorities. The Township will collect comments regarding concerns and recommendations from the stakeholders for consideration throughout this study.

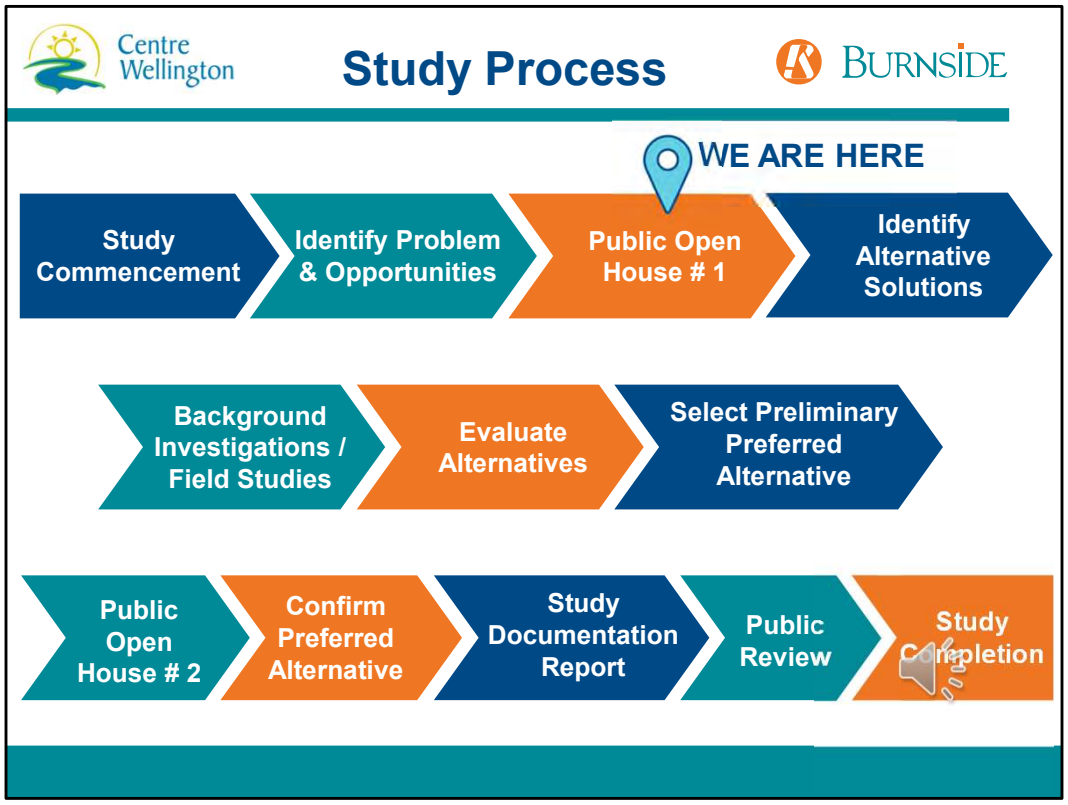
As part of the study, the role of each structure within the overall transportation

network will be evaluated. The study will look at how the closures of bridges have or may impact cross-community travel times, emergency service response and connectivity to the surrounding communities.

A series of investigations of the existing conditions and future development plans will be conducted in order to allow for each site to be assessed in a meaningful way to determine what opportunities may be available to be implemented at each location. These investigations will be elaborated on later in this presentation.

In addition to looking at the individual bridge sites, the study will also look at the Study Area as a whole, recognizing that the proximity of these structures produces a scenario where implementation of a certain strategy at one location may have an effect on what the preferred option will be at one or more of the other nearby sites.

The goal at the end of the Study is to have an informed decision made on the most suitable alternative for the Study Area as a whole, and what the preferred means of achieving this overall plan is on an individual site basis. These results will guide the Township's capital planning for the future of these bridges.



Shown on the screen here, is an overview of what the study process will look like. The project has already commenced, and the problem and opportunities of the study were just discussed on the previous slide.

We are here today to consult with the public to introduce this study and provide some background context on the study in hopes that those listening will provide their comments as it relates to the problems and opportunities to be addressed through this study. As will be seen later in this presentation, a series of preliminary alternatives has been identified and will be further reviewed following review of comments from this first public open house. The Project Team will then be completing several background investigations and field studies to gather data and will utilize that data when evaluating the alternatives and selecting the preliminary preferred options. Once a preliminary preferred option is selected, an additional open house will be held to share the findings of the evaluation and the preferred alternatives for each site. Comments from the 2nd open house will be reviewed and the preferred alternative will be confirmed or re-evaluated, if required. The findings of the study will then be documented in a report, which will be made available to the public for review and comment, prior to the study being officially completed.



We will now provide a brief overview of each of the Bridges in this study.

Bridge 2-WG is located on Third Line, approximately 330m north of Eramosa-Garafraxa Townline. The structure was constructed in 1921 and is now over 100 years old. The bridge is considered narrow, as the driving platform width between barriers does not meet current standards for a typical two-lane bridge.

The bridge is a reinforced concrete through-girder bridge. This means that the large 'barrier-like' concrete elements on each side of the bridge are actually the main load carrying elements of the structure. This type of structure is generally no longer constructed, as it is considered a non-redundant structure – meaning that if one of the two girders failed (for reasons such as significant deterioration and/or vehicular impact), the entire structure spanning over the watercourse would collapse catastrophically.

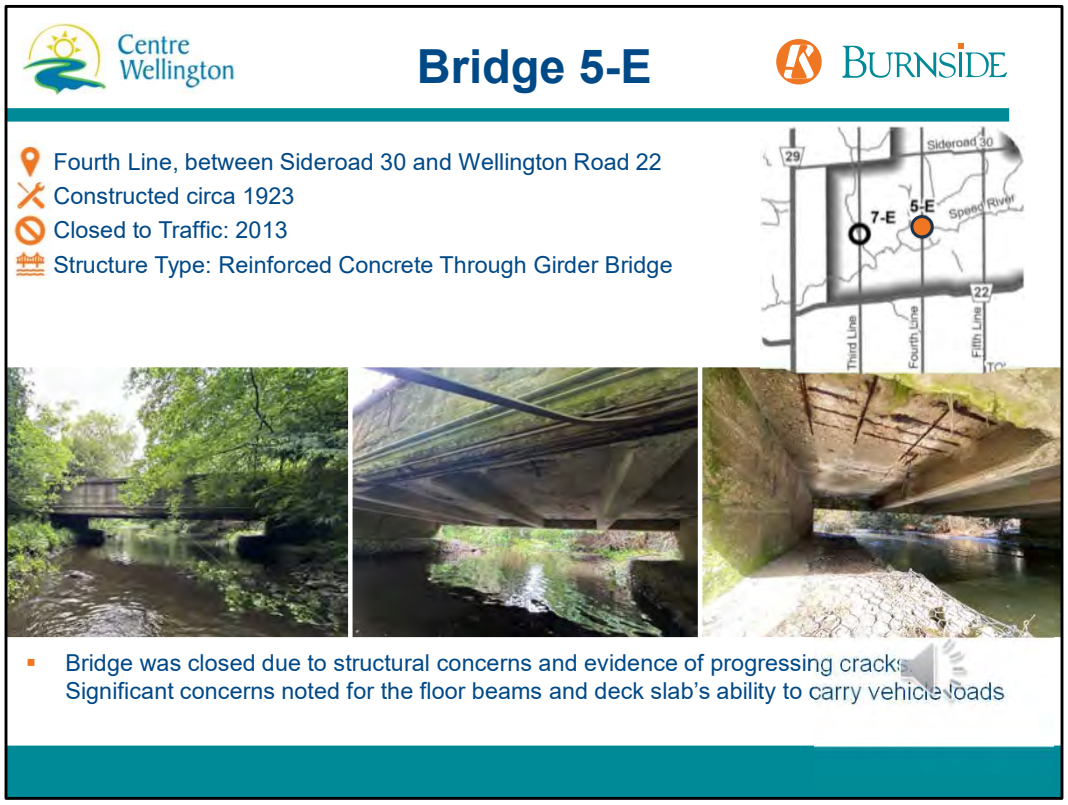
As can be seen on the photo on the right, the concrete in this structure is deteriorating due to its vintage and years of exposure to the elements. This photo shows that a significant amount of concrete has deteriorated, exposing the originally embedded reinforcing steel, which is now significantly corroded and not properly engaged by the surrounding concrete. These concerns in the main load carrying element of the bridge, along with the consideration that structures of this vintage were not designed for modern weight vehicles, has resulted in the structure having a

load limit of 15 tonnes imposed.



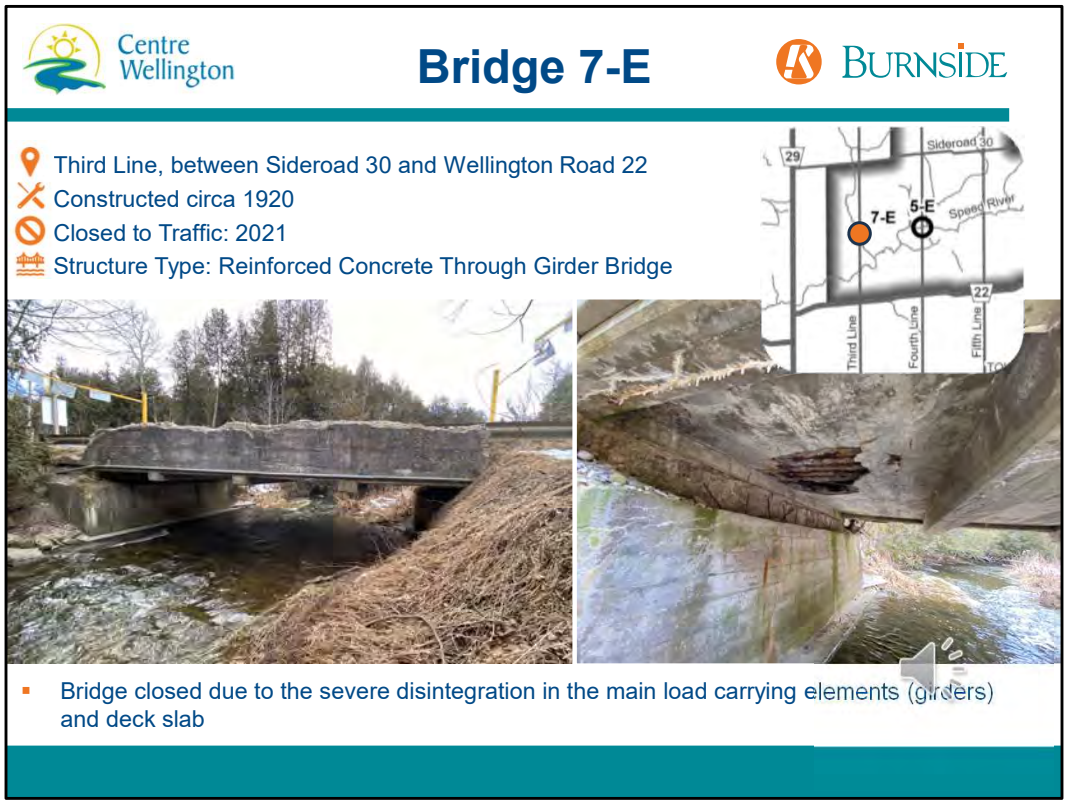
Bridge 3-E is located on Sixth Line, between Sideroad 30 and Wellington Road 22. This structure is a Concrete Bowstring Arch Truss, which was originally constructed in 1919.
While the concrete bowstring arch truss provides a more elegant and artistic means of providing structural capacity for a bridge crossing, it is also considered to be a non-redundant structure with the risk of catastrophic failure should one of the trusses fail. The bridge is also considered to be a narrow bridge capable of safely carrying one vehicle wide at a time.

The structure exhibits serious structural issues related to the advanced state of deterioration. Several structural elements of the truss have significantly disintegrated concrete with the originally embedded reinforcing steel exposed and corroded – as can be seen in the middle photo. The main deck exhibits signs of advanced deterioration, likely accelerated by the exposed concrete deck being exposed to years of salt laden water. The structure has been previously rehabilitated to extend the service life of the structure, as can be seen in the bottom right photo; however, the continued deterioration led to full closure to vehicular traffic in 2022, after 103 years of service life.



Bridge 5-E is another Reinforced Concrete Through Girder bridge, which is located on Fourth Line, between sideroad 30 and Wellington Road 22. Similar to Bridge 2-WG, this structure is considered a narrow and non-redundant bridge.

Bridge 5-E was constructed in 1923 and closed 90 years later, in 2013. The closure was recommended following multiple inspections of the structure that indicated progressing cracks and significant concerns of the structures capacity to carry vehicle loads due to the severe deterioration of the floor beams and deck slab. Some of these deficiencies can be seen in the photos in the middle and right side of the screen.



Bridge 7-E is yet another Reinforced Concrete Through Girder Bridge. This bridge is located on Third Line, between Sideroad 30 and Wellington Road 22.

The bridge was constructed in 1920 and was in service for 101 years, prior to it being closed to traffic in 2021. As visible in the photos shown here, the concrete on this structure is severely disintegrated in several locations. The main girders have lost a large portion of their cross-section due to this continued deterioration and have a significantly decreased capacity. Additionally, there are large areas of concrete loss on the underside of the bridge deck and at the location where the bridge deck is supported on the abutments.



For the purpose of discussions and promoting conversation as part of the public open house, this slide presents the preliminary list of alternative solutions to be considered for each of the individual bridge sites. I will provide some preliminary comments related to considerations for each option; however, each of these alternatives will be investigated in greater detail as the study progresses.

The alternatives are as follows:

Alternative 1, the 'Do Nothing' option, would involve taking no action and leaving the existing structures in their current state, allowing them to continue you deteriorate. This option poses the risk of continued negative impacts to the underlying watercourse as the rust-laden water seeping through the structures and the falling debris from concrete disintegration continue to be deposited into the watercourse. There is also the risk associated with eventual failure of the structure as a whole, which would have significant environmental impacts. This option would, however, be considered to retain the most cultural and heritage value by not disturbing the existing infrastructure.

Alternative 2 is the Permanent Removal of the Structure. This would result in there no longer being a watercourse crossing at the location of the bridge. This would reduce the previously discussed concerns related to the environment by conducting the removal in a controlled manner with appropriate environmental mitigation. The

area could be graded to allow for turn-arounds and to re-naturalize the watercourse.

Alternative 3 is the Rehabilitation of the Existing Structure. Rehabilitation would involve repairing the existing bridges to extend the service life of the structure and increase the load carrying capacity, without changing the overall structure to a significant extent. This option would maintain any cultural or heritage value, but would not allow for improvements to the structure to meet current design and safety standards. Although this option will be considered, preliminary review of some of the structures indicate that they have likely reached a condition where it would not be economically feasible to complete rehabilitation and it is anticipated that the structures would have to remain significantly load limited even if a significant rehabilitation were to be undertaken. Unfortunately, with the structure types of all four bridges, the ability to widen the existing structures is restricted as well.

The final alternative, Alternative 4, is Replacement of the structure. This would involve fully removing the existing structure and replacing it with a new bridge in the same location. A replacement option consisting of a two-lane structure with no load restrictions, designed to meet all current standards will be considered at each site. Considerations will also be given to the required level of service for each structure and, if determined appropriate, the option of a low-volume bridge with limited load carrying capacity or limited single lane width may also be considered.

It is important to note that the undertaking of this study DOES NOT mean that replacement of ANY or ALL of these structures will be the preferred solution. Similarly, it DOES NOT mean that the preferred solution for ANY or ALL of these structures will be removal. The purpose of this study is to evaluate all potential solutions and select based on a qualitative and quantitative analysis.

As previously mentioned, the study will also look at a wholesome approach for the overall area in recognition that the alternative selected in one location may impact the decisions of how to proceed at another site. As such, the study will include a series of evaluations to gauge what impacts the multiple scenarios of the different number and combinations of closed bridges will affect the overall transportation network of the area.



To evaluate each of the alternatives, they will be scored quantitatively and qualitatively against a series of criteria related to the Technical, Natural, Social, Cultural and Economic Environments.

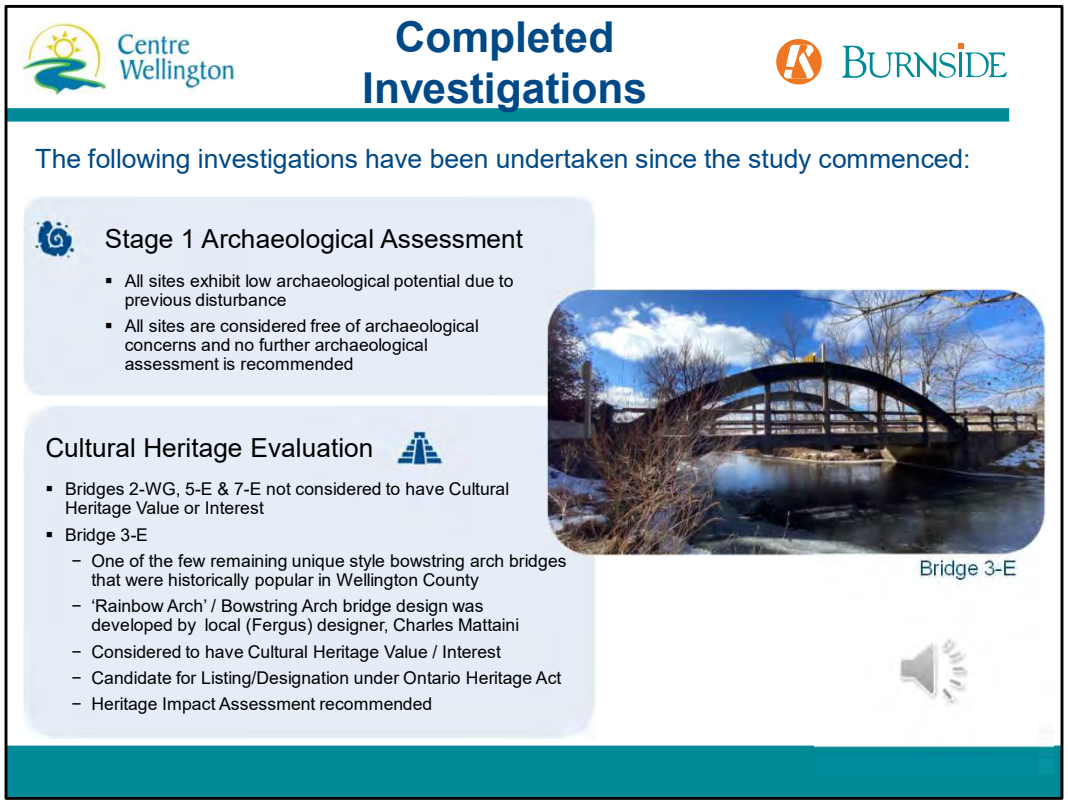
The Technical Environment will consider aspects such as how the transportation network is affected, what capacity the structure can provide in terms of vehicle and farm equipment widths and loads, the ability of the structure to pass watercourse flows and reduce the risk of flooding, and whether current design standards for geometry, sightlines and roadside safety can be met.

The Natural environment criteria will be weighed based on how the alternatives will impact natural areas surrounding the bridges. This includes impacts to areas such as bird, fish and other wildlife habitats, especially in the case where species at risk are identified, and other environmentally sensitive areas such as wetlands. The areas of impact will be evaluated based on anticipated construction activities and limits of disturbance of each alternative. The extent of impacts, and the ability to mitigate such impacts or provide enhancements to the natural environment will help determine the rating of the alternative.

The Social and Cultural Environment includes consideration of how each alternative will impact the people and the history of the study area. This includes how the local community, users of the roadways and bridges, farming, businesses and other

organizations within the study area are affected. It also includes the review of archeological potential in the area and consideration of what role the structures play on providing context to the built or cultural heritage of the area or community interests.

Additionally, the economic environment must also be considered. The evaluation of upfront capital and long-term maintenance cost of each option will be completed to help determine the cost-benefit ratio of each all solutions.



In order to properly evaluate the previously noted criteria, several studies have or will be conducted to allow an educated decision to be made.

Since this study has commenced, a Stage 1 Archaeological Assessment and a Cultural Heritage Evaluation have been completed.

The Stage 1 Archaeology Assessment is essentially a background study and visual review of the site to determine the level of potential that archaeological items of interest may exist in the areas that are to be disturbed as part of the works. The study determined that all areas within the local vicinity of the bridge are considered to have low archaeological potential, given that the areas have all been previously disturbed during the excavation work related to the original bridge construction. Given these findings, no further archaeological assessments are required at this time.

The Cultural Heritage Evaluation reviews each site against a set of criteria to determine if the bridges would be candidates for having Cultural Heritage Value or Interest. The study looks for structures that are rare or unique in design, craftsmanship or technical achievement or are associated with historic value of persons, events or the overall character of the community. Only Bridge 3E was found to have Cultural Heritage or Interest. Bridge 3E is a unique Bowstring Arch type bridge. This type of bridge was historically more prevalent in the Wellington County area; however, at current, there are few remaining. The 'Rainbow Arch' design was

developed by a local Architect, Charles Mattaini, who is a historically relevant designer and builder within Wellington County and surrounding areas; having designed and built many local bridge. As such, Bridge 3E is considered to have Cultural Heritage Value or Interest and a further Heritage Impact Assessment will be undertaken to review the impacts of the heritage features of the bridge associated with each alternative.



In addition to those studies already complete, the investigations shown here will be undertaken over the coming months as the study progresses.

As just mentioned, a Heritage Impact Assessment will be completed to determine strategies for documenting, conserving or providing sympathetic design elements of the heritage attributes of Bridge 3E.

A team will also visit each site to complete an assessment of the terrestrial and aquatic ecology, completing tasks such as inventories of trees, review of fish species and wildlife presence, and identification of potential habitats and species of interest or species at risk.

Public consultation will continue throughout the project and involves two public open houses (including this one), publication of study related material online at Centre Wellington's ConnectCW web page and ongoing discussions with stakeholders through direct contact where requested.

The structures will be further assessed for condition and feasibility of design options for rehabilitation and replacements.

A review of the existing structures and proposed replacement alternative's capacity to convey watercourse flows during rainfall will also be conducted.

And, last but not least, a transportation connectivity study will be undertaken to assess the impacts on cross-community connectivity and emergency response times associated with the current or permanent closures of structures.



Now that we have provided you with the background information and findings of studies to date, you may be wondering about the timelines and next-steps for this study.

First and foremost, public consultation is a very important aspect of this study. As part of this first public open house, we would like to hear from the community to aid our team in defining the problems and opportunities that the local stakeholders would like to see addressed as part of this study. So, I ask that, at the end of this presentation, you provide the Project Team with your comments related to what impacts the bridge opening or permanent closure would have on your life, property, business, etc. and to let us know of any specific interests, preferences or recommendations you have for the team to consider when evaluating the options, or any other comments you feel should be considered.

In the coming months of the summer, the team will continue to complete field studies and gather information to complete the previously discussed evaluation of the alternatives. It is anticipated that all relevant data will be collected and the alternatives evaluated by early fall. Once the preliminary preferred alternative has been selected, Public Open House # 2 will be held in the fall to share the results of the evaluation and the preliminary preferred alternative to the public. The team will then consider comments, re-evaluate or confirm the preferred alternative and work to have a study documentation report prepared towards the end of 2024. A review

period will be provided for the public, which is anticipated to extend into early 2025, at which point the study will be considered complete.



As mentioned, we encourage you to provide any comments related to these structures that you would like the Project Team to consider during the evaluation of options for these bridges.
There are a few options available for you to provide comments.
Firstly, the Township's ConnectCW webpage for this project, which can be found at the link in the bottom of the slide, has a 'Questions' portal where comments or questions can be submitted. This ConnectCW page will also be kept up to date with project information throughout the study.
You may also contact the Township's representative, Adam Dickieson, or myself, from Burnside by phone, email, or mail using the information provided on this slide.
We look forward to receiving your comments and working with the community to determine the preferred solution for the future of these bridges.

Once again, thank you for your time to review this presentation and provide your comments to the Project Team.

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[THE DIFFERENCE IS OUR PEOPLE]

Appendix E

Comment Sheets

Centre Wellington

Public Open House #1
Bridge and Transportation Network Study for Four Bridges (2-WG, 3-E, 5-E, 7-E)

BURNSIDE

Comment Sheet

Public Open House

July 24, 2024
6:00 p.m. – 8:00 p.m.

Centre Wellington Community Sportsplex – Gord Brown Hall

Name: [redacted]

Address: [redacted]

Postal Code: [redacted]

Phone: [redacted]

Email: [redacted]

Comments/Questions/Suggestions (additional space on second page):

I live closest / am most impacted by Bridge 5E.
I prefer the bridge not re-open to vehicular traffic. I'm concerned it would be used as a 'speedy' alternative to 27th & 5th straight up from the 401, & drastically increase the volume of cars on Sideroad 30.

Sideroad 30 already has a continuous issue with potholes & ruts & washouts (ie up closer to 27), I believe, due to a poor sub base. Increased vehicle traffic, as evidenced by the temp closure of the 5th line will only exacerbate the problem more.

In addition to Sideroad 30 & 4/5th line

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have become popular routes for walkers, bikers & horseback riders. Pedestrian / horse safety may also be an issue if traffic volume (& speed) increase.

[redacted]

Please complete this Comment Sheet and submit to one of the Study Team member below on or before **August 23rd, 2024**.

Your input and comments are appreciated.

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Township of Centre Wellington
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adickieson@centrewellington.ca

Andrew Dawson, P. Eng.
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Centre Wellington Community Sportsplex – Gord Brown Hall

Name: [redacted]

Address: [redacted]

Postal Code: [redacted]

Phone: [redacted]

Email: [redacted]

Comments/Questions/Suggestions (additional space on second page):

- 2013 Bridge Out Too Long. —

Neighbour on North side of Bridge Parlized From Waste Down Try in To Operate Farm (Needs Help) No Bridge To Get Too Him

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Centre Wellington Community Sportsplex – Gord Brown Hall

Name: [redacted]

Address: [redacted]

Postal Code: [redacted]

Phone: [redacted]

Email: [redacted]

Comments/Questions/Suggestions (additional space on second page):

7E effect hydro response to 130 customers due to the trailer coming across 22 and up 3rd line feeding customers on 3rd line, 30 sideroad, townline & 4th line.

5E has a double circuit 44kV connection between Fergus and Rockwood.

All the bridges effect emergency services even more after you closed the 4th line bridge as well.

Everyone has been patient for the last 12yrs waiting our turn but as soon as you start studying closure everyone sees RED

Why where no councilors or Engineering Coordinator not here

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Centre Wellington Community Sportsplex – Gord Brown Hall

[redacted]

Comments/Questions/Suggestions (additional space on second page):

I believe the township has a Moral obligation to maintain the Bridges

For Safety – Fire & Ambulance

For School Busses + Garbage + township Graders + Plows

- Mostly for the Farmers who have to drive many extra miles the cost of Fuel & Time in busy Seasons.

ones

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We pay a levie Fee and do not get any compensation for the cost & inconvinence of extra time & Fuel.

our Forfatheas built the Bridges we need to maintain them.

Use Prefab Decks
Large Culverts

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Centre Wellington Community Sportsplex – Gord Brown Hall

Name: [redacted]

Address: [redacted]

Postal Code [redacted]

Phone: [redacted]

Email: [redacted]

Comments/Questions/Suggestions (additional space on second page):

- I WORKED FOR ROYAL CITY AMBULANCE FOR ~20 YRS - DID MANY RESPONSES THAT WOULD HAVE HAD POTENTIAL DELAYS DUE TO THIS MANY BRIDGE CLOSURES

- I LIVE ON THE TOWNLINE AND HAVE PUT UP WITH MANY BRIDGE CLOSURES OVER THE YEARS BUT WHEN THEY CLOSED THE ROCKWOOD RD THIS YEAR WITH THE 3 ADJACENT LINES ALSO CLOSED, THAT WAS ~~NORTH~~ POOR PLANNING. RESPONSE VEHICLES COMING UP FROM ROCKWOOD HAVE TO MAKE SIGNIFICANT DETOURS TO GET TO THE MIDDLE OF THE STUDY AREA (WHERE WE LIVE).

- SCHOOL BUSES + MAIL DELIVERY ARE ALSO AFFECTED.

IF YOU HAVE TO CLOSE 1 PERMANENTLY, WE COULD PROBABLY

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LIVE WITH THAT, BUT PLEASE FIX THE REST. - THEY DON'T NEED TO BE BRIDGES - HIGH CAPACITY CULVERTS CAN EASILY ACCOMODATE THE FLOW WE GET IN OUR CREEKS.

THANK YOU FOR THE OPPORTUNITY TO COMMENT.

Please complete this Comment Sheet and submit to one of the Study Team member below on or before **August 23rd, 2024**.

Your input and comments are appreciated.

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Centre Wellington Community Sportsplex – Gord Brown Hall

Name: [redacted]

Address: [redacted]

Postal Code [redacted]

Phone: [redacted]

Email: [redacted]

Comments/Questions/Suggestions (additional space on second page):

My neighbor to the south had an ambulance come but they didnt recognize bridge closed and went to north side and saw bridge closed and had to go all the way around. The neighbor fortunately survived. ~~Bridge~~ Bridge needs to be re-constructed.

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Centre Wellington Community Sportsplex – Gord Brown Hall

Name [redacted]

Address [redacted]

Postal Code [redacted]

Phone [redacted]

Email [redacted]

Comments/Questions/Suggestions (additional space on second page):

BRIDGE 2-WG OVER THE CREEK, SPLITS OUR FARM IN TWO PIECES. THE BRIDGE IS ESSENTIAL TO OUR FARMING OPERATION. CLOSURE OF THE BRIDGE WOULD INVOLVE A 10 KM DETOUR TO GET TO OUR SOUTHERN HALF OF OUR FARM.

WE AGREE WITH TEMPORARY BRIDGE CLOSURE WHILE REPLACEMENT IS MADE. WE ARE NOT IN FAVOUR OF PERMANENTLY CLOSING THE BRIDGE UNTIL IT IS REPLACED!

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Centre Wellington

Public Open House #1
Bridge and Transportation Network Study for Four Bridges (2-WG, 3-E, 5-E, 7-E)

BURNSIDE

Comment Sheet

Public Open House

July 24, 2024
6:00 p.m. – 8:00 p.m.

Centre Wellington Community Sportsplex – Gord Brown Hall

[redacted]

Comments/Questions/Suggestions (additio

* One neighbour farms from his wheelchair. When he occasionally gets into a "problem situation", we have to go to the END of 7th line to get to his farm, north of the bridge)

[redacted]

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BURNSIDE

Concerns:

* our community is split - to visit a neighbour on the other side of the bridge, we have to go to the 2ND or 7TH line
* response times for EMR vehicles (fire ambulance) Insurance costs (house) because of distance from fire station, with the detours.
* safety of snow plough, grader, garbage truck, etc. There is no place at the bridge for them to turn around = they back up the hill to a driveway.
* farmers who rent land on the 4th have to go around to the 2ND or 7th to get to their land. Fuel costs are huge! Carbon tax.

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July 24, 2024
6:00 p.m. – 8:00 p.m.

Centre Wellington Community Sportsplex – Gord Brown Hall

Name: [redacted]

Address:

Postal Code:

Phone:

Email:

Comments/Questions/Suggestions (additional space on second page):

3rd Line Bridge (7-E) → I am OK with it not being replaced BUT a pedestrian crossing suitable for bikes needs to be installed. It's a major ~~Rec~~ recreation route - for people who walk + bike esp when trying to avoid the busy road of 22.

At least 1-2 bridges should be replaced / repaired to maintain connectivity. - its a huge pain to drive all the way around to get to a neighbour. [redacted]

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BURNSIDE

Also — if Bridges are going to be removed — signage needs to be installed indicating what 911-addresses are accessed from what side — So many people turning around b/c they guessed @ addresses - google maps out of date. Proper sign indicating dead end.

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Centre Wellington Community Sportsplex – Gord Brown Hall

[redacted]

Comments/Questions/Suggestions (additio

(1) Some of these small bridges could be replaced with large culverts

(2) Not fixing these bridges makes it hard for farmers to get from one farm to another

(3) Fire + ambulance services get into problems in emergency calls

(4) Municipal government was brought into being in order to have roads + bridges WHAT HAPPEND?

(5) My family has lived on the 6th line of Eramosa for over 150 yrs there has always been a Shiloh bridge →

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BURNSIDE

I guess the pioneers had more guts + brains than people have today.

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July 24, 2024
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Name

Address

Postal Code

Phone

Email

[redacted]

Comments/Questions/Suggestions (additional space on reverse page)

We moved to this location in June 2020, after the bridge was closed so I don't know anything different. I commute to Guelph with no issue. Most of my neighbours (S north of bridge) are either retired or self employed. I personally enjoy the low traffic due to the bridge closure. My concerns is the increased traffic due to bridge closures on 5, 4 & 3. People are using google maps and trying to go from 30 to 22. At least 2-3 vehicles every few hours (I walk my dogs). try and speed back due to what appears to be frustration. On July 4TH I saw an EMS vehicle try and had to turn around. We've had people stop and ask directions. Better signage (aka more visible) would be helpful. Not sure if county can do anything w/ google maps. We've had as have several of our neighbours. Appreciate need to replace 6TH Line bridge but it is not a priority

good signs but hidden by trees

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Centre Wellington Community Sportsplex – Gord Brown Hall

Name

Address

Postal Cod

Phone

Emai

[redacted]

Comments/Questions/Suggestions (additional space on second page):

THIS BRIDGE CLOSURE HAS DIVIDED THE NEIGHBOURHOOD & NOW THIS PROCESS IS FURTHER DIVIDING THE AREA DUE TO SPECIAL INTEREST GROUPS ie HORSE BACK RIDERS, BIKING USED AS A TRAIL & THOSE WHO LIKE THE REDUCED TRAFFIC FLOW BECAUSE THEY LIVE CLOSE TO THE CLOSED BRIDGE.

- INCREASED TRAFFIC FLOW FOR THOSE WHO LIVE AWAY FROM THE CLOSURE & WITH THEIR FRUSTRATION WHEN THEY CAN'T ACCESS THEIR DESTINATION

ITS BEEN 11 YEARS WITH LOW INTEREST RATES, THIS BRIDGE COULD HAVE BEEN REPLACED QUITE EASY.

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BURNSIDE

- EMERGENCY VEHICLE ACCESS RESTRICTED
- NOW WE HAVE 4 BRIDGES OUT. VERY POOR PLANNING
- MUNICIPAL VEHICLES SPENDING SO MUCH TIME COMMING IN FROM BOTH ENDS, MONEY SPENT COULD HAVE PAID FOR A BRIDGE
- I AGREED TO A LEVE SOME YEARS AGO TO GET INFRASTRUCTURE CAUGHT UP, THAT WAS A VERY BAD DECISION ON MY PART BECAUSE NOTHING WAS ACCOMPLISHED
- TOTAL DISRUPTION FOR FARM OPPERATIONS
- SCHOOL BUS OPPERATIONS HAVE BEEN DISRUPTED + CREATED A SAFETY HAZZARD
- THE 4 LINE BRIDGE WAS ORIGINALLY BUILT IN THE 1920 ERA WHEN SUNDS WERE HARD TO FIND
- $200,000 TO CONDUCT THIS STUDY INSTEAD OF GOING TOWARDS BRIDGE REPLACEMENT
- VERY POOR COMMUNICATIONS FROM THE TOWNSHIP
- CONTACTED THE RESPONSIBLE FOR BRIDGES WITHOUT RETURN MESSAGE

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Your input and comments are appreciated.

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BURNSIDE

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July 24, 2024
6:00 p.m. – 8:00 p.m.

Centre Wellington Community Sportsplex – Gord Brown Hall

Name

Address

Postal Cod

Phone

Emai

[redacted]

Comments/Questions/Suggestions (additional space on second page):

2-WG

- Please do not close bridge.
- high traffic for farmers -
- Safer travel to go afar a town line than 18
- Culvert would potentially be simpler -
- often used as detour with accidents on 18 or 4th line.

-

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Centre Wellington Community Sportsplex – Gord Brown Hall

[redacted]

Comments/Questions/Suggestions (additional space on second page):

1) Do you have data on traffic flow on roads with bridge closure?

2) Does CW have schedule of road maintenance on sideroad 30? (Pre bridge closures + since bridge closures)

3) Has road maintenance been ~~after~~ enhanced on sideroad 30 since bridges have been closed?

4) Has there been consideration of increased traffic flow on sideroad 30? This is a poorly maintained road and usage has increased significantly - but NO appearance of increased maintenance ☹ What metrics are used to determine need?

- Garafraxa Townline road is now paved, traffic has not increased on that road →

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BURNSIDE

but sideroad 30 remains a dirt road
* What criteria is used to determine whether a road is paved or left to deteriorate?

5) If the region continues to provide subpar services rural residents will continue to leave.

There needs to be a balanced approach to this issue. It cannot be an "all or nothing" approach.

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Centre Wellington Community Sportsplex – Gord Brown Hall

[redacted]

Comments/Questions/Suggestions (additional space on second page):

- BRIDGE needs to STAY OPEN
- dividing FARM PROPERTY if CLOSED.
- CULVERT WOULD WORK

THANKS

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Centre Wellington Community Sportsplex – Gord Brown Hall

Name: [redacted]

Address: [redacted]

Postal Code [redacted]

Phone: [redacted]

Email: [redacted]

Comments/Questions/Suggestions (additional space on second page):

Re Bridge 7E

1) Keep bridge open for non-vehicular Traffic (ie bicycling, walking; horseback, ATV) - do this sooner than later as bridge is currently impossable.

2) sign 3rd Line in Dead end/No Exit and addresses available

3) Assess Risk of existing design of Bridge over Speed River on 3rd Line with Todays standards (ie what is risk of event stranding 4 dwellings better bridges.

4) ~~Assess br.~~ Turnarounds - No public Turnaround on North Side. South side is small for articulated vehicles.

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BURNSIDE

7E - Better signage on Country Rd 22. ~~with~~ to say bridge closed.
Post fire numbers that are available.
- turnaround on the north side of the bridge. so private lane is not used.
-

Please fix the bridge.

Please complete this Comment Sheet and submit to one of the Study Team member below on or before **August 23rd, 2024**.

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[redacted]

Comments/Questions/Suggestions (additional space on second page):

The third line bridge is very benificial to our road community and farming neighbors. If the bridge needs to be replaced a wider bridge for the large farm equipment would be a big recomendation. Seems as all the bridges are being closed in Eramosa township now Garafraxa people will need to travel a distance further at a time when environmental impacts from vehicles are high. Please keep our bridges open and improve them for the feture for our community. Thank you.

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Centre Wellington

Public Open House #1
Bridge and Transportation Network Study for Four Bridges (2-WG, 3-E, 5-E, 7-E)

BURNSIDE

Comment Sheet

Public Open House

July 24, 2024
6:00 p.m. – 8:00 p.m.

Centre Wellington Community Sportsplex – Gord Brown Hall

[redacted]

Comments/Questions/Suggestions (addit

concering bidge on the 4th line.
its been closed for about 13 years.
why open it we have been used to it
closed. - There are lots of ~~us~~ who
can ride safely down, walk our
dogs - bike down it with no fear
of being hit. Its a great trail.
if you fix the 3rd line - 5 line
and the 6 line, leave this one
alone - We have lived hear for
40 yrs now and don't miss the
bridge at all. Its a perfectly safe
road with out it.

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Public Open House #1
Bridge and Transportation Network Study for Four Bridges (2-WG, 3-E, 5-E, 7-E)

BURNSIDE

Thanks for listening. It probably means nothing to you but my opinion should count.

[redacted]

Please complete this Comment Sheet and submit to one of the Study Team member below on or before **August 23rd, 2024**.

Your input and comments are appreciated.

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square
Elora, ON, N0B 1S0
519-846-9691 x 355
adickieson@centrewellington.ca

Andrew Dawson, P. Eng.
Consultant Project Manager
R.J. Burnside & Associates Ltd.
292 Speedvale Ave. W. Unit #20
Guelph ON N1H 1C4
705-797-4310
andrew.dawson@rjburnside.com

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Comment Sheet

Public Open House

July 24, 2024
6:00 p.m. – 8:00 p.m.

Centre Wellington Community Sportsplex – Gord Brown Hall

[redacted]

Comments/Questions/Suggestions (additio

Questions:

→ Will Ambulance / Fire / Police be able to find our home if there's a emergency?

→ Snow removal & garbage. P/U & School Bus Pick/up time & drop off. have been effected. Will this continue to be a Problem?

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Bridge and Transportation Network Study for Four Bridges (2-WG, 3-E, 5-E, 7-E)

BURNSIDE

Comments:

→ Had to replace 2 mail boxes due to traffic turning around, & towing school buses out from missing driveway turning around.

→ I will have to take ~~before~~ ~~that~~. Cty Rd 26 & 29 will be the roads that I will need to take to head N or S ~~which~~

- ~~[illegible]~~ Hoping to replace Bridge on Fourth S-E.

Please complete this Comment Sheet and submit to one of the Study Team member below on or before **August 23rd, 2024**.

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BURNSIDE

Comment Sheet

Public Open House

July 24, 2024
6:00 p.m. – 8:00 p.m.

Centre Wellington Community Sportsplex – Gord Brown Hall

[redacted]

Comments/Questions/Suggestions (additio

THE 11TH LINE BRIDGE NEEDS TO BE FIXED.

11 YEARS WITHOUT A BRIDGE IS TOO LONG

LETS NOT WASTE ANY MORE TAX DOLLARS ON STUDYS.

[redacted]

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BURNSIDE

Comment Sheet

Public Open House

July 24, 2024
6:00 p.m. – 8:00 p.m.

Centre Wellington Community Sportsplex – Gord Brown Hall

[redacted]

Comments/Questions/Suggestions (additional space on second page):

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BURNSIDE

- EMERGENCY ~~[illegible]~~ ACCESS REDUCED
- SCHOOL BUS TURN AROUND WHERE CLOSED BRIDGE
- ~~[illegible]~~ IT ADD EXTRA HOUR A WEEK. COMMUTE TO WORK
- PAVE ROADS
- FARMERS NEED TO DRIVE EXTRA AROUND BRIDGES
- ~~[illegible]~~ NO COMPENSATION FOR LACK OF PLANNING OVER 10 YEAR BRIDGES BEING OUT
-

Please complete this Comment Sheet and submit to one of the Study Team member below on or before **August 23rd, 2024**.

Your input and comments are appreciated.

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square
Elora, ON, N0B 1S0
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Comment Sheet

Public Open House

July 24, 2024
6:00 p.m. – 8:00 p.m.

Centre Wellington Community Sportsplex – Gord Brown Hall

[redacted]

Comments/Questions/Suggestions (additional space on second page):

pave both side road

reduce speed

signs for homes (slow down children & pets like here.

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Crystal Ferguson

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Monday, June 24, 2024 1:59 PM
To: [redacted]
Cc: Andrew Dawson; Tricia Radburn
Subject: Bridge & Transportation Network Study for Four Bridges in former Eramosa and West Garafraxa Township : Study Initiation - Heritage CW
Attachments: IS2024-26_FINAL.pdf

[redacted]

As discussed this afternoon, please note that Infrastructure Services is taking on another study to determine the next steps to identify and evaluate alternative solutions to address the deteriorated condition of four Centre Wellington bridges. The attached report was part of the June 10th, 2024 Council meeting agenda. This attached report provides additional details regarding the study area and the locations of the existing structures.

Next steps in the study that may interest the Heritage Centre Wellington include, completing a Cultural Heritage Evaluation Report (CHER) followed by preparing a Heritage Impact Assessment (HIA) study of those bridges found to have cultural heritage significance. These studies will be completed consecutively with the HIA anticipated to be completed this fall.

Also note that some of these bridges are found in the Arch, Truss & Beam – The Grand River Watershed Heritage Bridge Inventory, March 2013.

We will provide a project update to you and Heritage Centre Wellington with findings from the HIA this fall when it has been completed. Let me know if there is any additional information I can provide regarding this study at this time. This is a link to the https://www.connectcw.ca/bridge-transportation-network-study-four-bridges project page that will be updated as new information is prepared.

Regards,
Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Crystal Ferguson

From: Mishaal Rizwan
Sent: Friday, July 12, 2024 5:03 PM
Cc: Andrew Dawson; adickieson@centrewellington.ca
Subject: Township of Centre Wellington Notice of Public Open House Bridge and Transportation Network Study for Four Bridges
Attachments: 058117_Notice of POH (1).pdf

Good afternoon,

On behalf of the Township of Centre Wellington, please find attached the Notice of Public Open House for the Bridge and Transportation Network Study for Four Bridges.

If you have any questions, please contact one of the project team members:

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0
519-846-9691 x 355
adickieson@centrewellington.ca

Andrew Dawson, P. Eng.
Consultant Project Manager
R.J. Burnside & Associates Ltd.
292 Speedvale Ave W. #20, Guelph, ON N1H 1C4
705-797-4310
andrew.dawson@rjburnside.com

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Thank you.

****

Crystal Ferguson

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Wednesday, July 17, 2024 11:48 AM
To: [redacted]
Cc: shawnw@wellington.ca; Andrew Dawson; Crystal Ferguson; Tricia Radburn
Subject: RE: Bridge Closure - 4 Bridge Study (2024)

[redacted]

Thank you for providing your comments and concerns. With regard to the Bridge and Transportation Network Study for Four Bridges, the options of closed permanently, rehabilitation, and full replacement are always presented. Through the course of the study, transportation, economic, structural/technical, natural environment and social & cultural environments are all considered. Through analysis of these five evaluation factors the appropriate alternative will be selected of each of the four bridges in this study.

If your schedule allows, I will would like to have a opportunity to meet and discuss further at the upcoming 4 Bridge Study public meeting July 24 2024, 6:00 pm – 8:00 pm at the Centre Wellington Community Sportsplex - Gord Brown Hall, 550 Belsyde Avenue East, Fergus.

Regards,
Adam.

Information will be collected in accordance with the Municipal Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: [redacted]
Sent: Tuesday, July 16, 2024 4:03 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>; shawnw@wellington.ca
Subject: Bridge Closure

[redacted]

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello,
I am rather concerned about the notice I have received from R.J. Burnside & Associates Limited, regarding the study of 4 bridges in my area. I live at [redacted] and one of the bridges up for discussion is on my road. I am highly disturbed by the study to determine whether or not the bridge(s) should be - permanently closed - how is that even on the list?! Fergus is touted as a wonderful rural community, and yet the accessibility to this rural community is nearly impossible! The closing of bridges has gotten to an unbelievable level. There is already scheduled construction on Wellington Road 18, at county road 29, and second line, and wellington 26. And Now you wish to close the other end of my road. Making the detour into Fergus ridiculous! I have family that lives on the north side of the lake, and you have already closed a bridge on their road, causing us to have to drive another 5 minutes to their home. What should be a 10 minute drive will be taking over half an hour with all this construction and closures. For a community set on being green energy, more thought needs to be placed on the bridges. Our time is also valuable. The cost also increases for us in fuel. And prices at the pump make it nearly impossible for us to even afford the drive to access groceries and healthcare.

I can understand that the planning and maintenance of a county full of bridges must be difficult. But there has to be a better way. Permanently closing a bridge should never be the option. Budgeting needs to be reevaluated, and money set aside to properly maintain and repair these bridges, so closure can be avoided. I feel very strongly that no money should have been spent on building a bike lane on one small stretch of downtown area, and that money should have been allocated to a bridge instead. It also should not take decades before a bridge is finally repaired or rebuilt. This community is built on its farmers and rural habitants, just as much as it is on those who live and work in town. Its time now to allow those who are on the outskirts and easier way to access this town we all love.

I look forward to hearing from you,

[redacted]

Crystal Ferguson

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Tuesday, July 23, 2024 4:13 PM
To: [redacted]
Cc: Andrew Dawson; Crystal Ferguson; Tricia Radburn
Subject: 4 line old eramosa township - 4 Bridge and Transportation Study

Dear Resident,

Sorry it seems that your original message was written in the subject line and was partly cut off as follows:

"Response 4 line old eramosa township. I have talked to you and others many times over the years with very little satisfaction. Administration blame the politicians and politicians say they take the recommendations from staff. Some years back I agreed w…"

If your concern has something to do with the state of the bridges in the area of Fourth Line (former Eramosa Township), there is a public meeting planned for tomorrow night at the Fergus Sportsplex. This meeting will allow the Township to present information to local residents as to how the technical, natural, social & cultural, and economic environments will all be considered in determining the next steps in dealing with four bridges your area. This meeting that will provide also residents an opportunity to provide comments and open discussion about these bridges.

Tomorrow's Meeting details:
Date & Time: July 24 2024, 6:00 pm – 8:00 pm
Location: Centre Wellington Community Sportsplex - Gord Brown Hall, 550 Belsyde Avenue East, Fergus

If you are unable to make it to the meeting, please provide additional details (phone or email) that will assist in making informed decisions as the preferred alternatives for these structures.

Additional project information can be found here:
Bridge & Transportation Network Study for Four Bridges | Connect CW

Regards,
Adam.

Information will be collected in accordance with the Municipal Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: [redacted]
Sent: Tuesday, July 23, 2024 3:34 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Subject: Re: Automatic reply: Response 4 line old eramosa township. I have talked to you and others many times over the years with very little satisfaction. Administration blame the politicians and politicians say they take the recommendations from staff. Some ...

[redacted]

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You didn't reply so I am assuming you have more important items to deal with!

On Jul 11, 2024 5:41 p.m., Adam Dickieson <ADickieson@centrewellington.ca> wrote:

> ***I am out of the office on July 5 to July 15 and unable to respond effectively during this time. I will review your message following my return on July 16.***
>
> ***Note that during this period I will have limited access to email.***
>
> ***If you have a Road Occupancy Permit, or Municipal Consent that requires approval, note that I will provide reviews when I return. If the permit request is urgent, please email Roads Permits roadspermits@centrewellington.ca for permit review.***
>
> ***If you need immediate assistance, contact 519-846-9691 ext.905. Thank you for your understanding.***

Crystal Ferguson

From: [redacted]
Sent: Wednesday, July 24, 2024 8:50 AM
To: adickieson@centrewellington.ca; Andrew Dawson
Subject: Bridge & Transportation Network Study - Fergus

Good Morning Adam and Andrew

My name is [redacted] and I am a resident on Third Line in Fergus. I am also the representative for our road and area regarding Bridge 2-WG.

I am a professional engineer, specializing in Asset Management and Infrastructure Planning.

Is it possible to have the last five (5) OSIM or similar reports for the four (4) bridges in question? I would also like to know if CW have been following the recommended inspection schedule as well. Three (3) of the bridges have been out of commission for a while. Can you provide how long these bridges have been out of service?

For the reports that were completed, I will be able to see the recommendations from the consultant, are you able to provide proof these recommendations were completed?

To be 100% honest, we are not interested nor will we be entertaining a bridge closure for our road. This bridge is required for our road in regards to farming equipment, school buses, emergency vehicles and our livelihoods.

I look forward to your reply and meeting you both tonight. .

I did send an email last week with no response however there was an issue with Cogeco and I am not sure everything went through as I thought it did.

--
Thanks
[redacted]

Crystal Ferguson

From: Andrew Dawson
Sent: Monday, July 29, 2024 1:08 PM
To: [redacted]
Cc: Tricia Radburn; Crystal Ferguson; Mishaal Rizwan; Adam Dickieson
Subject: RE: Comments on Bridge 7-E

[redacted]

My name is Andrew Dawson. I am the project manager with R.J. Burnside & Associates Ltd., who are the consultants working with the Township on this study. Adam Dickieson passed along your email below, which I will be responding to on behalf of the Project Team.

Firstly, Thank-you for your comments related to Bridge 7-E and the Four Bridges study. Your comments and preferences will be documented as part of this study and will be considered during the evaluation of the alternatives.

We also greatly appreciate your history of the water levels during flooding. As part of the study, a hydraulic analysis will be completed to determine whether the current structure meets requirements and/or which size structure would be needed if replacement were to be selected as the preferred option. Local knowledge such as yours is a good way to review the validity of the hydraulic models against what has actually happened in the past.

In regards to the current barriers and sign placements, the Township will handle looking into this for the short term conditions, but it will also be taking into consideration during the EA for closure options. It is my understanding that the Township has had some internal discussions relating to these items since hearing these concerns expressed during the Public Open House.

We will keep you on our mailing list for further notices regarding this project. You may also visit the Township's project specific webpage at https://www.connectcw.ca/bridge-transportation-network-study-four-bridges , which will provide status updates and project documents as they become available.

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: [redacted]
Sent: Wednesday, July 24, 2024 8:21 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Subject: Comments on Bridge 7-E

You don't often get email from larryleisti1@gmail.com. Learn why this is important

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Adam,

Thank you for the Public Open House for the 4 bridges, as a resident living south of bridge 7-E, I would like to first comment that the closure of the bridge has had minimal impact on my travels and has certainly reduced traffic on our road. I will express a concern about the placement of the guard rails blocking the bridge since the restrictive access to pedestrians and cyclist may result in injury to those attempting to cross the bridge and since the township would like to promote exercise, perhaps something could be done to make them less inconvenient. In regards to water flow past the bridge, I remember a number of years ago was the first time I have seen water flow over the road south of the bridge, I believe it was during the spring thaw. My neighbour expressed some concern over Smeltzer bridge which I believe replaced 2 bridges around 1979, on whether it has enough capacity to handle the expected increase in short term rainfall, to date, I have only seen one event where the river overflowed enough to flow through the forest on my property other than during the spring thaw and have never seen the river come close to reaching the road. I agree with my neighbours that a better sign could be used near County Rd 22, to indicate which properties can be accessed and perhaps that it is the 2nd bridge that is closed, not the one you can see from the sign location.

Thank you
[redacted]

Crystal Ferguson

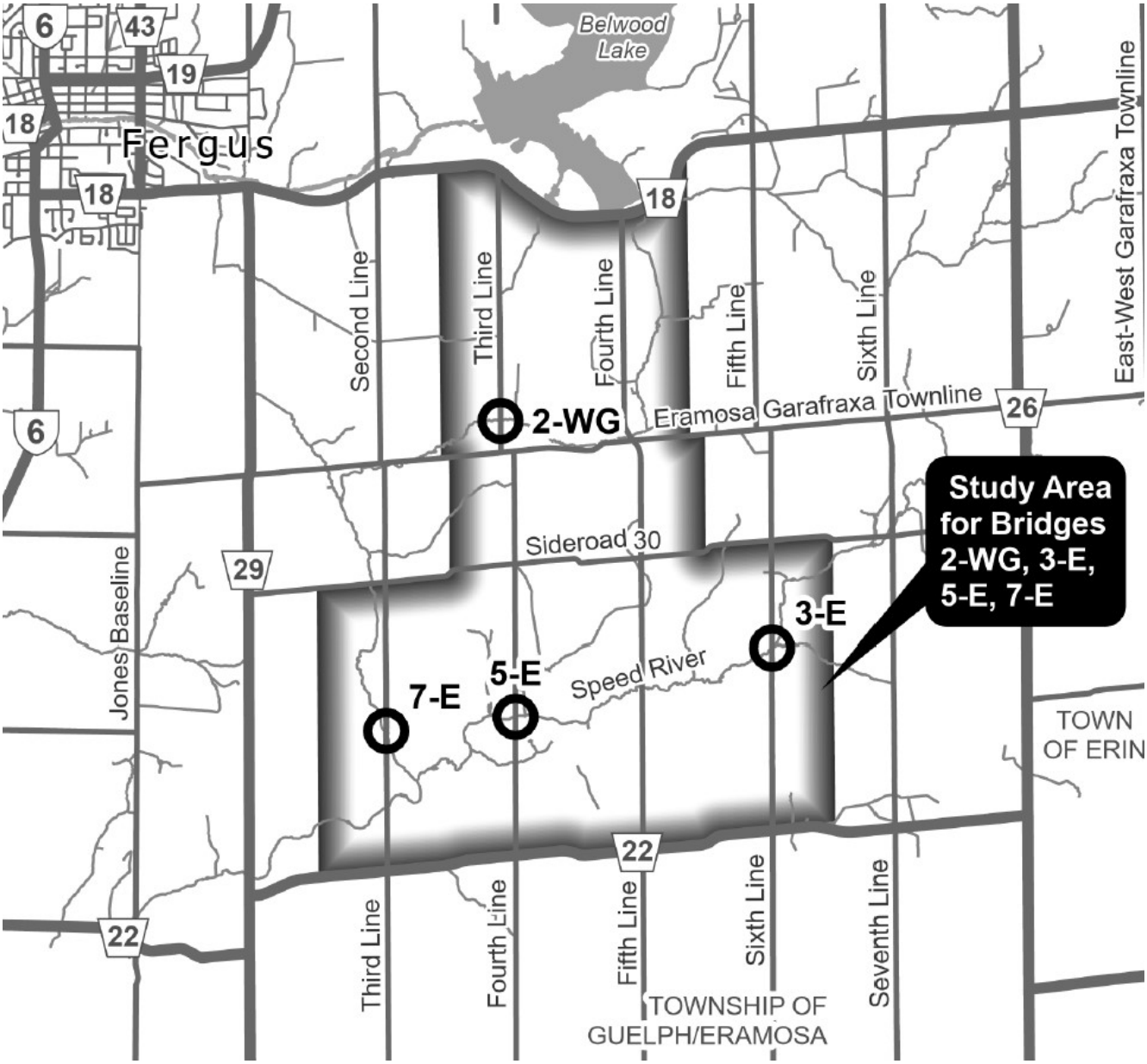
From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Monday, July 29, 2024 9:38 AM
To: [redacted]
Cc: Andrew Dawson
Subject: Bridge Study - Third Line Bridge (7-E) - Agricultural Use
Attachments: Bridges_Map_Feb_2024.pdf

[redacted]

Thank you for the call this morning. When you mention near misses with traffic while transporting materials and equipment while hauling with tractor, this is cause for concern.

As I mentioned, the Township of Centre Wellington is in the midst of a study to determine the next steps in with four bridges in the area of former Eramosa Township (within Centre Wellington). If you can provide comments and concerns to do with the four bridge crossings in the study area it would be appreciated and will become part of the study evaluation.

My understanding from your call this morning is bridge 7-E on the Third Line is the bridge that you would like to see reopened to improved haul distance and safety.



Attached is a map of Centre Wellingtons bridge network for your reference.

This a link to a webpage that has additional information about the bridge study. [Bridge & Transportation Network Study for Four Bridges | Connect CW]

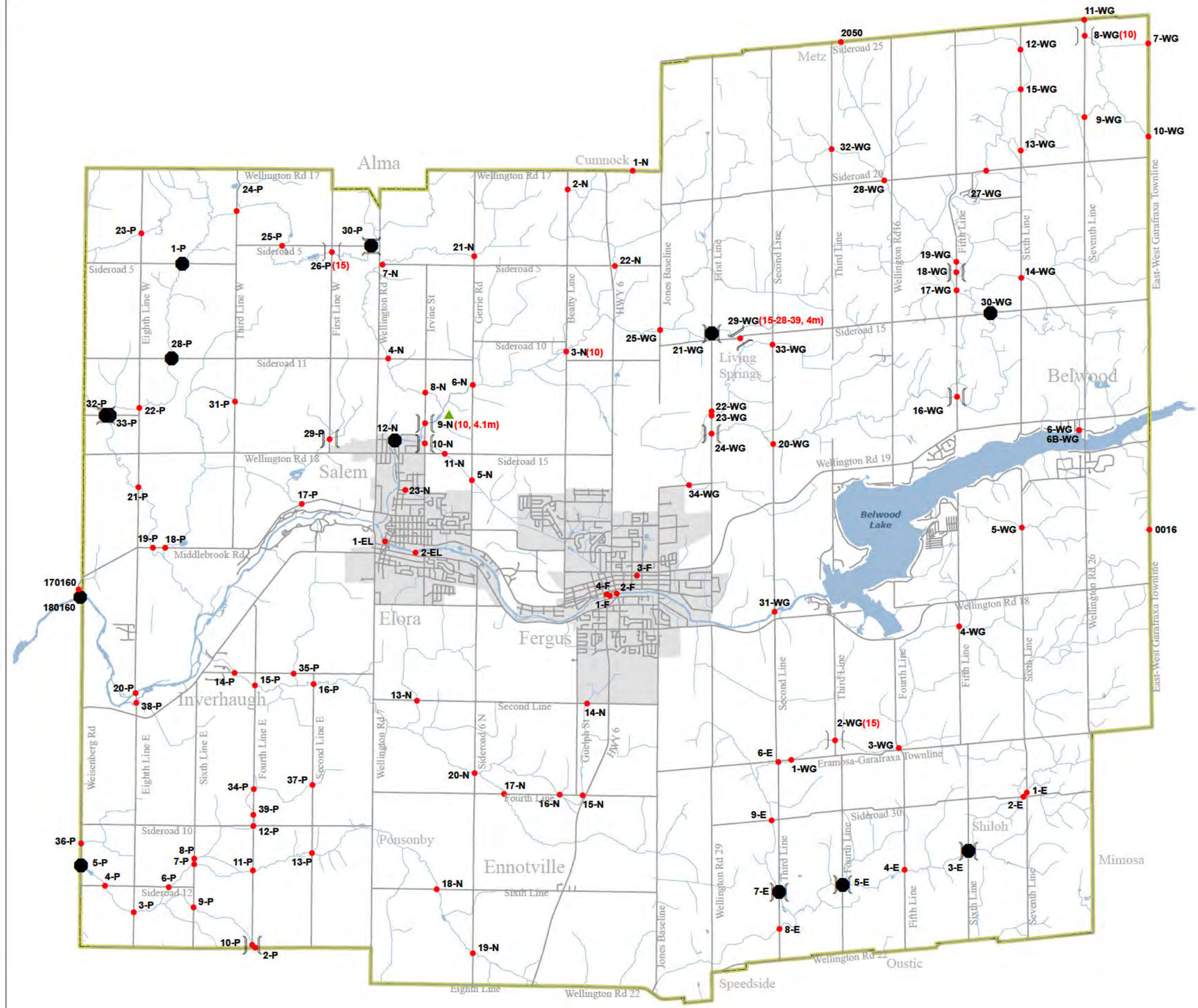
Contact me directly if you have any additional questions.

Regards,
Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0



Bridge Number
Former Municipality Code
Bridge ID: 21-WG (10, 4m)
Load Limit (tonnes)
Height Limit (metres)

Structure Condition

- Open (99)
- Closed (12)
- Load Restricted (5)
- Height Restricted (2)
- Designated Heritage
- Narrow Structure
- Narrow Structure With One Lane Only

Neighbouring Municipality Structures Shown:

0016	Township of East Garafraxa
2050	Township of Wellington North
170160	Township of Woolwich
180160	Township of Woolwich

2024 Centre Wellington Structure Locations & Condition

Updated: February, 2024

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1:85,000

0 1 2 4 km

Crystal Ferguson

From: Andrew Dawson
Sent: Monday, July 29, 2024 3:56 PM
To: [redacted]
Cc: adickieson@centrewellington.ca; Mishaal Rizwan; Crystal Ferguson; Tricia Radburn; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E
Subject: RE: Township of Centre Wellington Notice of Public Open House Bridge and Transportation Network Study for Four Bridges

Good Afternoon [redacted],

Thank you for sending along your comments and questions. I will be providing responses on behalf of the Township and our Project Team. My comments are provided below in blue. If you have any further questions or comments following review of these responses, please do not hesitate to reach out to the team again.

1. Can the Township provide rationale that would typically warrant a permanent closure of a bridge? Has a permanent closure been undertaken in the Township in the past? If a permanent closure was selected as the preferred alternative, would the existing bridge remain in place? I am in favour of permanently closing Bridge 3-E.

   The option for permanent closure will be evaluated against replacement and other alternatives using a series of criteria related to the technical (transportation network and structural), the social, cultural, natural, and economic environments. Candidates for closure would be those structures where the benefits of closure outweigh any negative impacts. Generally speaking, the closure of such structures wouldn't result in significant impacts to cross-community connectivity and emergency response services. This can occur in areas with small detours and low population or average daily vehicle use. The only bridges in Centre Wellington that have been recommended for permanent closure and removal are Bridge 1-P and 30-P (in former Pilkington township) and boundary road bridge 180160 on Middlebrook Place (i.e. three total). A study very similar to this one was used to determine that permanent closure of Bridge 1-P and 30-P did not result in significant impacts. The Middlebrook Place bridge will be removed as it is a public safety concern as it was condemned.

   Your preference for closure of Bridge 3-E will be documented in the study report and considered during the evaluation of the alternatives.

2. If the preferred alternative is to replace the existing bridge, would the results of this study identify the span arrangement? If so, would a single lane bridge be considered as part of the evaluation?

   Yes, the study will involve a review of the site (topography, flow rates of watercourse, alignment of watercourse, etc.) to identify a preliminary conceptual design of the replacement bridge. Several bridge types and sizes will be considered. Where the study identifies that the level of service for this structure may warrant the use of a 'low volume bridge' of single-lane or reduced load capacity, such alternatives will be considered during the review of the replacement alternative.

3. Are any operational, safety or maintenance roadway improvements being considered as part of this study?

   This structure is predominantly focused on the location of the bridges themselves and will not consider improvements to the entire length of roadway. However, the approaches to the bridge (usually 100-200m each side of bridge) will typically be included as part of the bridge study. The preliminary geometric design

will look at improvements to lane and shoulder widths, sight lines, roadside safety measures (guard rail), etc.

4. Please provide details and the objective of the transportation network study.

   The Transportation Network study will evaluate the role of the structures on the overall connectivity within the community. This will include considerations such as travel distances and timelines, looking at several origin and destinations to capture the impacts that closure vs opening the bridges would have at each site. Emergency service response timelines and impacts to local industry transportation and farming services will also be considered as part of the study.

5. Please provide the factor specific weighting anticipated to be used for the preferred alternative evaluation process. Is there an opportunity to review and comment on this aspect before it is implemented?

   The specific weighting of each 'criteria' will be developed by the Project Team based on consultation with the Township and comments received from the community related to their areas of increased interests. A sensitivity analysis is also typically performed, where a series of scenarios with different weightings are ran, and the impact on the preferred alternatives is reviewed for each scenario. The following are the four 'Environments' that will be considered in the evaluation matrix:

   1. Technical Environment (Transportation, Hydraulics, Bridge Capacity, Safety Standards etc.)
   2. Natural Environment (Protection of Trees, Wildlife habitats, species of interest, etc.)
   3. Social & Cultural Environments (Cultural Heritage, Archaeology, Impacts to businesses, community preferences, etc.)
   4. Economic Environment (Upfront Capital Cost, Operation and Maintenance Costs)

   The evaluation of these criteria will be presented during the next Public Open House, at which point the community will be provided an opportunity to review and comment further. Finally, prior to the preferred alternative being implemented, there will be a report compiled outlining all the background information used, and the evaluation matrix results, which will be posted to provide the public opportunity for formal review and comment.

6. Please consider removing the vehicle turnaround on the north side of Bridge 3-E.

   A means to turn around large vehicles at both end of the bridge is required when the bridge is closed in order that snowplowing and other operations can continue.

7. Would the Township be able to provide a copy of the Bridge 3-E Heritage Impact Assessment (HIA) Report for review once complete?

   All project files such as HIA will be put on the Connect CW webpage as they become finalized. It is anticipated that the HIA report will become available in mid-August. The ConnectCW webpage can be found here and will be being updated as work progresses. https://www.connectcw.ca/bridge-transportation-network-study-four-bridges

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: [redacted]
Sent: Thursday, July 25, 2024 7:54 AM
To: Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Cc: Andrew Dawson <Andrew.Dawson@rjburnside.com>; adickieson@centrewellington.ca
Subject: Re: Township of Centre Wellington Notice of Public Open House Bridge and Transportation Network Study for Four Bridges

Good morning,

Thank you for hosting the PIC yesterday evening.

I have the following questions regarding this study:

1. Can the Township provide rationale that would typically warrant a permanent closure of a bridge? Has a permanent closure been undertaken in the Township in the past? If a permanent closure was selected as the preferred alternative, would the existing bridge remain in place? I am in favour of permanently closing Bridge 3-E.
2. If the preferred alternative is to replace the existing bridge, would the results of this study identify the span arrangement? If so, would a single lane bridge be considered as part of the evaluation?
3. Are any operational, safety or maintenance roadway improvements being considered as part of this study?
4. Please provide details and the objective of the transportation network study.
5. Please provide the factor specific weighting anticipated to be used for the preferred alternative evaluation process. Is there an opportunity to review and comment on this aspect before it is implemented?
6. Please consider removing the vehicle turnaround on the north side of Bridge 3-E.
7. Would the Township be able to provide a copy of the Bridge 3-E Heritage Impact Assessment (HIA) Report for review once complete?

Thank you,
[redacted]

On Fri, Jul 12, 2024 at 5:03 PM Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com> wrote:

> Good afternoon,
>
> On behalf of the Township of Centre Wellington, please find attached the Notice of Public Open House for the Bridge and Transportation Network Study for Four Bridges.
>
> If you have any questions, please contact one of the project team members:

Adam Dickieson

Engineering Services Coordinator

Township of Centre Wellington

1 MacDonald Square, Elora, ON N0B 1S0

519-846-9691 x 355

adickieson@centrewellington.ca

Andrew Dawson, P. Eng.

Consultant Project Manager

R.J. Burnside & Associates Ltd.

292 Speedvale Ave W. #20, Guelph, ON N1H 1C4

705-797-4310

andrew.dawson@rjburnside.com

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Thank you.

****

Crystal Ferguson

From: Andrew Dawson
Sent: Monday, July 29, 2024 3:58 PM
To: [redacted]
Cc: adickieson@centrewellington.ca; Crystal Ferguson; Mishaal Rizwan; Tricia Radburn; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E
Subject: RE: Project 3000058117.0000

[redacted]

We are sorry you were unable to attend the Public Open House, but we greatly appreciate you providing your comments. The Township has just posted a virtual, narrated version of the information from the Public Open House online at their ConnectCW project page (https://www.connectcw.ca/bridge-transportation-network-study-four-bridges). If you are interested in further details on the project, please feel free to review that information, as well as other project information that will become available online as our work progresses.

Your comments regarding Bridge 3E and your noted preference of bridge closure will be documented as part of the project report and will be considered during our evaluation of the alternatives. As part of the study, we will be evaluating the cost-benefit of completing work at each of the sites. The study will consider the upfront capital costs and the long term maintenance costs, as well as the population served when analyzing the preferred alternative.

We will keep you on our mailing list for further notices regarding this project. You may also visit the Township's project specific webpage (linked above) or reach out to myself or Adam at any time for further updates.

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

-----Original Message-----
From: [redacted]
Sent: Friday, July 26, 2024 11:04 PM
To: adickieson@centrewellington.ca; Andrew Dawson <Andrew.Dawson@rjburnside.com>
Subject: Project 3000058117.0000

Unfortunately I was unable to attend the July 24th meeting. I live on Sixth Line, just south of Bridge 3E. There are fifteen homes on our road between 22 and 30th. With a proposed budget, in today's dollars, of approximately $1.3 million, plus ongoing maintenance, I think the township could better spend that money elsewhere. That's essentially $100,000 per home. It makes no sense to replace the bridge when one can simply use 5th or 7th line. Kind of a First World Problem. I'd imagine if you were to survey the 15 homes about whether to fix/replace or close the bridge permanently, you'd find the majority would prefer the bridge closed. Everyone has gotten used to the minor inconvenience. An insane amount of money to invest in a few minutes of time saved driving somewhere.
Please include me on future mailings or updates.
Thx.

[redacted]

Crystal Ferguson

From: [redacted]
Sent: Friday, August 02, 2024 10:00 AM
To: Adam Dickieson
Subject: Closed Bridges

[redacted]

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Adam. [redacted] here. I concur with [redacted] concerns.
Who do we discuss this major concern with?
[redacted]

Adam

I would like to address the safety concerns I have with all the bridges closed. The bridges I'm referring to are the 3rd, 4th and now 5th line this is making it dangerous for us farmers travel county road 29 instead of less traveled road. With Fergus growing in population and roads getting high volumes of traffic. Not sure how many cars to farm equipment accidents it takes to have an impact on this, but a car hit a tractor on 29 turning in his own driveway from the back and rolled the tractor. Does it take someone to get killed before this is an issue.

The government keeps talking about carbon pollution people must drive further to go around. We could get to the fields before in 15min is now 30min every load of hay. Maybe we don't look at the emission impact closing bridges has on the environment. If we knew the bridges were getting rough before they were closed why do, we not start the studies then. We pay tax on fuel that is to help rebuild our roads so where is all this money going. If we can't fix roads then why does centre wellington need more land for a sports complex if people can't use the roads to get there.

I would like to hear a time frame on when these bridges will be opened to make everyone's life safer.

Thanks [redacted]

Crystal Ferguson

From: [redacted]
Sent: Wednesday, August 07, 2024 12:20 PM
To: Andrew Dawson
Cc: ADickieson@centrewellington.ca; Tricia Radburn; Mishaal Rizwan; Crystal Ferguson; [redacted]
Subject: RE: ALL BRIDGES OUT

Hi Andrew I read the email and appreciate the response.

One question. When will this happen? There is no dates tied to the response. Its been years and years. Lots of chatter and no shovels in the ground with no plans from what I read here. Study dates and work to be done? Don't understand why there is so much bureaucracy tied to a bridge. Ill bet there was no where near the decision, studies etc. done when the bridges went in originally. In fact, if you read last weeks Wellington advertiser, You will see a bridge in Puslinch has just been re-constructed. Not sure why they can move a whole lot quicker. They are part of Wellington county as well. So as far as I can see from below, there is nothing happening at this time unless I'm missing something. (future options of each bridge) Has the future options been completed?
Not very confident that there will be any thing done in the near or further future.
A little disappointed I must say. Tax payers money not going to good use as usual

Thank you
[redacted]

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Sent: August 7, 2024 11:24 AM
To: [redacted]
Cc: Adam Dickieson (Centre Wellington) <ADickieson@centrewellington.ca>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>
Subject: RE: ALL BRIDGES OUT

[redacted]

My name is Andrew Dawson, I am with R.J. Burnside & Associates Limited, and we are working with the Township as the consulting engineers on this study.

Firstly, Thank-you for reaching out regarding your comments and concerns related to the four bridges study. Adam has passed along your emails as we will be the ones tracking and documenting all comments for the project summary report. Adam and I have discussed your concerns and I will be responding on behalf of the project team.

There were a couple of different emails received, including one received by Adam D. on August 2nd from [redacted] which included further comments from [redacted] within the body of the email. To consolidate your emails into one email chain, I have added that email (attached) into the text of the original email chain below. Although all emails have come from [redacted], we have included [redacted] in this response as his comments were received through [redacted]. If [redacted] would like to be removed from this email chain moving forward, please feel free to let us

know. Moving forward, if we could please keep all email correspondence within this one email thread, it would be greatly appreciated!

I'd like to assure you that your concerns are recognized and that your comments will be documented as part of the study and considered during the evaluation of the potential alternatives of each site.

In hopes of giving you some comfort, we would like to let you know that this study includes a review of the exact impacts that you have identified in your comments. As part of the study, the implications of bridge closures on emergency services, farming equipment and day to day traffic will be analyzed as part of a transportation study. The transportation study compares scenarios with bridges opened and closed and allows the travel time and distances for cross-community connection and emergency response teams to be quantified and those impacts evaluated when considering the future options of each bridge. The implications of pushing larger and slower traffic to higher speed/volume county roads is also recognized as part of this study, as the transportation study looks at what the alternative routes are under the scenario with bridges closed to traffic. The study will also review several alternatives for replacement structures, including 'large culverts', to determine a cost-effective replacement design that will meet the minimum design standards as regulated by legislation and conservation authorities. Although 'large culverts' can be a suitable option in many cases in general, this study will look at the site specific feasibility of both culvert and bridge options while considering other criteria that is required to be met such as flood prevention and road alignment and profile for sight lines and safety, and other considerations such as property and/or utility conflicts, in addition to costs.

I'd also like to let you know that this study is being conducted as part of a legislated process under Ontario's Environmental Assessment Act, which regulates that the Township provide consideration of impacts to the natural, social, cultural, built and economic environments when proposing to undertake a municipal project of this nature. The Township is undertaking this study not only to confirm which aspects of the Environmental Assessment Act are required under regulation, but also to ensure that they are making an educated decision on the future of their infrastructure which involves effective input from the community and traceable decision making which is available for public review and comment. This study will be documented throughout the process and summarized into a final report which will include records of all comments received and how they were considered in the decision making. All this information and the final report will be shared with Council, including the mayor and local councilor prior to the finalizing the decisions to be implemented.

We appreciate you taking the time to provide your comments on this study. If you have any further questions or comments, please feel free to send them to the Project Team.

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: [redacted]
Sent: Friday, August 02, 2024 10:00 AM
To: Adam Dickieson ADickieson@centrewellington.ca
Subject: Closed Bridges

[redacted]

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Adam, [redacted] here. I concur with [redacted] concerns.
Who do we discuss this major concern with?

[redacted]

Adam

I would like to address the safety concerns I have with all the bridges closed. The bridges I'm referring to are the 3rd, 4th and now 5th line this is making it dangerous for us farmers travel county road 29 instead of less traveled road. With Fergus growing in population and roads getting high volumes of traffic. Not sure how many cars to farm equipment accidents it takes to have an impact on this, but a car hit a tractor on 29 turning in his own driveway from the back and rolled the tractor. Does it take someone to get killed before this is an issue.

The government keeps talking about carbon pollution people must drive further to go around. We could get to the fields before in 15min is now 30min every load of hay. Maybe we don't look at the emission impact closing bridges has on the environment. If we knew the bridges were getting rough before they were closed why do, we not start the studies then. We pay tax on fuel that is to help rebuild our roads so where is all this money going. If we can't fix roads then why does centre wellington need more land for a sports complex if people can't use the roads to get there.

I would like to hear a time frame on when these bridges will be opened to make everyone's life safer.

Thanks [redacted]

From: [redacted]
Sent: Tuesday, July 30, 2024 5:03 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Subject: ALL BRIDGES OUT

[redacted]

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Adam
[redacted] here [redacted]
I spoke with you in the past frustrated about the 3rd line , 4th line 6th lines being closed indefinitely
This must not continue. We burn additional fuel in our farming equipment having to go around the country to access precious crops and get work done
Bigger concern is the safety of our community members and our selves having to travel north from the 20th side road north passed 22 with slow moving vehicles which are larger than common cars and trucks.
This HI way 29 is far too busy and some one will be injured or killed as a result of closed bridges. It is only when some one is killed or injured that will get the attention for repair or replace
Large culverts would take less than a week at a fraction of the cost to tax payers who's taxes are raised every year and yet nothing is done
Forget the study's and environment red tape which make nothing but delays, bureaucracy and nothing is ever done. 10 years on the third?? Really same on others
and now the 5th under construction
First responders not able to get to where they need to go in a timely fashion is also a huge problem. I know the bridge out signs are out there but still doesn't matter. Last year a car went off the bridge headed north on the 4th line. The Fergus fire department were called and could not reach the vehicle from the south. Fortunately the occupants were injured not killed
I would appreciate you take my and others comments and concerns to you Bosses Boss and our Local PM Tedd Arnot along with the Mayor

A positive response or direction from some one would be appreciated
Thank you
[redacted]

Get Outlook for Android

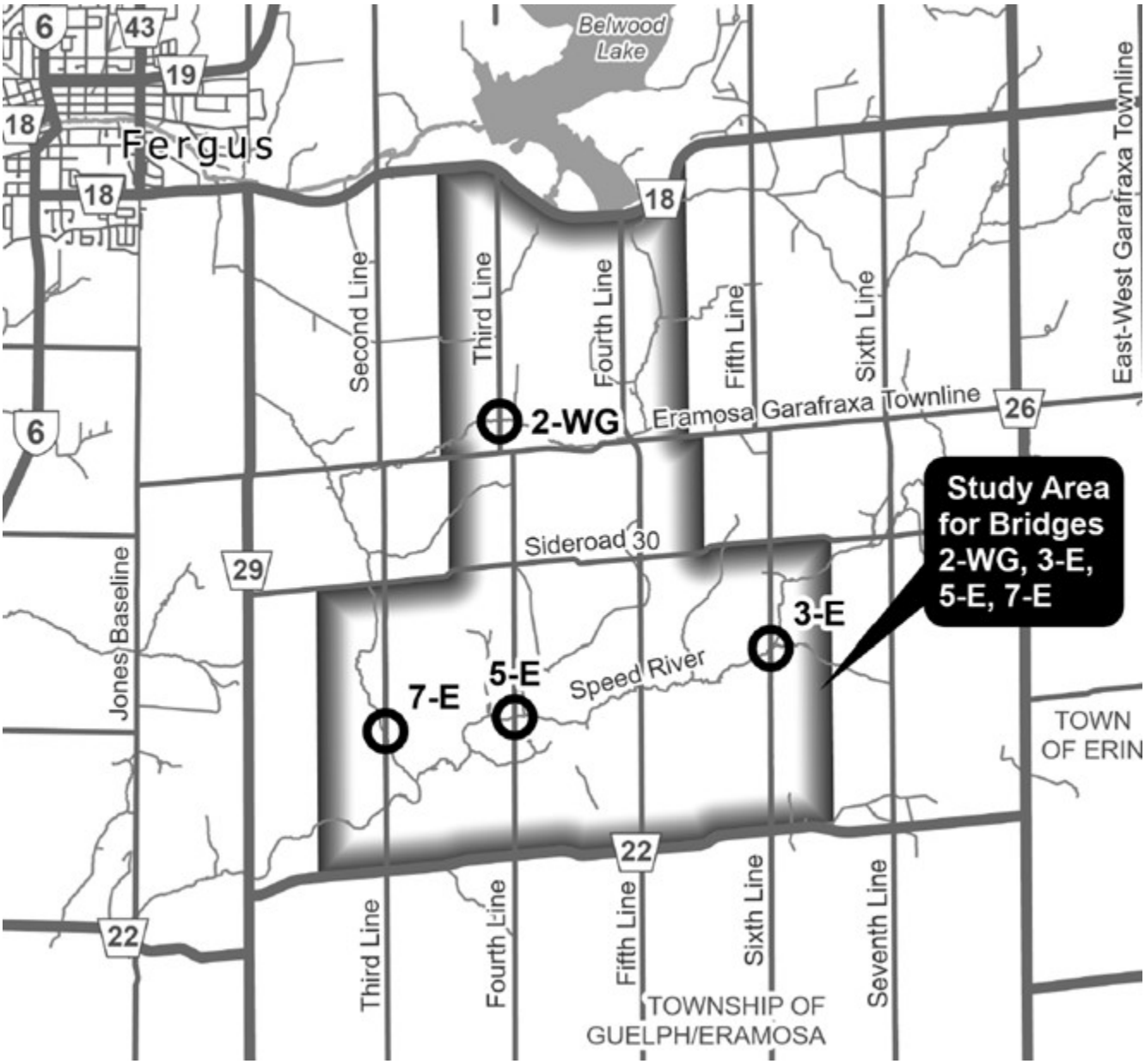
From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Monday, July 29, 2024 9:37:40 AM
To: [redacted]
Cc: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Subject: Bridge Study - Third Line Bridge (7-E) - Agricultural Use

[redacted]

Thank you for the call this morning. When you mention near misses with traffic while transporting materials and equipment while hauling with tractor, this is cause for concern.

As I mentioned, the Township of Centre Wellington is in the midst of a study to determine the next steps in with four bridges in the area of former Eramosa Township (within Centre Wellington). If you can provide comments and concerns to do with the four bridge crossings in the study area it would be appreciated and will become part of the study evaluation.

My understanding from your call this morning is bridge 7-E on the Third Line is the bridge that you would like to see reopened to improved haul distance and safety.



Attached is a map of Centre Wellingtons bridge network for your reference.

This a link to a webpage that has additional information about the bridge study. [Bridge & Transportation Network Study for Four Bridges | Connect CW]

Contact me directly if you have any additional questions.

Regards,
Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Crystal Ferguson

From: Andrew Dawson
Sent: Wednesday, August 07, 2024 4:38 PM
To: [redacted]
Cc: ADickieson@centrewellington.ca; Tricia Radburn; Mishaal Rizwan; Crystal Ferguson; [redacted]
Subject: RE: ALL BRIDGES OUT

[redacted]

This study is for evaluating options (remove, rehabilitate, replace) and determining the preferred solution for each bridge site. The final report outlining all recommendations is anticipated to be completed and ready for review by the end of this year and the study finalized in early 2025 . From there, the Township will use the results of the study to determine when the proposed solutions will be implemented as part of their overall Bridge Rebuilding Program. There are additional timelines related to the detailed design and permitting for the structures as well, as this study just looks at preliminary geometry.

As you may be aware, the Township has a Dedicated Capital Levy (DCL) which they use for bridge improvements within the Township. The DCL is a limited budget, but the Township has been successful in obtaining additional funding from the Ontario government in the past to supplement the DCL as well. Regardless, the Township only has a certain budget that they must work with to maintain and repair/replace their entire inventory of 111 structures. The Township reviews the budgets and where they will be allocating their spending on a yearly basis, at minimum. The 2024 *Bridges and Major Culverts 10-Year* Plan currently has the structures that are part of this study being replaced in 2029 and beyond [refer to 2024-budget-final.pdf (centrewellington.ca) page 152]. Each year a bridge structure's priority (probability of failure and consequence of failure), current condition, and funding limits will influence, and may reposition the year in which a replacement or rehabilitation are scheduled. The completion of this study will influence the Township's Bridges and Major Culverts priorities. Some further information about this process is available on the Township's ConnectCW page for their Bridge Rebuilding Program, here: https://www.connectcw.ca/bridge-rebuilding-program. The timeline for the proposed construction / work at each site will be reviewed and decided upon by the Township following the study as part of their Bridge Rebuilding Program and budgeting discussions.

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: [redacted]>
Sent: Wednesday, August 07, 2024 12:20 PM
To: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Cc: ADickieson@centrewellington.ca; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; [redacted]
Subject: RE: ALL BRIDGES OUT

Hi Andrew I read the email and appreciate the response.

One question. When will this happen? There is no dates tied to the response. Its been years and years. Lots of chatter and no shovels in the ground with no plans from what I read here. Study dates and work to be done? Don't understand why there is so much bureaucracy tied to a bridge. Ill bet there was no where near the decision, studies etc. done when

the bridges went in originally. In fact, if you read last weeks Wellington advertiser, You will see a bridge in Puslinch has just been re-constructed. Not sure why they can move a whole lot quicker. They are part of Wellington county as well. So as far as I can see from below, there is nothing happening at this time unless I'm missing something. (future options of each bridge) Has the future options been completed?
Not very confident that there will be any thing done in the near or further future.
A little disappointed I must say. Tax payers money not going to good use as usual

Thank you
[redacted]

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Sent: August 7, 2024 11:24 AM
To: [redacted]
Cc: Adam Dickieson (Centre Wellington) <ADickieson@centrewellington.ca>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>
Subject: RE: ALL BRIDGES OUT

[redacted]

My name is Andrew Dawson, I am with R.J. Burnside & Associates Limited, and we are working with the Township as the consulting engineers on this study.

Firstly, Thank-you for reaching out regarding your comments and concerns related to the four bridges study. Adam has passed along your emails as we will be the ones tracking and documenting all comments for the project summary report. Adam and I have discussed your concerns and I will be responding on behalf of the project team.

There were a couple of different emails received, including one received by Adam D. on August 2nd from [redacted] which included further comments from [redacted] within the body of the email. To consolidate your emails into one email chain, I have added that email (attached) into the text of the original email chain below. Although all emails have come from [redacted], we have included [redacted] in this response as his comments were received through [redacted]. If [redacted] would like to be removed from this email chain moving forward, please feel free to let us know. Moving forward, if we could please keep all email correspondence within this one email thread, it would be greatly appreciated!

I'd like to assure you that your concerns are recognized and that your comments will be documented as part of the study and considered during the evaluation of the potential alternatives of each site.

In hopes of giving you some comfort, we would like to let you know that this study includes a review of the exact impacts that you have identified in your comments. As part of the study, the implications of bridge closures on emergency services, farming equipment and day to day traffic will be analyzed as part of a transportation study. The transportation study compares scenarios with bridges opened and closed and allows the travel time and distances for cross-community connection and emergency response teams to be quantified and those impacts evaluated when considering the future options of each bridge. The implications of pushing larger and slower traffic to higher speed/volume county roads is also recognized as part of this study, as the transportation study looks at what the alternative routes are under the scenario with bridges closed to traffic. The study will also review several alternatives for replacement structures, including 'large culverts', to determine a cost-effective replacement design that will meet the minimum design standards as regulated by legislation and conservation authorities. Although 'large culverts' can be a suitable option in many cases in general, this study will look at the site specific

feasibility of both culvert and bridge options while considering other criteria that is required to be met such as flood prevention and road alignment and profile for sight lines and safety, and other considerations such as property and/or utility conflicts, in addition to costs.

I'd also like to let you know that this study is being conducted as part of a legislated process under Ontario's Environmental Assessment Act, which regulates that the Township provide consideration of impacts to the natural, social, cultural, built and economic environments when proposing to undertake a municipal project of this nature. The Township is undertaking this study not only to confirm which aspects of the Environmental Assessment Act are required under regulation, but also to ensure that they are making an educated decision on the future of their infrastructure which involves effective input from the community and traceable decision making which is available for public review and comment. This study will be documented throughout the process and summarized into a final report which will include records of all comments received and how they were considered in the decision making. All this information and the final report will be shared with Council, including the mayor and local councilor prior to the finalizing the decisions to be implemented.

We appreciate you taking the time to provide your comments on this study. If you have any further questions or comments, please feel free to send them to the Project Team.

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

[redacted]
Sent: Friday, August 02, 2024 10:00 AM
To: Adam Dickieson ADickieson@centrewellington.ca
Subject: Closed Bridges

[redacted]

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Adam. [redacted] here. I concur with [redacted] concerns.
Who do we discuss this major concern with?
[redacted]

Adam

I would like to address the safety concerns I have with all the bridges closed. The bridges I'm referring to are the 3rd, 4th and now 5th line this is making it dangerous for us farmers travel county road 29 instead of less traveled road. With Fergus growing in population and roads getting high volumes of traffic. Not sure how many cars to farm equipment accidents it takes to have an impact on this, but a car hit a tractor on 29 turning in his own driveway from the back and rolled the tractor. Does it take someone to get killed before this is an issue.

The government keeps talking about carbon pollution people must drive further to go around. We could get to the fields before in 15min is now 30min every load of hay. Maybe we don't look at the emission impact closing bridges has on the environment. If we knew the bridges were getting rough before they were closed why do, we not start the studies then. We pay tax on fuel that is to help rebuild our roads so where is all this money going. If we can't fix roads then why does centre wellington need more land for a sports complex if people can't use the roads to get there.

I would like to hear a time frame on when these bridges will be opened to make everyone's life safer.

Thanks [redacted]

From: [redacted]
Sent: Tuesday, July 30, 2024 5:03 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Subject: ALL BRIDGES OUT

[redacted]

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Adam
[redacted]
I spoke with you in the past frustrated about the 3rd line , 4th line 6th lines being closed indefinitely
This must not continue. We burn additional fuel in our farming equipment having to go around the country to access precious crops and get work done
Bigger concern is the safety of our community members and our selves having to travel north from the 20th side road north passed 22 with slow moving vehicles which are larger than common cars and trucks.
This HI way 29 is far too busy and some one will be injured or killed as a result of closed bridges. It is only when some one is killed or injured that will get the attention for repair or replace
Large culverts would take less than a week at a fraction of the cost to tax payers who's taxes are raised every year and yet nothing is done
Forget the study's and environment red tape which make nothing but delays, bureaucracy and nothing is ever done. 10 years on the third?? Really same on others
and now the 5th under construction
First responders not able to get to where they need to go in a timely fashion is also a huge problem. I know the bridge out signs are out there but still doesn't matter. Last year a car went off the bridge headed north on the 4th line. The Fergus fire department were called and could not reach the vehicle from the south. Fortunately the occupants were injured not killed
I would appreciate you take my and others comments and concerns to you Bosses Boss and our Local PM Tedd Arnot along with the Mayor

A positive response or direction from some one would be appreciated
Thank you
[redacted]

Get Outlook for Android

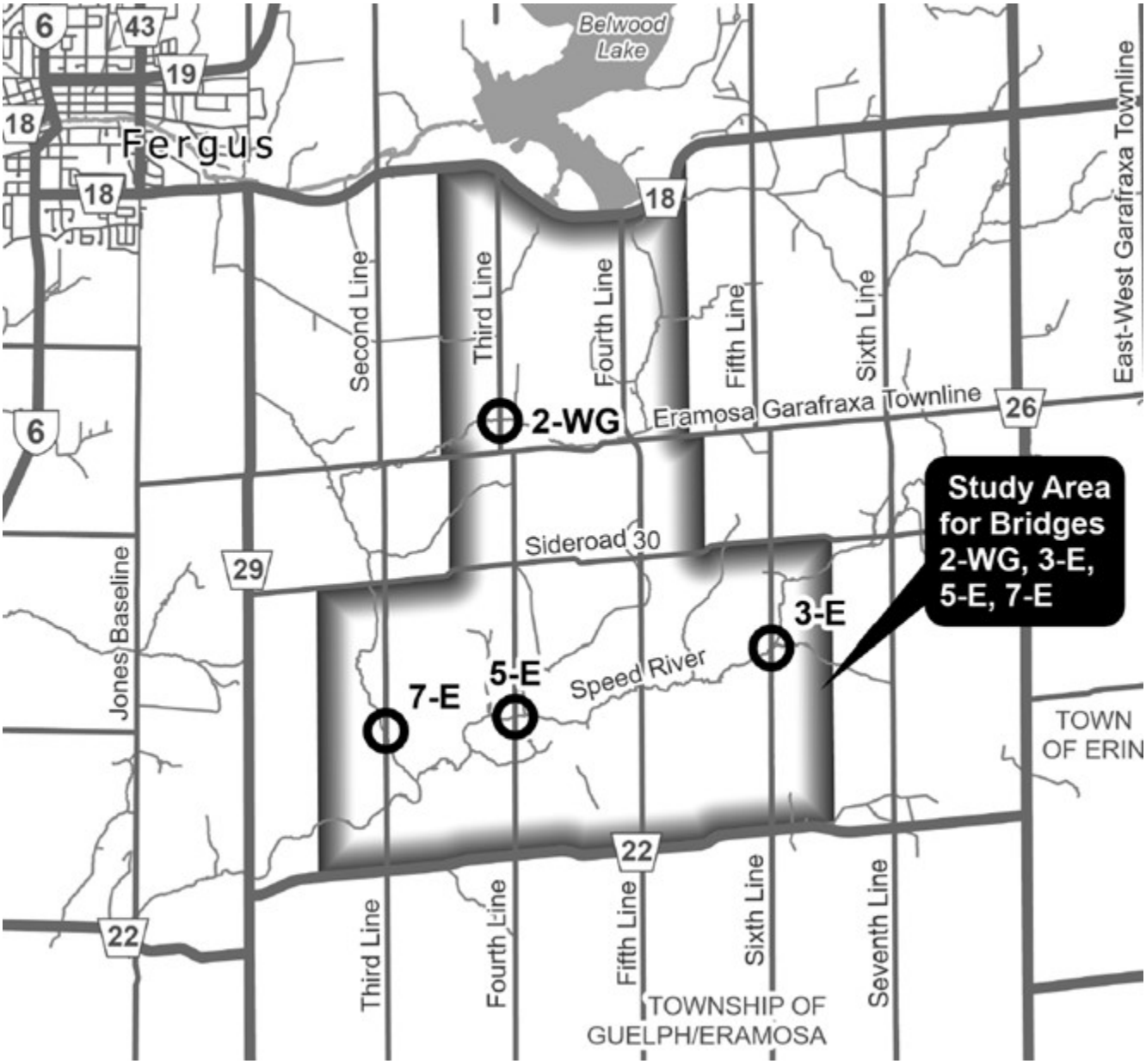
From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Monday, July 29, 2024 9:37:40 AM
To: [redacted]
Cc: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Subject: Bridge Study - Third Line Bridge (7-E) - Agricultural Use

[redacted]

Thank you for the call this morning. When you mention near misses with traffic while transporting materials and equipment while hauling with tractor, this is cause for concern.

As I mentioned, the Township of Centre Wellington is in the midst of a study to determine the next steps in with four bridges in the area of former Eramosa Township (within Centre Wellington). If you can provide comments and concerns to do with the four bridge crossings in the study area it would be appreciated and will become part of the study evaluation.

My understanding from your call this morning is bridge 7-E on the Third Line is the bridge that you would like to see reopened to improved haul distance and safety.



Attached is a map of Centre Wellingtons bridge network for your reference.

This a link to a webpage that has additional information about the bridge study. Bridge & Transportation Network Study for Four Bridges | Connect CW

Contact me directly if you have any additional questions.

Regards,
Adam.



Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Crystal Ferguson

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Wednesday, August 07, 2024 8:33 AM
To: [redacted]
Cc: Mishaal Rizwan; Tricia Radburn; Crystal Ferguson; Andrew Dawson
Subject: 058117 - Bridge 2-WG (Third Line)_Carroll
Attachments: Bridge 2-WG (Third Line) Project_300058117_TCW.pdf; Bridge 2-WG (Third Line) Project_300058117_Carroll.pdf

[redacted]

Please find attached a letter of response to your July 24, 2024 letter attached. A copy has also been sent through Canada Post.

Contact me if you have any follow-up questions or comments.

Regards,
Adam.

Information will be collected in accordance with the Municipal Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

July 24, 2024

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0

Re: Bridge 2-WG (Third Line) Project No. 300058117.0000

Dear Adam

It is of great concern that closure of Bridge 2-WG is even an option in your review of the four existing bridges currently under study. Recognizing the growth in Centre Wellington, and the increased traffic on Country Rd 18, maintaining access along rural roads is essential.

Impact of closure would be dramatic and far reaching.

Farm owners / operators on Third Line who farm other properties need access to the Garafraxa Eramosa Townline for safe movement of equipment. Farm operators regularly have multiple daily trips, especially during planting and harvest. Closure of Bridge WG-2 would force this equipment onto Country Rd. 18, causing major safety issues for farmers and the general public.

Our farm [redacted] is bisected by the creek, with more than half of our arable acreage on the south side of the bridge. Access to that portion of land would require going "around the block" which in this case represents almost 10 Km and the corresponding increase in time. There would be no choice but travelling on Country Rd. 18. Furthermore, having a divided property would impact the value of our property, as access to the whole farm is restricted.

Currently 3 school buses cross the bridge, twice daily. Their routes are such that the majority of the turns to/from Country Rd 18 are right turns. This is particularly important at the Third Line, where the curves, trees and also the height of crops severely limit sight lines. Neighbours have experienced many near misses when trying to make a left turn on to Country Rd 18.

The stretch of County Rd. 18 from Second Line to Fourth Line seems to be prone to traffic accidents and closure. There have been a number of instances where all traffic has be re-routed down the Third Line because of an emergency road closure. This bypass route allows First Responders to work safely as they get County Rd 18 re-opened.

Access for Centre Wellington Township Vehicles (Garbage collection, snow plowing, road maintenance, etc) would all be impacted. Potentially emergency response vehicles could also be impacted by closure of the bridge. Finally, most residents of the Third Line cross the bridge daily on their way to work.

Those are a few of the reasons this bridge must be maintained. Closure is simply not acceptable.

We would ask that you come up with a plan for repair or replacement of Bridge 2-WG,and inform us of the time frame. Whether it is another concrete structure or a large culvert, this bridge is essential to our local community.

Sincerely,

[redacted]

[redacted]

copy: Andrew Dawson, P.Eng.
R.J. Burnside & Associates

Re: Bridge 2-WG (Third Line) Project No.300058117.0000

Dear [redacted]

I appreciate you both taking the time to come to the July 24, 2024 Public Open House held at the Fergus Sports Plex, Gord Brown Hall. I wanted to provide acknowledgement of your concerns from the letter you left for me that evening. I would also like to provide you with some of the study details as to how your concerns are appreciated.

Thank you for preparing written comments and concerns related to the four bridges study. Your comments will be documented as part of the study and considered during the evaluation of the potential alternatives for the 2-WG Bridge site. Your concerns are recognized. This study has been implemented so that the Township can examine the many considerations required when determining the appropriate solution at each of the bridge sites. This study is being conducted in order to confirm and fulfill the Township's requirements as part of a legislated process under Ontario's Environmental Assessment Act, which requires the Township to provide consideration of impacts to the natural, social, cultural, built and economic environments when proposing to undertake a municipal project of this nature. . The scope of the current bridge study includes a review of the exact impacts that you have identified in your comments. As part of the study, the implications of bridge closures on emergency services, farming equipment, school bussing and day to day traffic will be analyzed as part of a transportation study. The implications of pushing larger and slower traffic to higher speed/volume county roads is recognized as part of this study. The study will also review several alternatives for replacement structures, including 'large culverts', to determine a cost-effective replacement design that will meet the minimum design standards as regulated by legislation and conservation authorities. Consideration of impacts on surrounding properties, such as yours, is also included in the evaluation of the alternatives.

I also wanted to note that the options of closed *permanently, rehabilitation, and full replacement* are always presented in a bridge/transportation study of this nature. Through the course of the study, the technical (transportation / structural), natural, social, cultural, built and economic environments are all considered. An evaluation of all alternatives against several criteria from these categories will be used to select the appropriate alternative at each of the four bridge sites in this study. The Township's www.connectcw.ca/bridge-transportation-network-study-four-bridges web site will be updated with additional project information as the study advances.

Please feel free to contact me directly through my contact details below if you any further questions.

Sincerely,

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
adickieson@centrewellington.ca
519-846-9691 ext. 355

CC: Andrew Dawson, P. Eng, R.J. Burnside & Associates Ltd.

Crystal Ferguson

From: [redacted]
Sent: Thursday, August 08, 2024 1:15 PM
To: Andrew Dawson; [redacted]
Cc: ADickieson@centrewellington.ca; Tricia Radburn; Mishaal Rizwan; Crystal Ferguson
Subject: Re: ALL BRIDGES OUT

Hi Andrew, just not seeing when the bridges are going to be replaced. I would think that it shouldn't take over 10 yrs to complete these studies. The 4th line bridge has been out longer than 10yrs and the 3rd line bridge is coming up or has been closed for 5yrs and prior to these bridges closing why where these studies started before they closed.

So getting back to the safety concerns how are these going to be corrected. Ambulance and fire have to travel farther a farmer gets air lifted from being hit on a busy county rd 29.

Does a taxpayer have to die before this will be corrected.

We pay fuel tax to repair roads and where has this money gone for all these years.

Please answer the questions we have ask when are the bridges being replaced.

Thanks [redacted]

Get Outlook for Android

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Sent: Wednesday, August 7, 2024 4:38:14 PM
To: [redacted]
Cc: ADickieson@centrewellington.ca <ADickieson@centrewellington.ca>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; [redacted]
Subject: RE: ALL BRIDGES OUT

[redacted]

This study is for evaluating options (remove, rehabilitate, replace) and determining the preferred solution for each bridge site. The final report outlining all recommendations is anticipated to be completed and ready for review by the end of this year and the study finalized in early 2025 . From there, the Township will use the results of the study to determine when the proposed solutions will be implemented as part of their overall Bridge Rebuilding Program. There are additional timelines related to the detailed design and permitting for the structures as well, as this study just looks at preliminary geometry.

As you may be aware, the Township has a Dedicated Capital Levy (DCL) which they use for bridge improvements within the Township. The DCL is a limited budget, but the Township has been successful in obtaining additional funding from the Ontario government in the past to supplement the DCL as well. Regardless, the Township only

has a certain budget that they must work with to maintain and repair/replace their entire inventory of 111 structures. The Township reviews the budgets and where they will be allocating their spending on a yearly basis, at minimum. The 2024 *Bridges and Major Culverts 10-Year* Plan currently has the structures that are part of this study being replaced in 2029 and beyond [refer to 2024-budget-final.pdf (centrewellington.ca) page 152]. Each year a bridge structure's priority (probability of failure and consequence of failure), current condition, and funding limits will influence, and may reposition the year in which a replacement or rehabilitation are scheduled. The completion of this study will influence the Township's Bridges and Major Culverts priorities. Some further information about this process is available on the Township's ConnectCW page for their Bridge Rebuilding Program, here: https://www.connectcw.ca/bridge-rebuilding-program. The timeline for the proposed construction / work at each site will be reviewed and decided upon by the Township following the study as part of their Bridge Rebuilding Program and budgeting discussions.

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: [redacted]
Sent: Wednesday, August 07, 2024 12:20 PM
To: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Cc: ADickieson@centrewellington.ca; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; [redacted]
Subject: RE: ALL BRIDGES OUT

Hi Andrew I read the email and appreciate the response.

One question. When will this happen? There is no dates tied to the response. Its been years and years. Lots of chatter and no shovels in the ground with no plans from what I read here. Study dates and work to be done? Don't understand why there is so much bureaucracy tied to a bridge. Ill bet there was no where near the decision, studies etc. done when the bridges went in originally. In fact, if you read last weeks Wellington advertiser, You will see a bridge in Puslinch has just been re-constructed. Not sure why they can move a whole lot quicker. They are part of Wellington county as well. So as far as I can see from below, there is nothing happening at this time unless I'm missing something. (future options of each bridge) Has the future options been completed?
Not very confident that there will be any thing done in the near or further future.
A little disappointed I must say. Tax payers money not going to good use as usual

Thank you
[redacted]

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Sent: August 7, 2024 11:24 AM
To: [redacted]
Cc: Adam Dickieson (Centre Wellington) <ADickieson@centrewellington.ca>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>
Subject: RE: ALL BRIDGES OUT

[redacted]

My name is Andrew Dawson, I am with R.J. Burnside & Associates Limited, and we are working with the Township as the consulting engineers on this study.

Firstly, Thank-you for reaching out regarding your comments and concerns related to the four bridges study. Adam has passed along your emails as we will be the ones tracking and documenting all comments for the project summary report. Adam and I have discussed your concerns and I will be responding on behalf of the project team.

There were a couple of different emails received, including one received by Adam D. on August 2nd from [redacted] which included further comments from [redacted] within the body of the email. To consolidate your emails into one email chain, I have added that email (attached) into the text of the original email chain below. Although all emails have come from [redacted] we have included [redacted] in this response as his comments were received through [redacted] If [redacted] would like to be removed from this email chain moving forward, please feel free to let us know. Moving forward, if we could please keep all email correspondence within this one email thread, it would be greatly appreciated!

I'd like to assure you that your concerns are recognized and that your comments will be documented as part of the study and considered during the evaluation of the potential alternatives of each site.

In hopes of giving you some comfort, we would like to let you know that this study includes a review of the exact impacts that you have identified in your comments. As part of the study, the implications of bridge closures on emergency services, farming equipment and day to day traffic will be analyzed as part of a transportation study. The transportation study compares scenarios with bridges opened and closed and allows the travel time and distances for cross-community connection and emergency response teams to be quantified and those impacts evaluated when considering the future options of each bridge. The implications of pushing larger and slower traffic to higher speed/volume county roads is also recognized as part of this study, as the transportation study looks at what the alternative routes are under the scenario with bridges closed to traffic. The study will also review several alternatives for replacement structures, including 'large culverts', to determine a cost-effective replacement design that will meet the minimum design standards as regulated by legislation and conservation authorities. Although 'large culverts' can be a suitable option in many cases in general, this study will look at the site specific feasibility of both culvert and bridge options while considering other criteria that is required to be met such as flood prevention and road alignment and profile for sight lines and safety, and other considerations such as property and/or utility conflicts, in addition to costs.

I'd also like to let you know that this study is being conducted as part of a legislated process under Ontario's Environmental Assessment Act, which regulates that the Township provide consideration of impacts to the natural, social, cultural, built and economic environments when proposing to undertake a municipal project of this nature. The Township is undertaking this study not only to confirm which aspects of the Environmental Assessment Act are required under regulation, but also to ensure that they are making an educated decision on the future of their infrastructure which involves effective input from the community and traceable decision making which is available for public review and comment. This study will be documented throughout the process and summarized into a final report which will include records of all comments received and how they were considered in the decision making. All this information and the final report will be shared with Council, including the mayor and local councilor prior to the finalizing the decisions to be implemented.

We appreciate you taking the time to provide your comments on this study. If you have any further questions or comments, please feel free to send them to the Project Team.

Regards,
Andrew

Andrew Dawson
Project Engineer

R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: [redacted]
Sent: Friday, August 02, 2024 10:00 AM
To: Adam Dickieson ADickieson@centrewellington.ca
Subject: Closed Bridges

[redacted]

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Adam. [redacted] here. I concur with [redacted] concerns.
Who do we discuss this major concern with?
[redacted]

Adam

I would like to address the safety concerns I have with all the bridges closed. The bridges I'm referring to are the 3rd, 4th and now 5th line this is making it dangerous for us farmers travel county road 29 instead of less traveled road. With Fergus growing in population and roads getting high volumes of traffic. Not sure how many cars to farm equipment accidents it takes to have an impact on this, but a car hit a tractor on 29 turning in his own driveway from the back and rolled the tractor. Does it take someone to get killed before this is an issue.

The government keeps talking about carbon pollution people must drive further to go around. We could get to the fields before in 15min is now 30min every load of hay. Maybe we don't look at the emission impact closing bridges has on the environment. If we knew the bridges were getting rough before they were closed why do, we not start the studies then. We pay tax on fuel that is to help rebuild our roads so where is all this money going. If we can't fix roads then why does centre wellington need more land for a sports complex if people can't use the roads to get there.

I would like to hear a time frame on when these bridges will be opened to make everyone's life safer.

Thanks[redacted]

From: [redacted]
Sent: Tuesday, July 30, 2024 5:03 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Subject: ALL BRIDGES OUT

[redacted]

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Adam
[redacted]
I spoke with you in the past frustrated about the 3rd line , 4th line 6th lines being closed indefinitely
This must not continue. We burn additional fuel in our farming equipment having to go around the country to access precious crops and get work done
Bigger concern is the safety of our community members and our selves having to travel north from the 20th side road north passed 22 with slow moving vehicles which are larger than common cars and trucks.

This HI way 29 is far too busy and some one will be injured or killed as a result of closed bridges. It is only when some one is killed or injured that will get the attention for repair or replace
Large culverts would take less than a week at a fraction of the cost to tax payers who's taxes are raised every year and yet nothing is done
Forget the study's and environment red tape which make nothing but delays, bureaucracy and nothing is ever done. 10 years on the third?? Really same on others
and now the 5th under construction
First responders not able to get to where they need to go in a timely fashion is also a huge problem. I know the bridge out signs are out there but still doesn't matter. Last year a car went off the bridge headed north on the 4th line. The Fergus fire department were called and could not reach the vehicle from the south. Fortunately the occupants were injured not killed
I would appreciate you take my and others comments and concerns to you Bosses Boss and our Local PM Tedd Arnot along with the Mayor

A positive response or direction from some one would be appreciated
Thank you
[redacted]

Get Outlook for Android

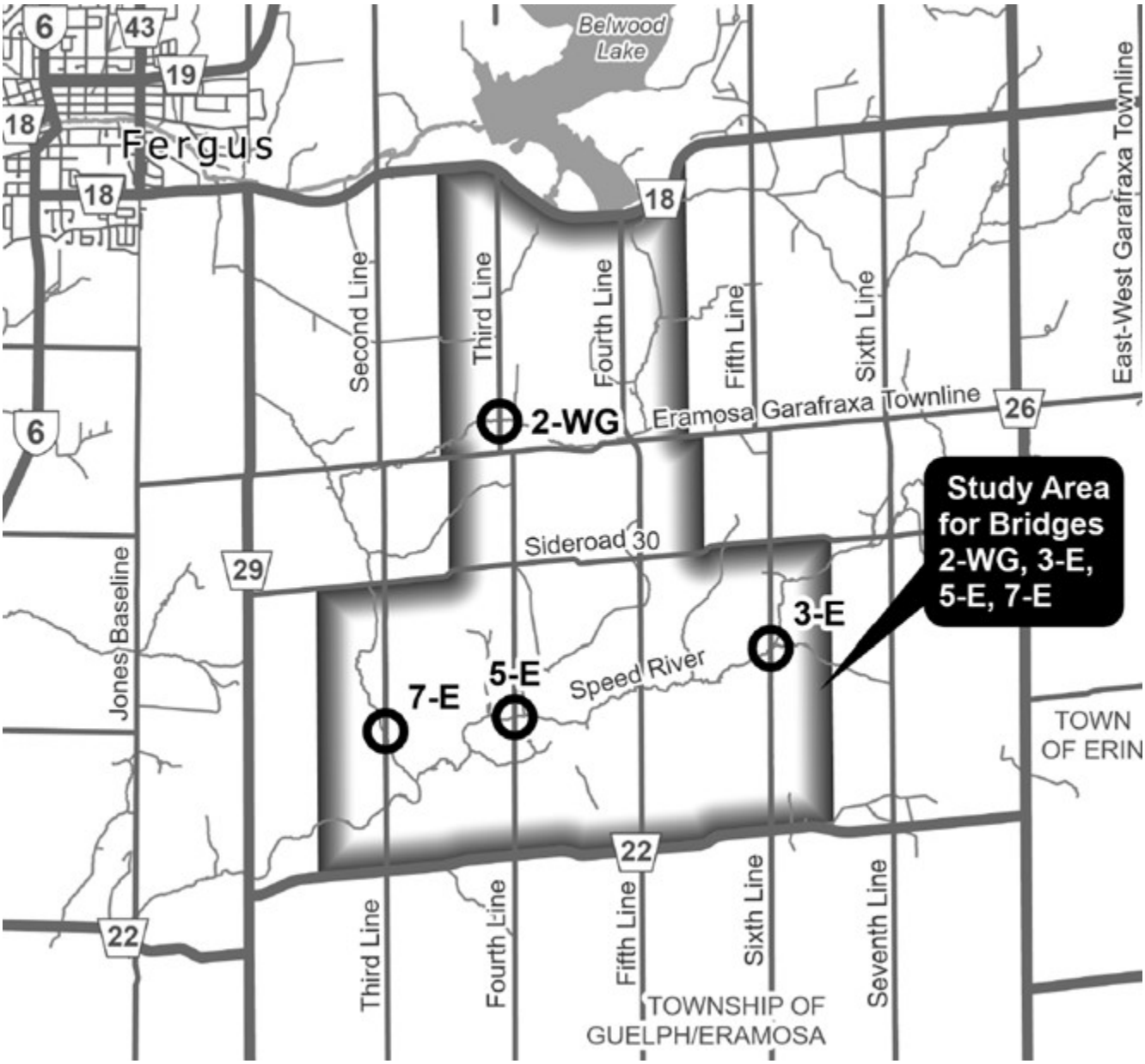
From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Monday, July 29, 2024 9:37:40 AM
To: [redacted]
Cc: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Subject: Bridge Study - Third Line Bridge (7-E) - Agricultural Use

[redacted]

Thank you for the call this morning. When you mention near misses with traffic while transporting materials and equipment while hauling with tractor, this is cause for concern.

As I mentioned, the Township of Centre Wellington is in the midst of a study to determine the next steps in with four bridges in the area of former Eramosa Township (within Centre Wellington). If you can provide comments and concerns to do with the four bridge crossings in the study area it would be appreciated and will become part of the study evaluation.

My understanding from your call this morning is bridge 7-E on the Third Line is the bridge that you would like to see reopened to improved haul distance and safety.



Attached is a map of Centre Wellingtons bridge network for your reference.

This a link to a webpage that has additional information about the bridge study. [Bridge & Transportation Network Study for Four Bridges | Connect CW]

Contact me directly if you have any additional questions.

Regards,
Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Crystal Ferguson

From: [redacted]
Sent: Saturday, November 16, 2024 12:56 PM
To: Adam Dickieson
Subject: Re: Bridge 2-WG

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Adam
Thank you for remembering I was interested in the biologists' report. I will take a look a it.
We also appreciate your notice of the upcoming meting. Hope to see you there.
Regards
[redacted]

Get Outlook for Android

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Friday, November 15, 2024 9:53:21 a.m.
To: [redacted]
Subject: RE: Bridge 2-WG

[redacted]

Please note that the biologists' report has just been received and made available on the Bridge & Transportation Network Study for Four Bridges webpage. Refer to the Document Library section of the page. https://www.connectcw.ca/bridge-transportation-network-study-four-bridges

The biologists' report has been titled as the “Natural Heritage Report.”

Also note that a time and date has been selected for another Public Open House. On December 2, 2024 from 6:00 pm - 8:00pm at the Centre Wellington Community Sportsplex - Gord Brown Hall (550 Belsyde Avenue East, Fergus), Open House #2 will occur. The project team will provide an overview on the various study findings and deliver the draft preferred alternatives that are under consideration.

Let me know if there are any additional project details I can provide.

Regards,
Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: [redacted]
Sent: August 26, 2024 9:38 AM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Subject: RE: Bridge 2-WG

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Super! Thanks Adam.

On Aug. 26, 2024 8:08 a.m., Adam Dickieson <ADickieson@centrewellington.ca> wrote:

[redacted]

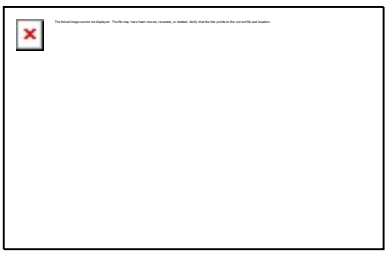
Yes – As the reports are completed, they will all be assembled into a project file report that will be publicly accessible. This report will be available on the Township's project web page:

https://www.connectcw.ca/bridge-transportation-network-study-four-bridges

I will let you know when the requested information has been added to the webpage.

Regards,

Adam.



Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0

519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: [redacted]
Sent: Friday, August 23, 2024 9:03 AM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Subject: Bridge 2-WG

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Adam

It was good to speak with you the other day, as the consultants were doing their assessment on the Third Line bridge. I appreciated your explanation that this is the next step in the process.

Is it possible to get a copy of the biologists' report? I am very interested in the ecology of our creek, and would like to read their findings. Similarly, if there is a report on the cultural / indigenous aspect. The member of the team said she did not know the history, but perhaps you could direct me.

Thanks for your work in moving this project along!

Take care,

[redacted]

[redacted]

[redacted]

Crystal Ferguson

From: [redacted]
Sent: Friday, November 15, 2024 2:34 PM
To: Mishaal Rizwan
Cc: Andrew Dawson; Adam Dickieson
Subject: Re: Township of Centre Wellington, Notice for Public Open House 2 - Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E, & 7E)
Attachments: image001.gif

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

I will attend

Best Regards

[redacted]

[redacted]

[redacted]

On Nov 15, 2024, at 2:02 PM, Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com> wrote:

Good afternoon,

On behalf of the Township of Centre Wellington, please find attached the Notice for Public Open House #2 for the Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E, & 7E).

December 2, 2024, 6:00 pm – 8:00 pm
Centre Wellington Community Sportsplex – Gord Brown Hall
550 Belsyde Avenue East, Fergus

If you have any questions about the study, please contact one of the Project Team members below:

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0

Andrew Dawson, P. Eng.
Consultant Project Manager
R.J. Burnside & Associates Ltd.
292 Speedvale Ave W. #20, Guelph, ON N1H 1C4

519-846-9691 x 355
adickieson@centrewellington.ca

705-797-4310
andrew.dawson@rjburnside.com

Best regards,

<image001.gif>

Mishaal Rizwan
Environmental Planner

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Unit 20, Guelph, Ontario, N1H 1C4
Office: 800-265-9662 Direct Line: 226-343-7014
www.rjburnside.com

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If you have received this communication in error please notify the sender at the above email address and delete this email immediately.
Thank you.

****

<Notice of Public Open House - 4 Bridges Transportation Study.pdf>

Crystal Ferguson

From: [redacted]
Sent: Wednesday, November 20, 2024 5:57 PM
To: Adam Dickieson
Subject: Re: Bridge Update

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Adam

Thank you, we did get a notification in the mail as well.

See you on December 2nd.

Thanks for keeping everyone in the loop.

[redacted]

On Wed, Nov 20, 2024 at 5:11 PM Adam Dickieson <ADickieson@centrewellington.ca> wrote:

[redacted]

When I emailed you last week I had referred to the wrong meeting date, my apologies. The public meeting is set for December 2. See the attached notice for details.

Regards,

Adam.

Centre Wellington 25 YEARS

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0

519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: [redacted]
Sent: November 14, 2024 6:27 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Subject: Re: Bridge Update

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Thank you for the update.

[redacted]

On Thu, Nov 14, 2024, 4:31 p.m. Adam Dickieson <ADickieson@centrewellington.ca> wrote:

[redacted]

Thank you for reaching out and getting involved with the budget process. With the 4 bridge study results, the intent is to provide background on how the draft preferred alternatives have been determined and then summarizes the alternatives at the meeting on December 4.

At this meeting there will be a presentation near the beginning of the meeting followed by discussions and questions.

An online presentation will be available to residents who can not attend.

Regards,

Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0

519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: [redacted]
Sent: November 14, 2024 2:53 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Subject: Bridge Update

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Adam

I hope all is well. I did provide comments on line regarding the capital budget and I appreciate you reaching out.

I see there is an open house on Dec 2nd.

Are we able to know the results ahead of time or do we need to wait until Dec 2nd?

--

Thanks

[redacted]

[redacted]



Crystal Ferguson

From: [redacted]
Sent: Tuesday, December 03, 2024 1:27 PM
To: Andrew Dawson
Cc: adickieson@centrewellington.ca; Mishaal Rizwan; Crystal Ferguson; Tricia Radburn; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E
Subject: Re: Township of Centre Wellington Notice of Public Open House Bridge and Transportation Network Study for Four Bridges

Thank for you hosting the (second) open house last night. I just wanted to reiterate my position that I am in favour of closing Bridge 3-E. I would also like to have the Township consider a pedestrian bridge if the existing bridge is to be removed in the future due to safety concerns.

[redacted]

On Mon, Jul 29, 2024 at 3:56 PM Andrew Dawson <Andrew.Dawson@rjburnside.com> wrote:

Good Afternoon [redacted],

Thank you for sending along your comments and questions. I will be providing responses on behalf of the Township and our Project Team. My comments are provided below in blue. If you have any further questions or comments following review of these responses, please do not hesitate to reach out to the team again.

1. Can the Township provide rationale that would typically warrant a permanent closure of a bridge? Has a permanent closure been undertaken in the Township in the past? If a permanent closure was selected as the preferred alternative, would the existing bridge remain in place? I am in favour of permanently closing Bridge 3-E.

   The option for permanent closure will be evaluated against replacement and other alternatives using a series of criteria related to the technical (transportation network and structural), the social, cultural, natural, and economic environments. Candidates for closure would be those structures where the benefits of closure outweigh any negative impacts. Generally speaking, the closure of such structures wouldn't result in significant impacts to cross-community connectivity and emergency response services. This can occur in areas with small detours and low population or average daily vehicle use. The only bridges in Centre Wellington that have been recommended for permanent closure and removal are Bridge 1-P and 30-P (in former Pilkington township) and boundary road bridge 180160 on Middlebrook Place (i.e. three total). A study very similar to this one was used to determine that permanent closure of Bridge 1-P and 30-P did not result in significant impacts. The Middlebrook Place bridge will be removed as it is a public safety concern as it was condemned.

   Your preference for closure of Bridge 3-E will be documented in the study report and considered during the evaluation of the alternatives.

2. If the preferred alternative is to replace the existing bridge, would the results of this study identify the span arrangement? If so, would a single lane bridge be considered as part of the evaluation?

Yes, the study will involve a review of the site (topography, flow rates of watercourse, alignment of watercourse, etc.) to identify a preliminary conceptual design of the replacement bridge. Several bridge types and sizes will be considered. Where the study identifies that the level of service for this structure may warrant the use of a 'low volume bridge' of single-lane or reduced load capacity, such alternatives will be considered during the review of the replacement alternative.

3. Are any operational, safety or maintenance roadway improvements being considered as part of this study?

   This structure is predominantly focused on the location of the bridges themselves and will not consider improvements to the entire length of roadway. However, the approaches to the bridge (usually 100-200m each side of bridge) will typically be included as part of the bridge study. The preliminary geometric design will look at improvements to lane and shoulder widths, sight lines, roadside safety measures (guard rail), etc.

4. Please provide details and the objective of the transportation network study.

   The Transportation Network study will evaluate the role of the structures on the overall connectivity within the community. This will include considerations such as travel distances and timelines, looking at several origin and destinations to capture the impacts that closure vs opening the bridges would have at each site. Emergency service response timelines and impacts to local industry transportation and farming services will also be considered as part of the study.

5. Please provide the factor specific weighting anticipated to be used for the preferred alternative evaluation process. Is there an opportunity to review and comment on this aspect before it is implemented?

   The specific weighting of each 'criteria' will be developed by the Project Team based on consultation with the Township and comments received from the community related to their areas of increased interests. A sensitivity analysis is also typically performed, where a series of scenarios with different weightings are ran, and the impact on the preferred alternatives is reviewed for each scenario. The following are the four 'Environments' that will be considered in the evaluation matrix:

1. Technical Environment (Transportation, Hydraulics, Bridge Capacity, Safety Standards etc.)
2. Natural Environment (Protection of Trees, Wildlife habitats, species of interest, etc.)
3. Social & Cultural Environments (Cultural Heritage, Archaeology, Impacts to businesses, community preferences, etc.)
4. Economic Environment (Upfront Capital Cost, Operation and Maintenance Costs)

   The evaluation of these criteria will be presented during the next Public Open House, at which point the community will be provided an opportunity to review and comment further. Finally, prior to the preferred alternative being implemented, there will be a report compiled outlining all the background information used, and the evaluation matrix results, which will be posted to provide the public opportunity for formal review and comment.

6. Please consider removing the vehicle turnaround on the north side of Bridge 3-E.

   A means to turn around large vehicles at both end of the bridge is required when the bridge is closed in order that snowplowing and other operations can continue.

7. Would the Township be able to provide a copy of the Bridge 3-E Heritage Impact Assessment (HIA) Report for review once complete?

All project files such as HIA will be put on the Connect CW webpage as they become finalized. It is anticipated that the HIA report will become available in mid-August. The ConnectCW webpage can be found here and will be being updated as work progresses. https://www.connectcw.ca/bridge-transportation-network-study-four-bridges

Regards,
Andrew

Andrew Dawson
Project Engineer

R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: [redacted]
Sent: Thursday, July 25, 2024 7:54 AM
To: Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Cc: Andrew Dawson <Andrew.Dawson@rjburnside.com>; adickieson@centrewellington.ca
Subject: Re: Township of Centre Wellington Notice of Public Open House Bridge and Transportation Network Study for Four Bridges

Good morning,

Thank you for hosting the PIC yesterday evening.

I have the following questions regarding this study:

1. Can the Township provide rationale that would typically warrant a permanent closure of a bridge? Has a permanent closure been undertaken in the Township in the past? If a permanent closure was selected as the preferred alternative, would the existing bridge remain in place? I am in favour of permanently closing Bridge 3-E.
2. If the preferred alternative is to replace the existing bridge, would the results of this study identify the span arrangement? If so, would a single lane bridge be considered as part of the evaluation?
3. Are any operational, safety or maintenance roadway improvements being considered as part of this study?
4. Please provide details and the objective of the transportation network study.
5. Please provide the factor specific weighting anticipated to be used for the preferred alternative evaluation process. Is there an opportunity to review and comment on this aspect before it is implemented?
6. Please consider removing the vehicle turnaround on the north side of Bridge 3-E.

7. Would the Township be able to provide a copy of the Bridge 3-E Heritage Impact Assessment (HIA) Report for review once complete?

Thank you,

[redacted]

On Fri, Jul 12, 2024 at 5:03 PM Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com> wrote:

> Good afternoon,
>
> On behalf of the Township of Centre Wellington, please find attached the Notice of Public Open House for the Bridge and Transportation Network Study for Four Bridges.
>
> If you have any questions, please contact one of the project team members:
>
> **Adam Dickieson**
>
> Engineering Services Coordinator
>
> Township of Centre Wellington
>
> 1 MacDonald Square, Elora, ON N0B 1S0
>
> 519-846-9691 x 355
>
> adickieson@centrewellington.ca
>
> **Andrew Dawson, P. Eng.**
>
> Consultant Project Manager
>
> R.J. Burnside & Associates Ltd.
>
> 292 Speedvale Ave W. #20, Guelph, ON N1H 1C4
>
> 705-797-4310
>
> andrew.dawson@rjburnside.com
>
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> If you have received this communication in error please notify the sender at the above email address and delete this email immediately.
> Thank you.
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> **********

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Appendix B.3

Heritage Centre Wellington Meeting Summary

Centre Wellington

To: **Heritage Centre Wellington, Bridge Subcommittee**

CC: **Mariana Iglesias– Manager of Planning Services**

From: Adam Dickieson - Engineering Services Coordinator, TCW

Date: October 16, 2024

Re: **2024 Township of Centre Wellington**
Township of Centre Wellington Heritage
Bridge & Transportation Network Study for Four Bridges in former Eramosa and West Garafraxa Township

---

Please find this memo as a record of comments and questions that were presented at the **October 8, 2024** Heritage Centre Wellington Meeting regarding the finding and the process of an ongoing Bridge & Transportation Network Study for Four Bridges in former Eramosa and West Garafraxa Township.

Comments from the various committee members were recorded as follows. Responses that I had provided are in italics:

Victoria Nagy (Committee Chair)
Inquired if a Documentation, Salvage and Commemoration Report would be completed before any demolition work occurred at the Bridge 3-E site.
A documentation report can be prepared ahead of the any demolition.

When a preferred option is identified will the Heritage Impact Assessment (HIA) report be revised.
No, the bridge 3-E HIA report contains recommendations based on the various preferred options that will be presented as preferred options.

Susan Taylor
If the bridge is replaced, can it be replaced with the same look as the existing bridge?
Cost estimates for a replacement bridge using the same structure type are to be visited.

Nico Vandersluis

Charles Mattaini was he the designer and the builder of the 3-E bridge?
There are no record documents to be found stating that this bridge was designed and constructed by Mr. Mattaini. It is speculated that this structural was most likely constructed by Mr. Mattaini.

If you can not salvage the bridge, could the lead up guiderails be salvaged and used on a replacement bridge.
The existing lead up concrete railings can be looked at for salvage into a replacement structure site. There are issues with re-using the railing as structural components because of the current bridge design code requirements.

If not salvaged in the reconstruction of a replacement bridge, could the old railings be displayed elsewhere in the community as a commemoration piece over a small creek (Such as Confederation Park, Fergus)?

Barry Martin

Would prefer to see an open type railing rather than a solid bridge barrier in order to allow for views of the waterway.

Is this bridge used for agricultural equipment?
Yes, the transportation study will provide direction as to the preferred bridge replacement types to carry large agricultural equipment.

It would make sense to work on the other three bridges and leave bridge 3-E until things like the Active Transportation Study and memorization can be further examined.

Could the entire bridge be moved in entirety?
This is not likely, due to the overall cost and the state of deterioration on major load carrying components.

Donald Evoy (Bridge Subcommittee)

Agrees with Option B, Removal / Replacement and would look at proper commemoration as part of a future bridge replacement.

Philip Brown
Agrees with Option B, Removal / Replacement.
Agrees with the Cultural Heritage Evaluation that there is no real heritage value with the other three bridges.

Are there any older bridges that can stay in service for bicycle routes and be rehabilitated?
Through the ongoing Active Transportation Network Study options for rural bicycle route will be explored.

Mayor Watters
Expressed concerned with lost connections with area residents and their neighbours due to the missing water crossings.
Mayor Watters is interested in the use of single lane bridges. These bridges would incorporate traffic calming measures, and cost saving through building a smaller structure.
Mayor Watters would like to rebuild as many structures as possible to reconnect Centre Wellington.

This Township of Centre Wellington Heritage Bridge & Transportation Network Study for Four Bridges in former Eramosa and West Garafraxa Township meeting item was concluded with a motion that passed as follows:
THAT Heritage Centre Wellington receives the Heritage Impact Assessment and Cultural Heritage Evaluation Report for Bridge 2-WG, 3-E, 5-E, and 7-E as presented for information

AND THAT Heritage Centre Wellington be given more time to consider the Cultural Heritage Value of Bridge 3-E.

After you have had a chance to review this memo, please contact me if you note any required revisions. Also, find a copy of the meeting presentation attached for your reference.

Adam Dickieson.

Township of Centre Wellington
Bridge and Transportation Network Study for Four Bridges

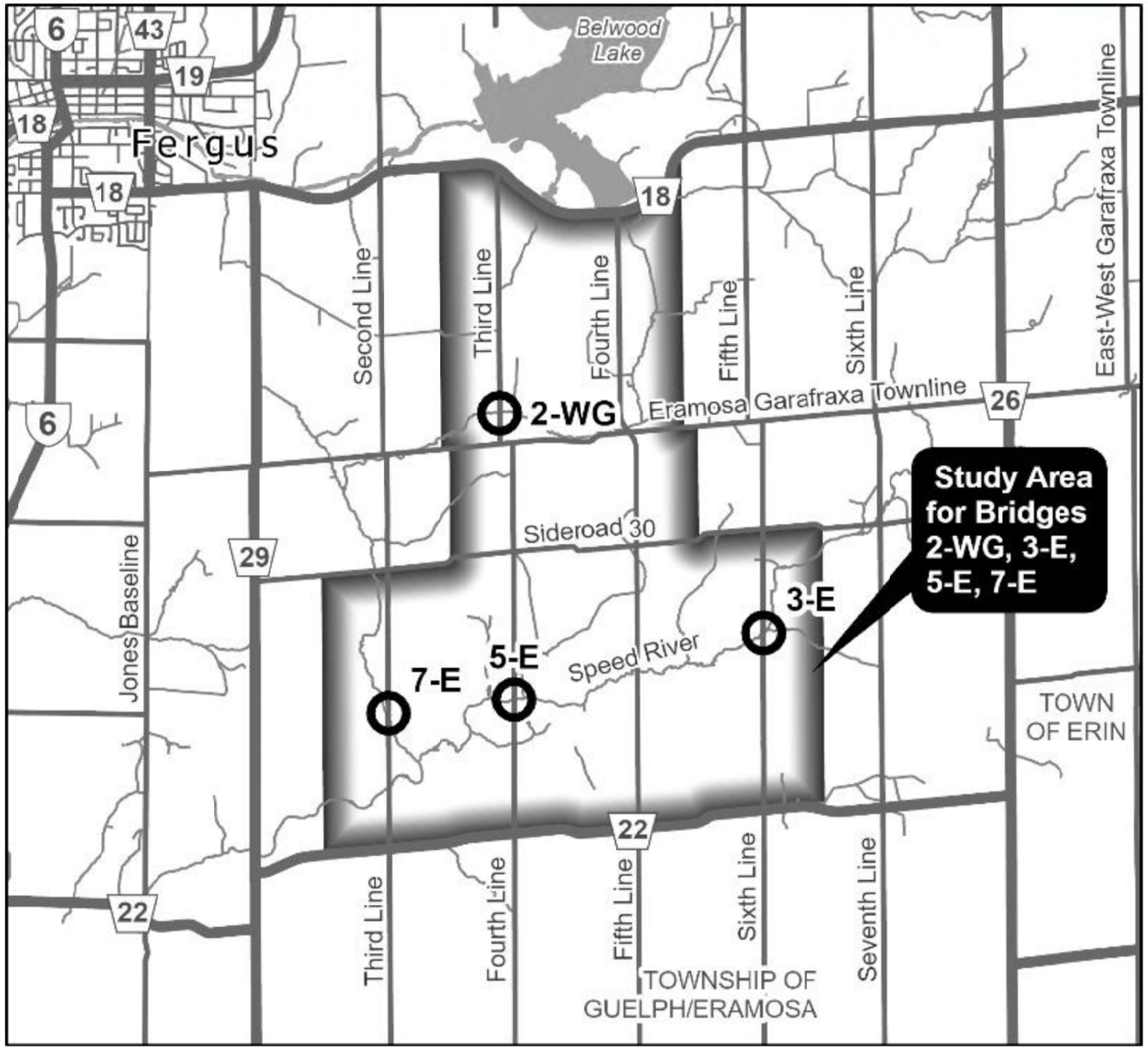
Heritage Committee Meeting

October 8, 2024

Presentation Outline

- Project Study Area Overview
- Cultural Heritage Assessment Process
- Overview of Bridges and Cultural Heritage Assessment Findings
- Next Steps
- Discussion / Questions

Project Study Area



Bridge and Transportation Network Study for Four Bridges

Issues:

- Three of the four bridges (3-E, 5-E, 7-E) are closed due to poor condition.
- The fourth bridge (2-WG) is open with load restrictions. [15 tonnes]

Study Required:

- Bridge and Transportation Network Study was initiated for the Four Bridges in May 2024.
- The study will evaluate whether each bridge should be closed permanently, rehabilitated (with minor upgrades and modifications), or replaced.

Study Process

Evaluation Criteria:



Structural / Technical

- Safety / Traffic Operations
- Construction Staging / Duration
- Extension of Service Life



Natural Environment

- Environmentally Sensitive Areas
- Wildlife Habitats
- Fisheries/Aquatic Habitat
- Species at Risk



Social & Cultural Environment

- Socio-Economic Conditions
- Archaeological, Built Heritage & Cultural Heritage Features
- Construction Impacts
- Community Input



Economic

- Capital Costs
- Operational and Maintenance Costs

Social & Cultural Environment
Cultural Heritage Features

So, what has been happening with this study since it was initiated in May 2024??

- Notice of Project Initiation provided to Heritage Centre Wellington Bridge Subcommittee and Council in June 2024
- A Stage 1 Archaeological Assessment was completed at all four bride sites Spring 2024
- Community Engagement though a Public Information Centre on July 24, 2024
- A Cultural Heritage Evaluation Report was completed, August 2024
- A Heritage Impact Assessment for bridge 3-E was completed, August 2024
- An Ecological Field Study was completed, August 2024 (report pending)
- Engagement with Heritage Centre Wellington  **WE ARE HERE**
- Determine preferred alternatives for the four bridges based in study inputs

Bridge 2-WG

- Third Line, 330m North of Eramosa-Garafraxa Townline
- Constructed circa 1921
- Closure Status: Open,15 Tonne load limit
- Structure Type: Reinforced Concrete Through Girder Bridge









- Load capacity concerns related to loss of concrete, resulting in corrosion and reduced engagement of the reinforcing steel in main girder elements

Bridge 3-E

- Sixth Line, between Sideroad 30 and Wellington Road 22
- Constructed circa 1919
- Closed to Traffic: 2022
- Structure Type: Concrete Bowstring Arch Truss











- Bridge was closed as it was noted to exhibit serious structural issues due to advanced deterioration

Bridge 5-E

- Fourth Line, between Sideroad 30 and Wellington Road 22
- Constructed circa 1923
- Closed to Traffic: 2013
- Structure Type: Reinforced Concrete Through Girder Bridge









- Bridge was closed due to structural concerns and evidence of progressing cracks. Significant concerns noted for the floor beams and deck slab's ability to carry vehicle loads

Bridge 7-E

- Third Line, between Sideroad 30 and Wellington Road 22
- Constructed circa 1920
- Closed to Traffic: 2021
- Structure Type: Reinforced Concrete Through Girder Bridge







- Bridge closed due to the severe disintegration in the main load carrying elements (girders) and deck slab

Cultural Heritage Assessment

Each of the 4 structures were evaluated by sub-consultant Parslow Heritage Consultantcy (PHC) using two assessment guidelines to determine if **Cultural Heritage Value or Interest** (CHVI) exists:

O. Reg. 569/22 (Ontario Heritage Act)

A set of criteria of which one or more must be met to be considered to have CHVI. Property that has one of the following characteristics may be considered to have CHVI:

- Rare, unique, representative or early example of a construction method / style
- High degree of craftmanship or artistic merit
- High degree of technical or scientific achievement
- Directly associated with significant theme, event, belief, person, activity, organization or institution of the community
- Yields information that contributes to understanding of a community or culture
- Reflects work or ideas of an architect, artist, builder, designer or theorist who is significant to the community
- Important in defining, maintaining or supporting the character of an area
- Physically, functionally or historically linked to its surroundings

Criteria is Evaluated on a MEETS or DOES NOT MEET criteria, with no in-between.

Cultural Heritage Assessment

Ontario Heritage Bridge Guidelines for Provincially Owned Bridges

Scoring system approach to O.Reg. 569/22, as derived by the Ontario Ministry of Transportation (MTO) which considers that aspects of CHVI may fall between being fully met or not met.

- Design / Physical Value (50 Points)
  - Functional Design (Max 20 Points)
  - Visual Appeal (20 Points)
  - Materials (10 Points)
- Contextual Value (25 Points)
  - Landmark (15 Points)
  - Character Contribution (10 Points)
- Historical / Associative Value (25 Points)
  - Designer / Construction Firm (15 Points)
  - Association with historical theme, person or event (10 Points)

An Overall score over 60 is required before a bridge can be considered to exhibit CHVI

Cultural Heritage Assessment Summary

A Summary of the Cultural Heritage Assessment Report (CHAR) is as follows:

Study Findings:

Bridges 2-WG, 5-E & 7-E - Not considered to have Cultural Heritage Value or Interest

Bridge 3-E

- One of the few remaining unique style bowstring arch bridges that were historically popular in Wellington County
- 'Rainbow Arch' / Bowstring Arch bridge design was developed by local (Fergus) designer, Charles Mattaini
- Considered to have Cultural Heritage Value / Interest
- Candidate for Listing/Designation under Ontario Heritage Act

Study Recommendations:

- No further heritage reports are required for three of the four bridges
- Heritage Impact Assessment is recommended for Bridge 3-E

Evaluation Findings

Heritage Impact Assessment Report (HIA) Recommendations:

(Option A) Rehabilitation

1. Will allow for the retention of all identified heritage attributes.

2. The Township could consider Designation of the bridge under Part IV of the Ontario Heritage Act.



Evaluation Findings

Heritage Impact Assessment Report (HIA) Recommendations:

(Option B) Removal / Replacement

1. Prior to removal, architectural drawings of the existing bridge be completed and provided to local historical societies, libraries, and the municipal archives, at the discretion of the Township of Centre Wellington.

2. Any replacement of Bridge 3-E be designed to reflect the existing “rainbow arch” design, thereby providing a conservation measure for the identified physical heritage attributes.

3. An interpretive plaque be affixed to the replacement bridge to identify the original bridge, thereby providing a conservation measure for the identified historical and contextual value.

The CHER and HIA reports be provided to local historical societies, libraries, and the municipal archives, at the discretion of the Township of Centre Wellington.

Next Steps

Fall 2024

- Prepare Concepts for Preferred Alternative, November 2024
- PIC #2 (Late Fall 2024 – Date TBD)

Winter 2024 / 2025

- Draft Study Report Completed
- Council Meeting #2

2025

- Prepare Budgets and Schedules for Preferred Alternatives

Comments / Questions?

Please feel free to provide comments to the Project Team by emailing one of the contacts listed below.

A website containing updates on the project is also available at the following link:

https://www.connectcw.ca/bridge-transportation-network-study-four-bridges

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0
Tel: 519-846-9691 ext. 355
adickieson@centrewellington.ca

Andrew Dawson, P.Eng
Consultant Project Manager
R. J. Burnside and Associates Limited
292 Speedvale Avenue West, Unit 20
Guelph, ON N1H 1C4
Tel: 705-797-4310
andrew.dawson@rjburnside.com

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Appendix B.4

Public Open House No. 2 Summary

R.J. Burnside & Associates Limited 292 Speedvale Avenue West Unit 20 Guelph ON N1H 1C4 CANADA
telephone (519) 823-4995 **fax** (226) 526-9660 **web** www.rjburnside.com

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Public Open House No. 2 – Summary Report

Client Name:	Township of Centre Wellington	**Project No.:**	300058117.0000
Project Name:	Bridge and Transportation Network Study for Bridges 2-WG, 3-E, 5-E, & 7-E		
Meeting Date:	December 2, 2024		
Location:	Centre Wellington Community Sportsplex – Gord Brown Hall 550 Belsyde Avenue East Fergus ON N1M 3S1		
Time:	6:00 p.m. – 8:00 p.m.		
Project Team Members Present:	Adam Gilmore – Township of Centre Wellington Adam Dickieson – Township of Centre Wellington Matthew Brooks – R.J. Burnside & Associates Limited Andrew Dawson – R.J. Burnside & Associates Limited Tricia Radburn – R.J. Burnside & Associates Limited		
Prepared By:	Andrew Dawson,, R.J. Burnside & Associates Limited		

1.0 Introduction and Background

R.J. Burnside & Associates Limited (Burnside) has been retained by the Township of Centre Wellington (Township) to complete a Bridge and Transportation Network Study for Bridges 2-WG, 3-E, 5-E, and 7-E, located in the southeast quadrant of the Township. As part of the study process, the Township elected to complete a second Public Open House to provide an overview of the background studies and evaluation of alternatives conducted to address the challenges and opportunities determined through previous consultation with the public throughout the study. This meeting also provided a presentation of the preliminary preferred solution, to allow the public to provide final comment prior to confirmation of the preferred solution.

2.0 Method of Notification

Details of the purpose of the study, the date, time, and location of the in-person meeting, as well as details for accessing the online version of the meeting, were delivered to the public and stakeholders through a Notice of Public Open House. A copy of the notice is included in Appendix A. The method of notification and / or advertisement was as follows:

- By mail to all applicable mailing addresses for all properties located within the Study Area.

- By hand delivery to all mailboxes within the Study Area, due to the Canada Post strike, which commenced the day after the mailout of notices was coordinated.
- By email to agencies, municipalities, and any local members of the public who had provided contact information following the notice of project initiation.
- By certified mail and email to Indigenous Communities.
- By publishing in the Wellington Advertiser on November 14, 2024 and November 21, 2024. Copies of the advertisements are provided in Appendix B.
- By online posting to the project specific web page of the Township's 'Connect CW' online platform.
- Postings to Township of Centre Wellington Facebook and Twitter social media accounts on December 20, 2024.

3.0 Public Meeting Format

3.1 In-Person Public Open House

A second in-person Public Open House (POH) was conducted on Monday, December 2, 2024. Attendees were greeted upon arrival, encouraged to sign the registration sheet, and were provided with a comment form to provide comments on any aspect of the project.

Display boards with in-depth information on background studies and evaluations were placed around the room and representatives from the project team were available to review the boards upon entry to the hall. A formal slideshow presentation was made shortly after 6:00 p.m., which covered the following topics:

- Study Area, Objectives, and Process.
- Review of public feedback received during study.
- Outline of Supporting Studies that were conducted to address the problems or opportunities identified in the study, including:
  - Overview of Transportation Study findings for emergency response, commuting traffic, local traffic and agricultural equipment;
  - Evaluation of structure types and sizes; and
  - Hydraulic requirements and preliminary bridge geometry.
- Identification of preferred structure improvement type and size for each bridge location.
- Alternative Solutions of combinations of bridges opened or closed carried for evaluation.
- Criteria considered for evaluation of alternatives.
- Summary of results of evaluation of alternatives.
- Overview of the preferred solution.
- Presentation of conceptual design.
- Invitation for Participation / Comment.

A copy of the display boards and presentation slides are provided in Appendix C and D, respectively.

At the conclusion of the presentation, there was an opportunity for attendees to review the display boards and have one-on-one discussions with members of the Project Team. Attendees were asked to provide further feedback on the evaluation and the preliminary recommendations by submitting a comment sheet for the Project Team to further consider prior to finalizing the selected solution. If individuals wished to provide comments at a later date, the option to do so via email was made available by the contact information provided on the display boards for Project Team members Andrew Dawson and Adam Dickieson. All comments were requested to be submitted by December 20, 2024.

3.2 Online Presentation

A narrated online presentation was also made available for the public to access on their own time, should they not be able to attend the in-person meeting. The online presentation provided information on the same topics presented through the live presentation, as summarized in Section 3.1 above, and included in Appendix E. The narrated presentation was posted online at the project specific webpage on the Township's 'ConnectCW' platform. At the time of this report, the video had been viewed 11 times. An online forum for questions was available on the Township web page; however, no comments were received through this method of consultation.

4.0 Participation Levels and Summary of Comments Received

A total of 42 people registered on the sign-in sheet for the in-person POH. Four comment forms were submitted during the POH, and one email was received from a member of the public that was unable to attend in-person. All comments are documented in Appendix F. Key issues noted within the written responses relate to:

- Request to keep Bridge 7-E closed as long as possible to reduce the number of vehicles speeding down the road.
- Questions regarding timelines of the implementation of bridge replacements.
- Suggestion to rename fourth line to avoid confusion for navigation and deliveries.
- Suggestion for improved terrestrial passage via tunnels under the road.
- Opinion that there is not an adequate turn-around for vehicles at Bridge 3-E.
- Concerns related to decreased property value with the closure of the bridge.
- Requests for decreased taxes or return of capital levee since bridge not being replaced.
- Concerns related to impacts on businesses with closure.
- Concerns related to the delayed timelines of infrastructure improvements in the past.

5.0 Next Steps

Comments and concerns received at the POH will be considered and the evaluation of alternatives will be revisited based on the concerns identified. Upon any adjustments to the evaluation that may be required, the preferred solution will be confirmed or revised (if applicable). If the preferred solution is revised, the public will be notified. If the preferred solution

is maintained, the preferred solution will be presented to the council for final confirmation prior to the completion of this Study.

The comments collected will be kept on file and a summary of all comments received and how each comment was addressed or considered in the final decision will be included in the final Project File Report.

AD:tc

Enclosure(s) Appendix A – Notice of Public Open House No. 2
Appendix B – Wellington Advertiser Notices
Appendix C – Public Open House No. 2 Display Boards
Appendix D – Live Presentation Slide Show
Appendix E – Online Presentation Slide Show with Text
Appendix F – Comment Sheets and Email

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Appendix A

Notice of Public Open House No. 2

Notice of Public Open House

Bridge and Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E & 7-E)

This notice was first issued on November 14, 2024

You Are Invited!

The Township of Centre Wellington welcomes your attendance at the second Public Open House for the Bridge and Transportation Network Study for Bridges 2-WG, 3-E, 5-E & 7-E. The meeting will be an avenue for you to provide your comments on the preliminary recommendations for each bridge for the Project Team's further consideration.

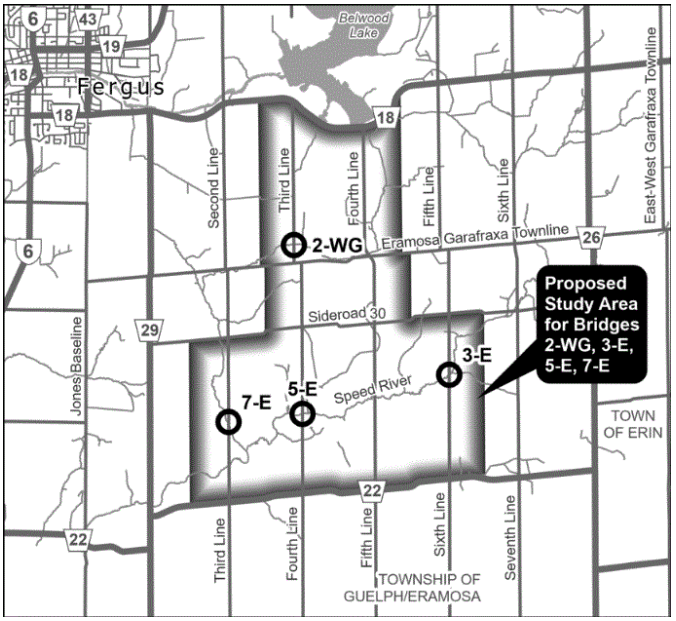
Date & Time: December 2, 2024, 6:00 pm – 8:00 pm

Location: Centre Wellington Community Sportsplex - Gord Brown Hall
550 Belsyde Avenue East, Fergus

The Project

The Township of Centre Wellington initiated the Bridge and Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E & 7-E) earlier this year. This study is evaluating the role of these structures within the overall transportation network and connectivity in the community to determine the future of the bridge at each location.

Three of the four bridges (3-E, 5-E, 7-E) are temporarily closed due to poor condition. The fourth bridge (2-WG) is open with load restrictions. The locations of the structures are shown in the key plan herein.



The Study Process

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Engineering Services Coordinator	Consultant Project Manager
Township of Centre Wellington	R.J. Burnside & Associates Ltd.
1 MacDonald Square, Elora, ON N0B 1S0	292 Speedvale Ave W. #20, Guelph, ON N1H 1C4
519-846-9691 x 355	705-797-4310
adickieson@centrewellington.ca	andrew.dawson@rjburnside.com

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BURNSIDE

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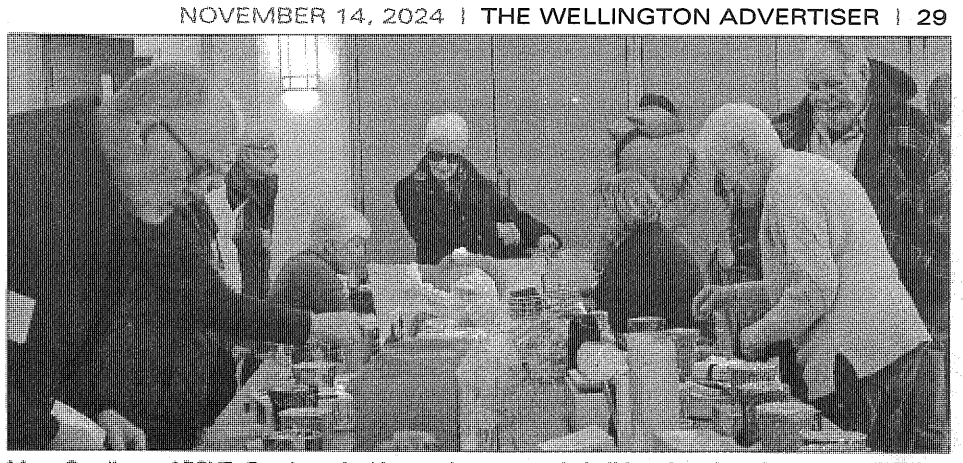
Appendix B

Wellington Advertiser Notices



For a cause – St. Joseph's Catholic Church in Fergus hosted its annual bazaar on Nov. 2 to raise money for the church and its services. ABOVE: Tables full of handmade goodies lined the foyer of the church.
Photo by Ellouise Thompson



More Goodies – ABOVE: For those looking to do some early holiday shopping, the event featured a toonie table where participants could purchase tickets for a toonie and place them in cups for a chance to win a prize.
Photo by Ellouise Thompson

NOTICES

SALE OF LAND BY PUBLIC TENDER

THE CORPORATION OF THE TOWN OF MINTO

Take Notice that tenders are invited for the purchase of the land described below and will be received until 3:00 p.m. local time on November 28, 2024, at the Town of Minto Municipal Office, 5941 Highway #89, Harriston Ontario.

Description of Land:
Roll No. 23 41 000 007 08800 0000; 35 YOUNG ST., HARRISTON; PIN 71031-0598 (LT); File No. 23-05;
Minimum Tender Amount: $22,961.20

Except as follows, the municipality makes no representation regarding the title to or any other matters relating to the land to be sold. Responsibility for ascertaining these matters rests with the potential purchasers. This sale is governed by the Municipal Act, 2001 and the Municipal Tax Sales Rules made under that Act. A full copy of the tax sale advertisement and further information about this matter is available on line at **www.OntarioTaxSales.ca** or **www.town.minto.on.ca** or you may contact:
Tawnya Robertson,
Deputy Treasurer, The Corporation of the Town of Minto,
5941 Highway # 89, R.R. #1, Harrison
ON N0G 1Z0, Telephone: 519-338-2511 Ext. 233, Email: tawnya@town.minto.on.ca

Church of St. John the Evangelist

36 Henderson Street, Elora Ontario N0B 1S0
Anglican Diocese of Niagara

NOTICE OF PROPOSED CHANGES TO THE COLUMBARIUM

- - - - - - - - - - - - October 31, 2024 - - - - - - - - - - -

St. John the Evangelist in Elora is a growing Anglican church known across the country as a site of musical excellence. Further the church has developed and participates in many community programs such as The Elora Festival, The Elora Singers, and The Elora Children's Choir. With such a strong history of building community in Centre Wellington, the church is expanding. Current facilities present a challenge and the goal is to build an accessible gathering space, barrier-free washrooms, and a commercial kitchen to better serve the needs of the community. The intent is to use the land between the church, and the Parish Centre.

Please take notice, the columbarium located on the northeast corner of the church will be impacted requiring niches to be respectfully and safely disinterred prior to construction. Niches will be reinterred once construction is complete and the columbarium wall is reconstructed on the northwest corner of church property.

This project is not effective until approvals are received from the Township of Centre Wellington, St. John's Parish Vestry and Synod of Niagara.
Changes to the columbaria are subject to final approval of the Registrar, Bereavement Authority of Ontario, Funeral, Burial and Cremation Services Act, 2002.

Interested parties may contact the undersigned for information:

Colleen Murray
Church of St. John the Evangelist
36 Henderson Street, Elora, Ontario
Phone: 519.846.5911
opendoors.stjohnselora@gmail.com

Licensing
Office of the Registrar
Bereavement Authority of Ontario (BAO)
Phone: 647.483.2645 or 1.844.493.6456
info@thebao.ca

Notice of Public Open House

Bridge and Transportation Network Study for Four Bridges

(Bridges 2-WG, 3-E, 5-E & 7-E)

This notice was first issued on November 14, 2024

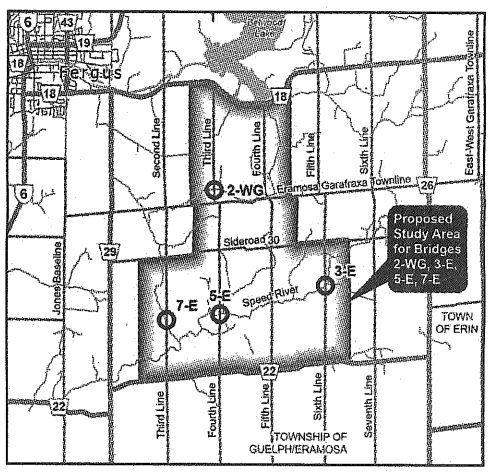
You Are Invited!

The Township of Centre Wellington welcomes your attendance at the second Public Open House for the Bridge and Transportation Network Study for Bridges 2-WG, 3-E, 5-E & 7-E. The meeting will be an avenue for you to provide your comments on the preliminary recommendations for each bridge for the Project Team's further consideration.

Date & Time: December 2, 2024, 6:00 pm – 8:00 pm
Location: Centre Wellington Community Sportsplex - Gord Brown Hall
550 Belsyde Avenue East, Fergus

The Project

The Township of Centre Wellington initiated the Bridge and Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E & 7-E) earlier this year. This study is evaluating the role of these structures within the overall transportation network and connectivity in the community to determine the future of the bridge at each location.



Three of the four bridges (3-E, 5-E, 7-E) are temporarily closed due to poor condition. The fourth bridge (2-WG) is open with load restrictions. The locations of the structures are shown in the key plan herein.

The Study Process

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THE WELLINGTON ADVERTISER
FREE PRESS ~ NEWS WEEKLY™

EDITION(s): November 21
By: Grace Garner

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$837.36 + HST per issue
DISCOUNT: If applicable **+ COLOUR:** N/A

Centre Wellington

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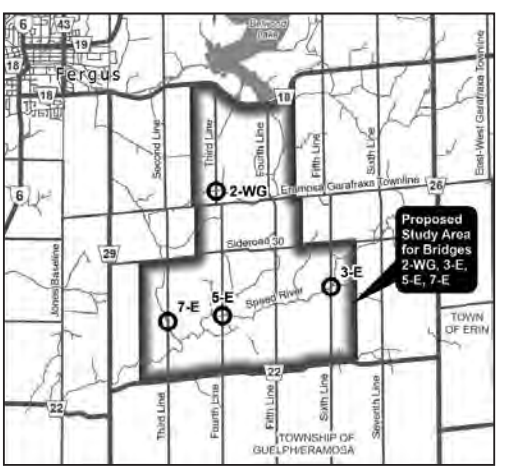

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**** Please review your proof and reply with changes or approval****

OUR DEADLINE FOR CORRECTIONS IS TUESDAY AT NOON. If we do not hear from you, your ad will be printed in the newspaper as it is here. Please feel free to call us to discuss your ad. *Ads are designed for our publication ONLY. We do not charge for design however if you would like a jpeg version of your ad for social media a nominal $20 charge will apply. A CANCELLATION FEE OF $50 applies to any ads cancelled after MONDAY AT 5PM.*

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Appendix C

Public Open House No. 2 Display Boards

Centre Wellington

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Township of Centre Wellington

Bridge and Transportation Network Study for Four Bridges

Public Open House #2

Centre Wellington Community Sportsplex - Gord Brown Hall
December 2, 2024
6:00 – 8:00 p.m.

Project Study Area & Alternative Solutions

Centre Wellington

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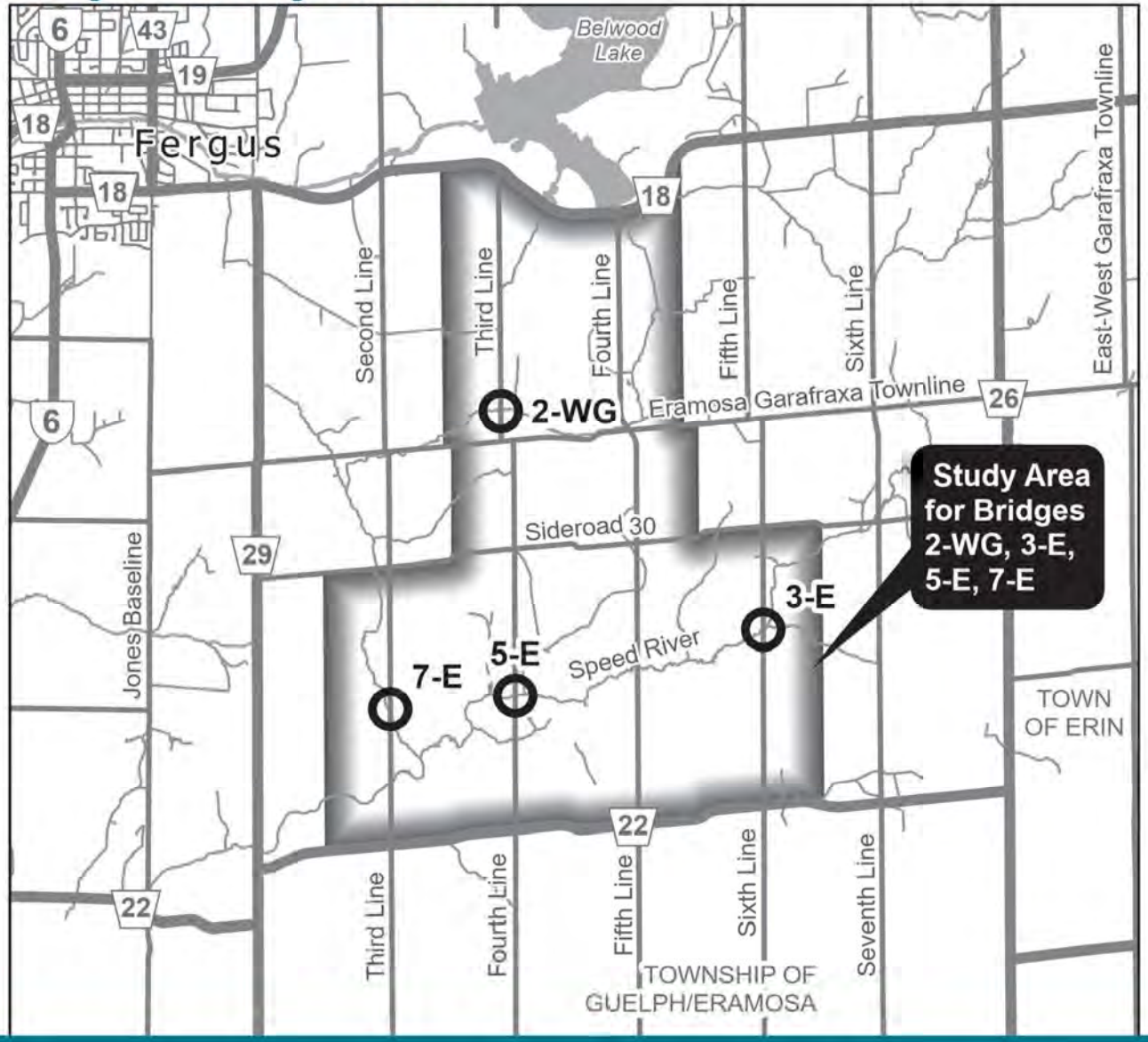
Project Study Area:



- List of scenarios was narrowed down based on high-level criteria determined through the Transportation Study:
  - Existing conditions (only 2-WG open) always considered in studies
  - Closure of all bridges is used as the base line for comparison
  - 2-WG to remain opened as there is no alternative for farm equipment to using Wellington 8 to get to south
  - If 7-E is not opened, properties would be landlocked if closure of 8-E is required in future.

ALTERNATIVE SOLUTIONS:

1. **DO NOTHING**
   - Leave the existing structures in their current deteriorating state and take no action. Bridge 2-WG remains open but load limited, until eventual closure when it further deteriorates. Structures remain in place until they collapse
2. **ALL BRIDGES CLOSED & REMOVED**
   - Remove structures to eliminate risk to the public and impacts of potential future collapse.
3. **REPLACE ALL BRIDGES**
4. **REPLACE BRIDGES 2-WG, 3-E & 7-E**
   - Remove Bridge 5-E and construct turn-arounds at removed structure location
5. **REPLACE BRIDGES 2-WG, 5-E & 7-E**
   - Remove Bridge 3-E and construct turn-arounds at the removed structure location
6. **REPLACE BRIDGES 2-WG & 7-E**
   - Remove Bridges 3-E and 5-E and construct turn-arounds at the removed structure locations

Centre Wellington

Transportation Study

BURNSIDE

Cross-Community Travel :

- Evaluates travel from north of bridges to communities south of study area (Rockwood, Guelph, Erin) & from south of bridges to communities north of study area (Belwood, Fergus, Elora)

Individual Bridges:

Bridges Open	2-WG	3-E	5-E	7-E
Avg Time Saved (mins)	2.1	1.3	1.8	1.4
Score	3.50	4.00	2.40	3.00
Rank	1	4	2	3

Key Findings:

- Opening Bridge 2WG results in the most time/distance savings
- Opening Bridge 3E results in the least time / distance savings

Transportation Network Alternatives:

Alternative	1	2	3	4	5	6
Bridges Open	2-WG	None	All	2-WG, 3-E & 7-E	2-WG, 5-E & 7-E	2-WG & 7-E
Avg Time Saved (mins)	2.1	0.0	6.6	4.8	5.3	3.5
Traffic Volume Benefited	50	0	270	220	170	120
Score	0.51	0.00	4.00	3.15	2.78	1.94
Rank	5	6	1	2	3	4

Emergency Response Time:

- Evaluates travel from emergency response originating in Fergus or Rockwood (whichever is closest) to destinations each side of bridge

Individual Bridges:

Bridges Open	2-WG	3-E	5-E	7-E
Avg Time Saved (mins)	0.0	0.0	2.1	0.9
Properties Benefited	0	0	11	8
Score	0.00	0.00	4.00	1.22
Rank	3	3	1	2

Key Findings:

- Properties north of bridges are not impacted
- Opening Bridge 2-WG does not provide benefit because of proximity to Eramosa-Garafraxa Townline
- Properties south of 3-E have faster response times from Rockwood stations and therefore are not impacted by closure

Transportation Network Alternatives:

Alternative	1	2	3	4	5	6
Bridges Open	2-WG	None	All	2-WG, 3-E & 7-E	2-WG, 5-E & 7-E	2-WG & 7-E
Avg Time Saved (mins)	0.0	0.0	1.6	0.9	1.6	0.9
Properties Benefited	0	0	19	8	19	8
Score	0.00	0.00	4.00	0.94	4.00	0.94
Rank	5	6	1	3	1	3

Centre Wellington

Transportation Study

BURNSIDE

Slow Moving Vehicles:

- Evaluates impacts associated to agricultural equipment travel within community
- Uses non-arterial routes (no Wellington Roads or Fifth Line Eramosa), where alternative is available

Individual Bridges:

Bridges Open	2-WG	3-E	5-E	7-E
Max Time Saved (mins)	14.6	28.9	28.7	32.2
Same-Ownership Farms impacted	6	1	2	1
Score	4.0	2.3	3.2	2.6
Rank	1	4	2	3

Notes: Travel times based on 25 km/h speed for slow moving vehicles
Scoring of 2-WG increased because it requires Wellington Road 18 still be used

Key Findings:

- There is no alternative to using Wellington Road 18 if 2-WG closed
- Open at least one of 5-E or 7-E to avoid travel on arterial routes
- Bridge 2-WG has most parcels of land with a single owner that are bisected by the bridge

Transportation Network Alternatives:

Alternative	1	2	3	4	5	6
Bridges Open	2-WG	None	All	2-WG, 3-E & 7-E	2-WG, 5-E & 7-E	2-WG & 7-E
Total Time Saved (mins)	44.0	0	205.0	139.1	157.5	101.9
Same-Ownership Farms impacted	6	0	10	8	9	7
Score	1.8	0.0	4.0	3.0	3.4	2.4
Rank	5	6	1	3	2	4

Note: Total Time Saved is a measure for comparison only, based on the seven routes analyzed as part of the study. This time savings is not for one specific route. The individual time saved per route varies.

Local Community Travel:

- Analysis of travel routes with origins and destinations within the study area.
- Represents impacts to delivery and collection services, buses, snow-ploughs, etc.

Individual Bridges:

Bridges Open	2-WG	3-E	5-E	7-E
Total Time Saved (mins)	14.1	5.5	6.7	6.0
Score	4.0	1.6	1.9	1.7
Rank	1	4	2	3

Note: Total Time Saved is a measure for comparison only, based on the seven routes analyzed as part of the study. This time savings is not for one specific route. The individual time saved per route varies.

Key Findings:

- Opening 2-WG provides the most time savings by a large margin
- Compounding benefits for opening 2-WG in combination with any of the other 3 bridges

Transportation Network Alternatives:

Alternative	1	2	3	4	5	6
Bridges Open	2-WG	None	All	2-WG, 3-E & 7-E	2-WG, 5-E & 7-E	2-WG & 7-E
Total Time Saved (mins)	14.1	0	34.4	24.3	26.9	18.8
Score	1.6	0.0	4.0	2.8	3.1	2.2
Rank	5	6	1	3	2	4

Note: Total Time Saved is a measure for comparison only, based on the seven routes analyzed as part of the study. This time savings is not for one specific route. The individual time saved per route varies.

Centre Wellington Transportation Study

BURNSIDE

Transportation Evaluation Summary:

Individual Structure Evaluation:

Criteria / Alternative	2-WG	3-E	5-E	7-E
Cross-Community Travel	3.5	4.0	2.4	3.0
Emergency Response	0.0	0.0	4.0	1.2
Slow-Moving Equipment	4.0	2.3	3.2	2.6
Local Community Travel	4.0	1.6	1.9	1.7
TRANSPORTATION	**11.5**	**7.9**	**11.5**	**8.5**
TRANSPORTATION RANKING:	1	4	1	3

Key Findings:

- Replacement of 7-E was determined to be required in order to not land-lock properties upon Bridge 8-E requiring replacement.
- Bridge 2-WG is required to remain open to provide alternative routes to Wellington 18 for farm equipment / slow-moving vehicles.

Transportation Network Evaluation:

Least Preferred  Most Preferred

Criteria / Alternative	2-WG Open	All Closed	All Open	2WG, 3E & 7E Open	2WG, 5E & 7E Open	2WG & 7E Open
Cross-Community Travel						
Emergency Response						
Slow-Moving Equipment						
Local Community Travel						
TRANSPORTATION						
Numerical Rating	**1.18**	**0.00**	**4.00**	**2.42**	**3.45**	**1.93**
TRANSPORTATION RANKING:	5	6	1	3	2	4

Key Findings:

- Opening more structures is preferred from a transportation perspective
- For the options which consider opening 3 bridges, opening 2-WG, 5-E & 7-E provides the most overall benefit to the transportation network

Structure Type Evaluation & Cost Estimates

Centre Wellington

BURNSIDE

Evaluation of Structure Types:

Rehabilitation and several bridge replacement types were evaluated to determine the most suitable option for opening of the bridge to vehicular traffic

Structure Type Evaluation Matrix

Criteria	Weight	Rehabilitation	Single Span Slab on Girder	Single Span Precast Rigid Frame	Twin Cell Box Culvert	Multi-Cell CSP	Single Lane Modular Bridge
Achievable Spans	N/A	Existing	34m	16m	2 x 6.4m	4 x 3m	20m +/-
Driving Platform Width	5	1	5	5	5	5	3
Road Profile	5	3	2.5	2.5	2.5	2.5	2.5
Load Capacity	5	1.5	5	5	5	5	5
Maintenance	5	3	5	5	5	5	1
Property Impacts	5	5	3	3	2	2	5
Environmental	5	4.5	4	4	2	1	4
Hydraulics	5	1.5	4	3.5	3	1.5	4
Heritage	5	5	3	3	1	1	1
Pedestrian Use	5	2	4	4	4	4	2.5
Construction Cost	5	5	1.8	2.3	2.9	4.1	2.9
Construction Duration	5	5	3	3.5	4.5	5	4.5
Service Life	5	1	5	5	5	3.4	5
TOTAL:	/ 60	37.5	**45.3**	**45.9**	41.9	39.5	41.6

Recommended Improvement (if opening preferred):

Bridge	Required Span (1)	Preferred Structure Type	Skew	Design Speed	Estimated Cost
2-WG	15.0m	Precast Concrete Rigid Frame (2)	0 deg	60 km/h	$1.5M
3-E	18.0m	Slab on Prestressed B700 Box Girders	15 deg	50 km/h	$1.8M
5-E	15.0m	Precast Concrete Rigid Frame (2)	10 deg	60 km/h	$1.5M
7-E	11.5m	Precast Concrete Rigid Frame	5 deg	60 km/h	$1.25M

EXAMPLE VISUAL OF BRIDGE TYPES:


Multi-Cell Corrugated Steel Pipe


Precast Concrete Box Culverts


Corrugated Steel Pipe Open-Footing Arch Culverts


Single Span Precast Concrete Rigid Frame


Single Span Prestressed Girder Bridge


Prefabricated Modular Bridge

Key Findings:

- Large corrugated steel culverts (open-footing arch shapes) were not hydraulically efficient enough to provide the required capacity for the watercourse & weren't carried forward in evaluation.
- Replacement with Two-lane Bridge is preferred over narrow platform as it provides additional clearance for farm equipment and allows pedestrians to safely use the shoulders
- Single-span structure is preferred over multi-cell culverts, as it provides the most efficient hydraulic opening and is less prone to blockage, reducing the risk of upstream flooding
- The scoring difference between the slab-on-girder bridge and the pre-cast rigid frame is marginal and sensitive to minor adjustments to cost and hydraulics. Confirmation of structure type should be further evaluated during detailed design when costs and hydraulics are more refined.

(1) Required span is based on preliminary hydraulics and may be further refined during detailed design.

(2) For 15m spans, a Concrete Slab on Prestressed Solid-Slab S500 girders may also be considered during detailed design. Preferred structure type may vary depending on more refined cost and hydraulic performance determined during detailed design

Natural & Cultural Heritage Environments

Natural Environment:

- Species at Risk:
  - Confirmed Barn swallow habitat at 3-E & 2-WG would be impacted with replacement or removal.
  - Potential Habitats for Canada Warbler, Barn Swallows, Whip-poor-Will, Wood-pewee, Monarchs, Snapping Turtles and Western Chorus Frogs at various structures would be impacted with construction activities surrounding bridges.
- Wetlands:
  - Non-Provincially Significant Wetlands immediately adjacent to bridges 2-WG, 3-E & 7-E potentially impacted if bridge replaced.
- Significant Woodlands:
  - Potential tree removals along right-of-way within significant woodlands along right-of-way for road widening at 3-E, 5-E & 7-E
- Aquatic Habitat:
  - Opportunity for improvements to soft-bottom at 2-WG and 3-E
  - Evidence of groundwater upwelling at Bridge 5-E. Needs to be maintained with open bottom structure.
  - Opportunity to provide slope bank stability to reduce erosion potential at 5-E
  - Existing conditions provide good fish habitat at 7-E

Note: Impacts to the Natural Environment will be mitigated to the extent possible during the detailed design by minimizing excavation limits, tree removals and disturbances to habitats.

Built & Cultural Heritage Assessment:

- Bridge 3-E has been identified to meet one criteria for Cultural Heritage Value or Interest:
  - Represents one of the few remaining 'rainbow arch bridges' that Wellington County was once known for.
  - Designed by Fergus architect Charles Mattaini, who built close to 70 bowstring bridges in Southern Ontario

Potential Impacts to Built or Cultural Heritage	Potential Mitigations
Loss of defining elements, including 'Rainbow Arch' truss and decorative railing panels if Bridge 3-E is removed.	• Salvage elements of bridge for conservation work or displays. • Use similar structure type (concrete bridge) and consider the use of commemorative elements, such as a decorative arch or commemorative plaque. • Document original structure in historical records prior to removing.
The context of a bridge historically being present at that crossing is no longer prevalent if structure is removed	• Document each structure prior to removal and deposit in a publicly accessible repository.

Archeological:

- Stage 1 Archeological study was completed and determined that all areas have been previously disturbed and are have low potential of archeological assessment

Evaluation of Alternatives

Centre Wellington

BURNSIDE

Evaluation Matrix:

Highest Impact / Least Preferred ○ ◔ ◑ ◕ ● Least Impact / Most Preferred

Criteria	Do Nothing	Remove All	Replace All	Replace 2-WG, 3-E & 7-E	Replace 2-WG, 5-E & 7-E	Replace 2-WG & 7-E
TRANSPORTATION						
Cross-Community Travel	◔	○	●	◕	◕	◑
Emergency Response Times	○	○	●	◔	●	◔
Slow Moving Vehicle Accommodation	◑	○	●	◕	◕	◑
Local Community Travel	◑	○	●	◕	◕	◑
TRANSPORTATION SUMMARY	◔	○	●	◑	◕	◑
NATURAL ENVIRONMENT						
Environmentally Sensitive Areas	◑	◕	◑	◑	◕	◕
Terrestrial Habitat	◕	●	◔	◑	◑	◕
Fisheries / Aquatic Habitat	○	●	◑	◑	◑	◔
Species at Risk	◕	●	○	◔	◔	◑
NATURAL ENVIRONMENT SUMMARY	◑	●	◔	◑	◑	◑
SOCIAL & CULTURAL ENVIRONMENTS						
Social Environment	◔	○	◕	◕	◕	◑
Archaeological	◕	●	◑	◕	◕	◕
Cultural & Built Heritage	◔	◔	◕	◕	◕	◑
Community Preference	◔	◔	●	◕	◕	◑
SOCIAL & CULTURAL SUMMARY	◑	◔	◕	◕	◕	◑
ECONOMIC ENVIRONMENT						
Capital Costs	●	●	○	◔	◔	◑
Maintenance & Operational Costs	○	●	◔	◑	◑	◕
ECONOMICS SUMMARY	◑	●	◔	◔	◑	◕
OVERALL RANKING (EQUAL WEIGHTING)	6	2	4	5	1	3
OVERALL RANKING (SENSITIVITY ANALYSIS)	6	5	2	4	1	3

Criteria Weighting & Sensitivity Analysis

- The 'pies' shown are a simplified visualization of the numerical rating system used. Options with the same 'pie' graphic do not necessarily have the exact same numerical rating.
- The 'Overall Ranking (Equal Weighting)' is provided based on equal weighting for each criteria (25% Transportation, 25% Natural Environment, 25% Social & Cultural Environments and 25% Economic Environment)
- The 'Overall Ranking (Sensitivity Analysis)' is based on the combined results of a series of scenarios ran with different weighting criteria for each of the categories.
- The preferred alternative was consistent across the equally weighted and sensitivity analysis rankings.

Preferred Alternative:

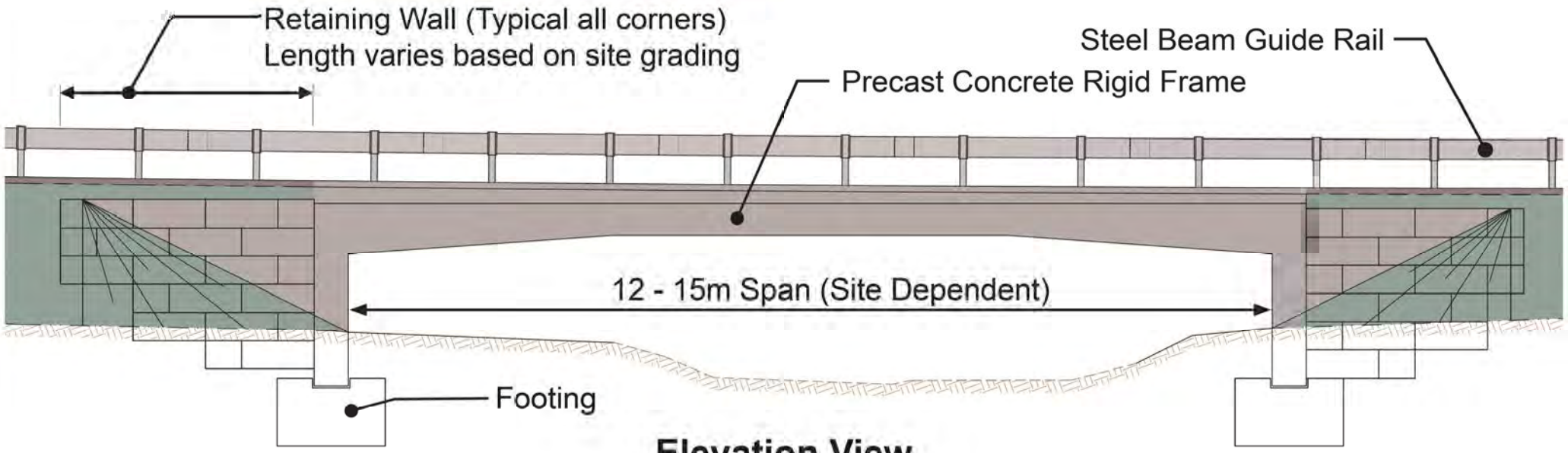
REPLACEMENT OF BRIDGES 2-WG, 5-E & 7-E

- Replaces all structures that benefit emergency response times
- Replaces 3 bridges with the most benefit to:
  - Travel times with agricultural equipment
  - Simplified routes for deliveries, buses, municipal services, etc.
  - Commute times for local residents to surrounding areas
- Eliminates need for travel on arterial routes.
- Provides opportunity for use as emergency detour routes during closures of County roads
- Areas of opportunity for improvements to fisheries and erosion concerns identified at 2-WG and 5-E can be addressed with replacement
- Highest Cost-Benefit ratio
- Bridge 3-E can be maintained as a pedestrian crossing, allowing its heritage to be prolonged, until it further deteriorates to a point where it can no longer carry pedestrian loads.

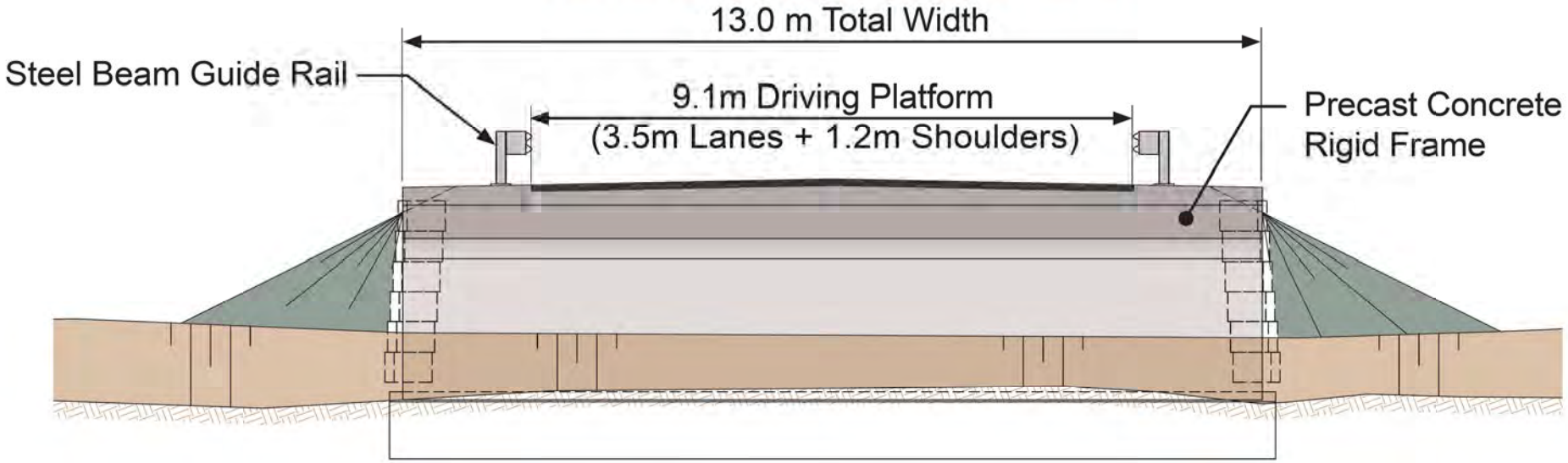
Design Concept
Precast Rigid Frame

Centre Wellington

BURNSIDE



Elevation View



Cross-Section Through Mid-Span

Invitation to Participation

We want to hear from you!

You are invited to provide comments by completing a comment sheet and submitting it to the comment box today or by mailing or emailing one of the Project Team members below before December 20th, 2024:

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0
Tel: 519-846-9691 ext. 355
adickieson@centrewellington.ca

Andrew Dawson, P.Eng
Consultant Project Manager
R. J. Burnside and Associates Limited
292 Speedvale Avenue West, Unit 20
Guelph, ON N1H 1C4
Tel: 705-797-4310
andrew.dawson@rjburnside.com

The display boards and a recorded presentation will be available on the project webpage after the Open House.

www.connectcw.ca/bridge-transportation-network-study-four-bridges

If you would like to request access to the files by another means other than through the website, please contact one of the Project Team Members above

Next Steps:



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix D

Live Presentation Slide Show

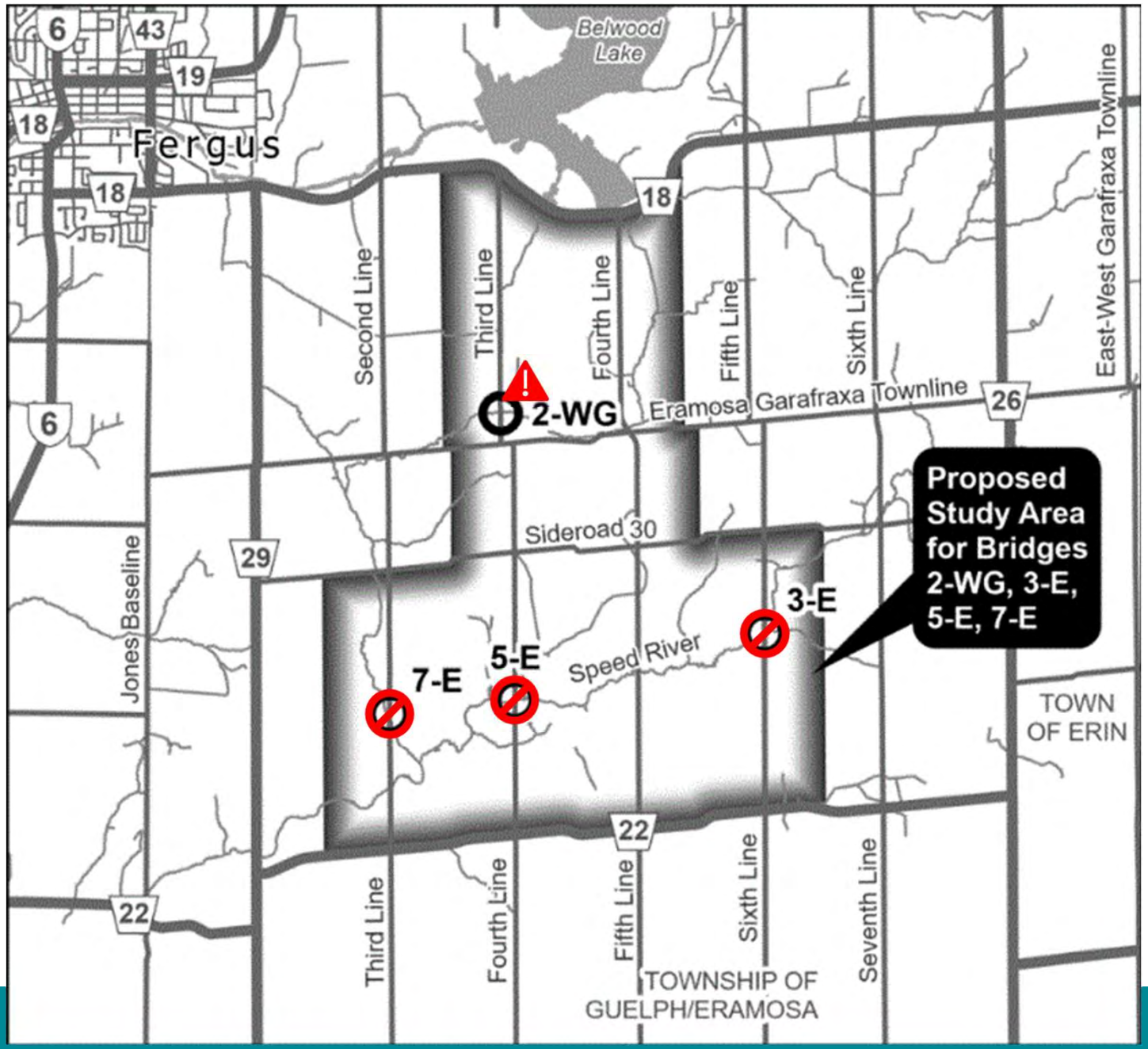
Township of Centre Wellington

Bridge and Transportation Network Study for Four Bridges

Public Open House #2

December 2, 2024
6:00 – 8:00 p.m.
Centre Wellington Community Sportsplex - Gord Brown Hall

Study Area



2-WG (Load Limit)
- Third Line West-Garafraxa
- Through Girder

3-E (Closed)
- Sixth Line Eramosa
- Bowstring Arch

5-E (Closed)
- Fourth Line Eramosa
- Through Girder

7-E (Closed)
- Third Line Eramosa
- Through Girder

The Study

- Review impacts of closures to transportation
- Review options of repair, removal or replacement
- Consider input from Public
- Results will guide Township's capital planning

Study Process

Study Commencement

Identify Problem & Opportunities

Public Open House # 1

Identify Alternative Solutions

Background Investigations / Field Studies

Evaluate Alternatives

Select Preliminary Preferred Alternative

WE ARE HERE!

Public Open House # 2

Confirm Preferred Alternative

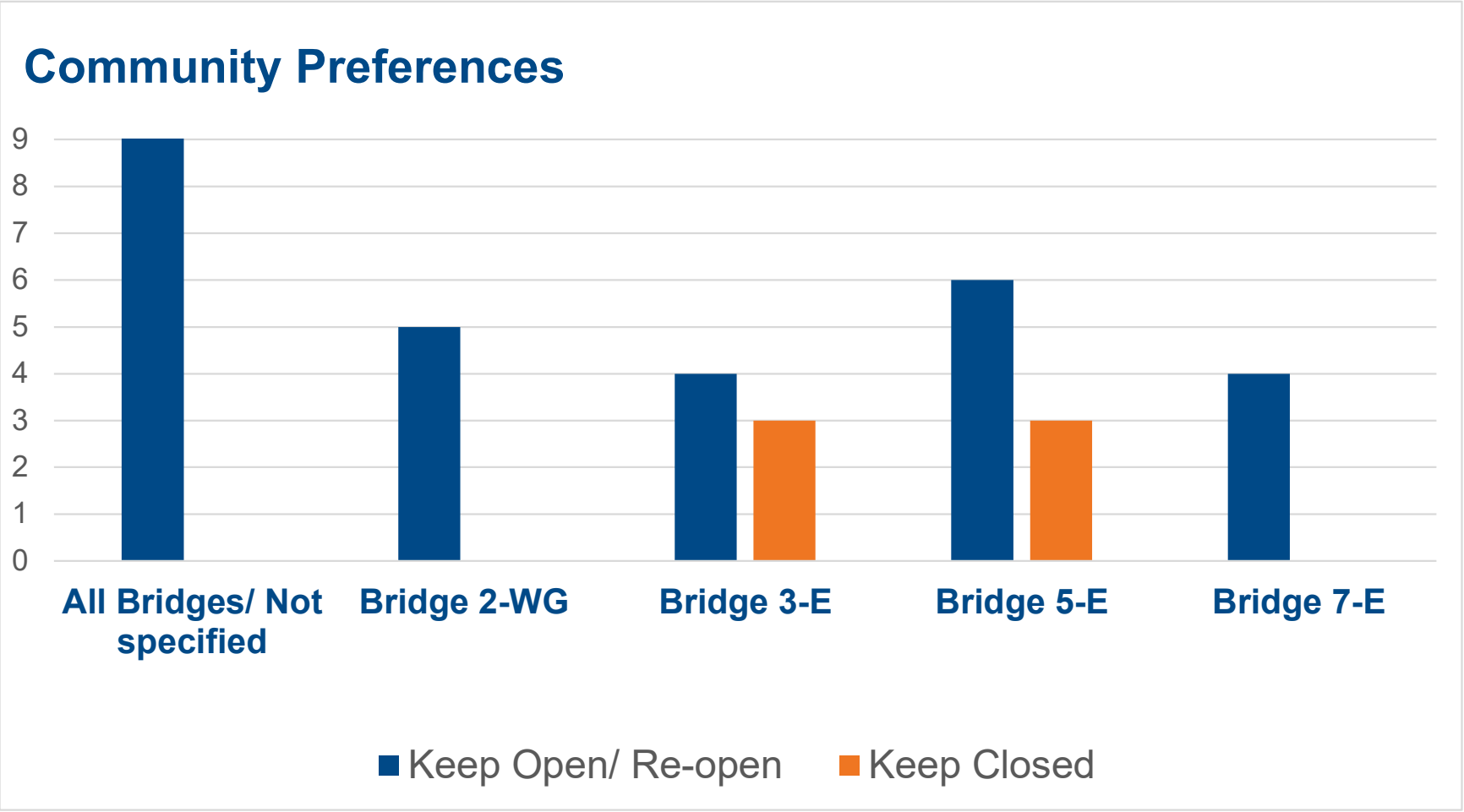
Study Documentation Report

Public Review

Study Completion

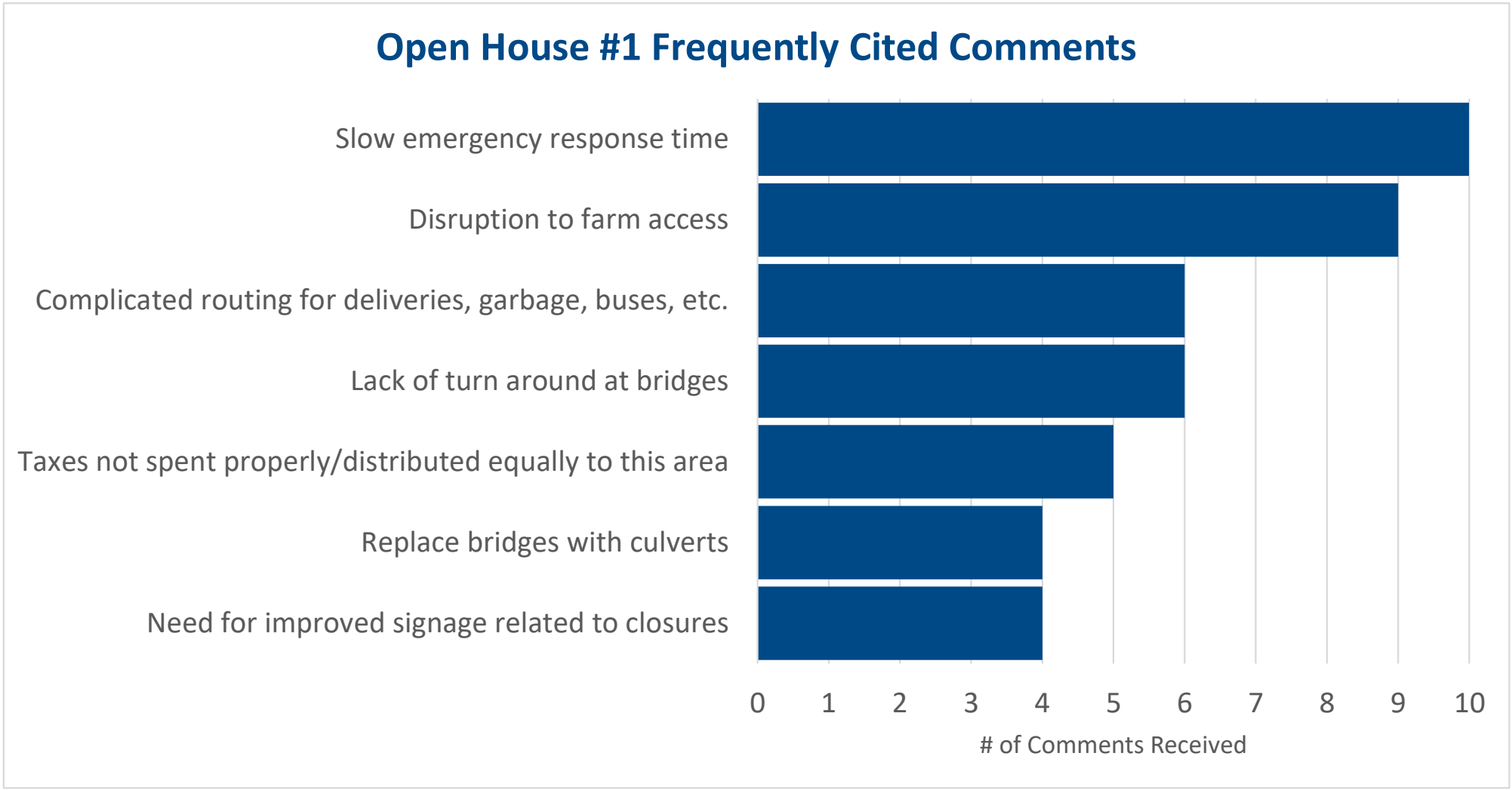
Open House #1 Feedback

Your opinions were considered in the evaluation!



Open House #1 Feedback

Your comments have been heard and considered!



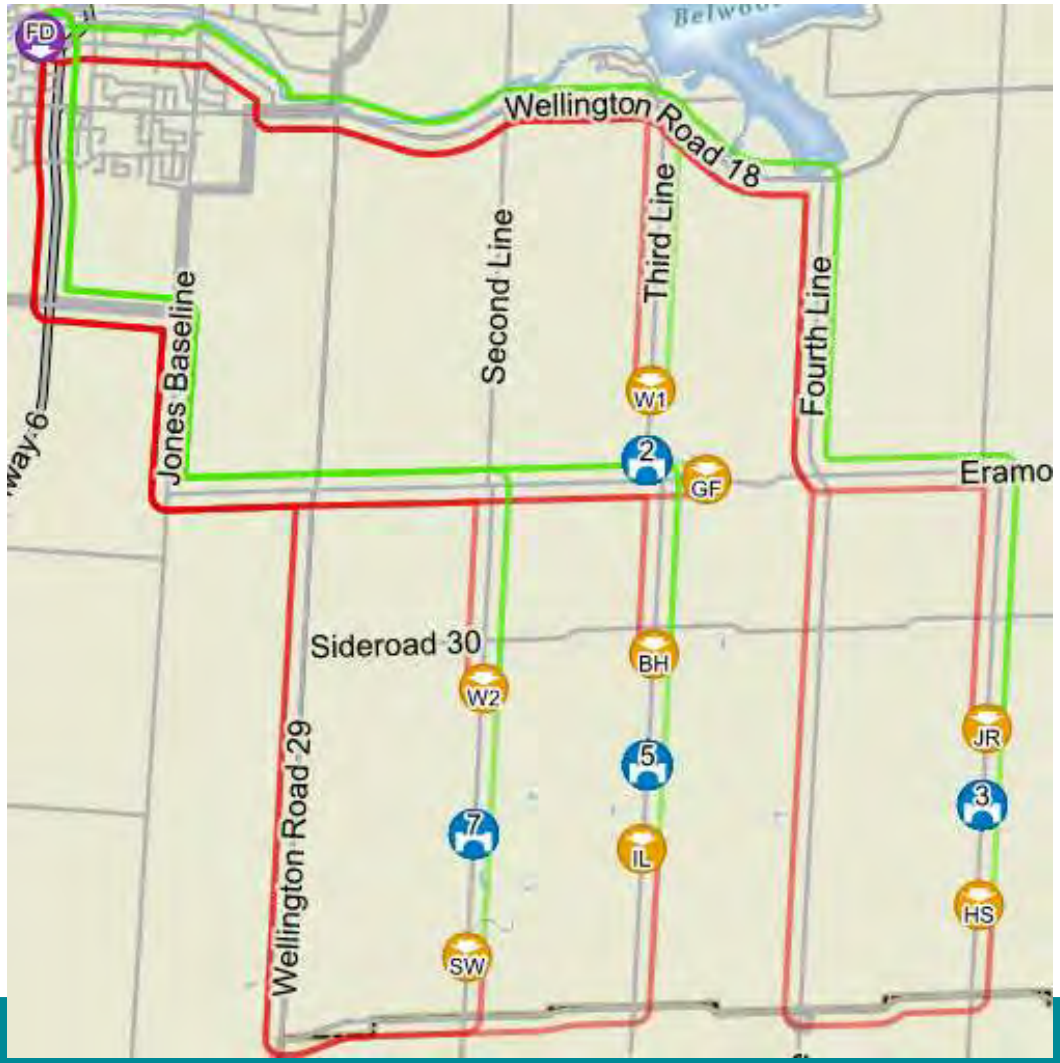
Transportation Studies

Problem / Opportunity

Delays to Emergency Service Response

Study Solution

Emergency Response Impact Study



Results:

Rank	Bridge	Score
1	5-E	4.0
2	7-E	1.2
3	3-E	0.0
4	2-WG	0.0

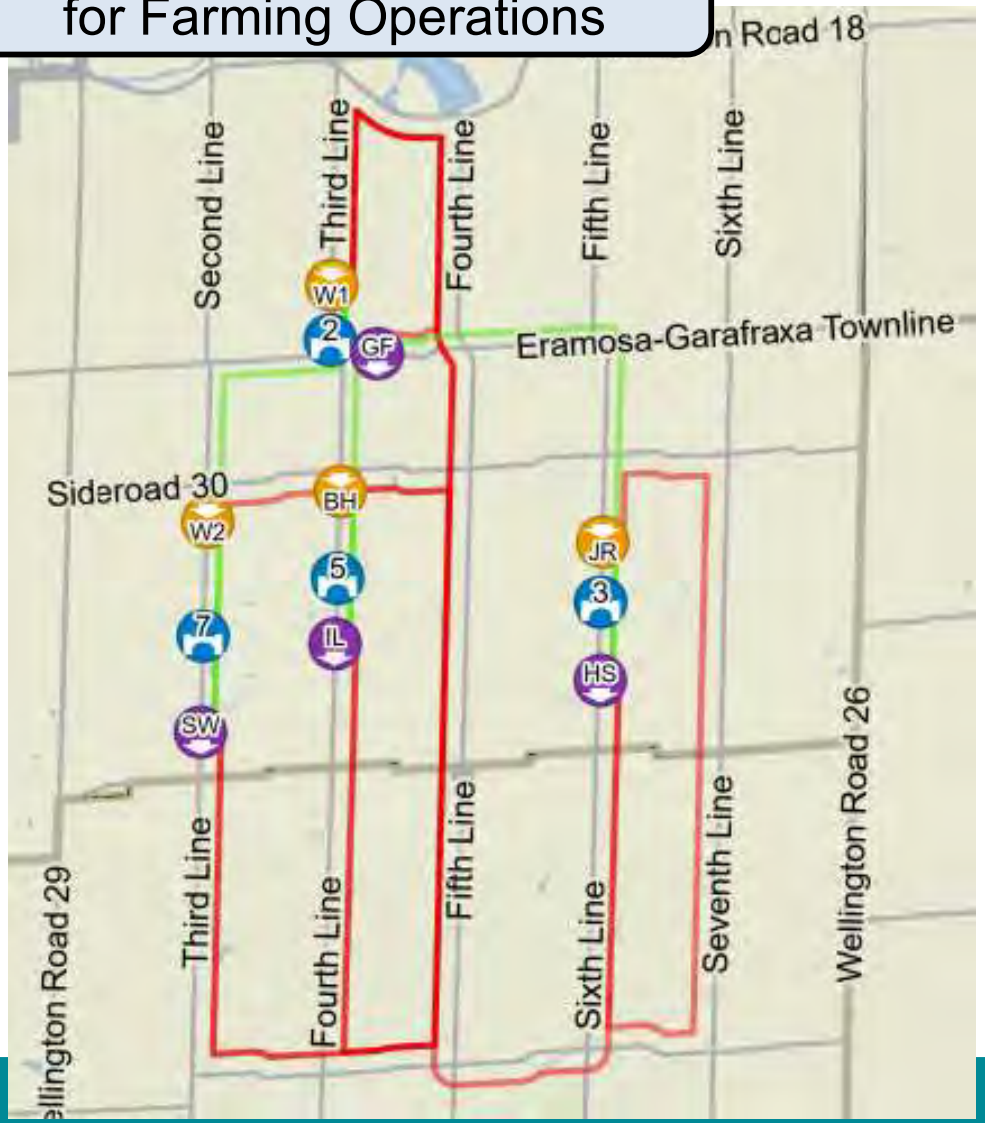
Transportation Studies

Problem / Opportunity

Lengthy Detours / Disruption for Farming Operations

Study Solution

Slow Moving Vehicle Traffic Impact Study



Results:

Rank	Bridge	Score
1	2-WG	4.0
2	5-E	3.2
3	7-E	2.6
4	3-E	2.3

- No alternative to Wellington Road 18 if 2-WG closed
- Open one of 5-E or 7-E

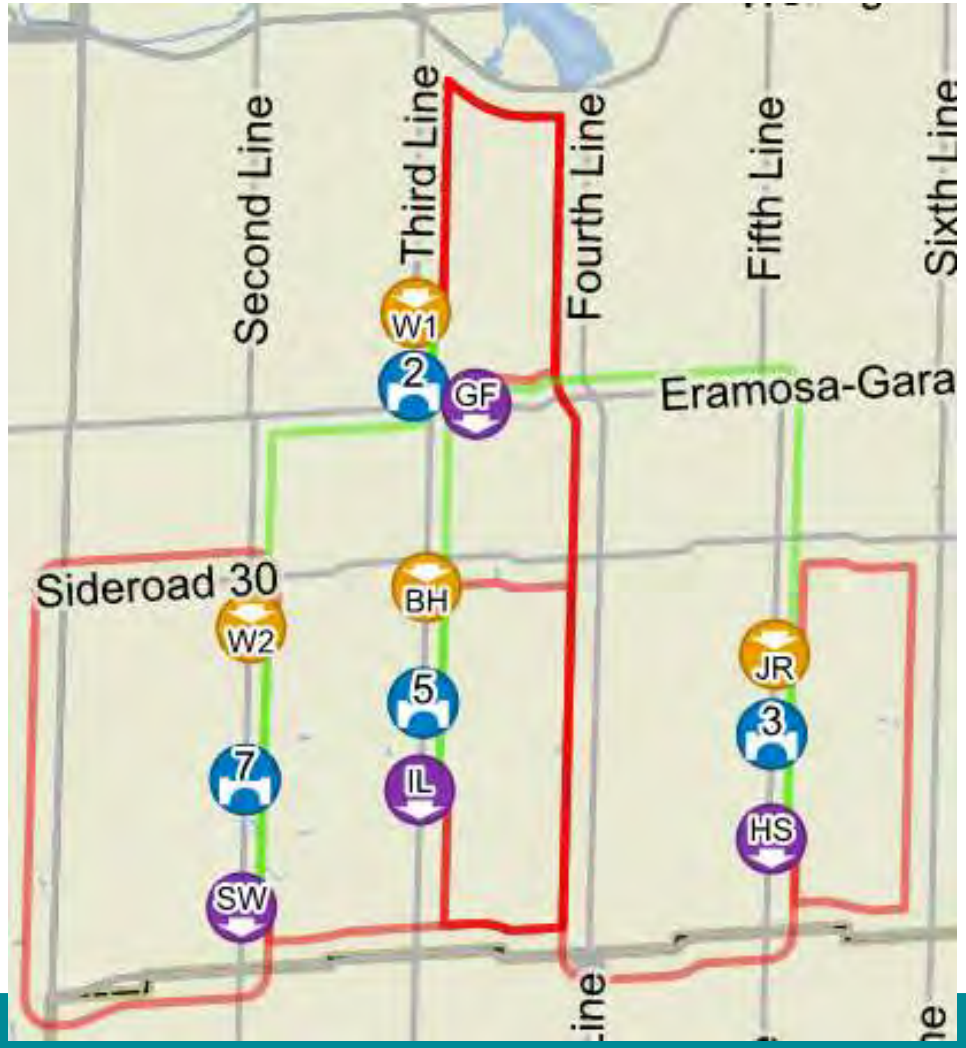
Transportation Studies

Problem / Opportunity

Complicated Routes for Garbage Collection, Buses, Deliveries, etc.

Study Solution

Inner-Community Travel Impact Study



Results:

Rank	Bridge	Score
1	2-WG	4.0
2	5-E	1.9
3	7-E	1.7
4	3-E	1.6

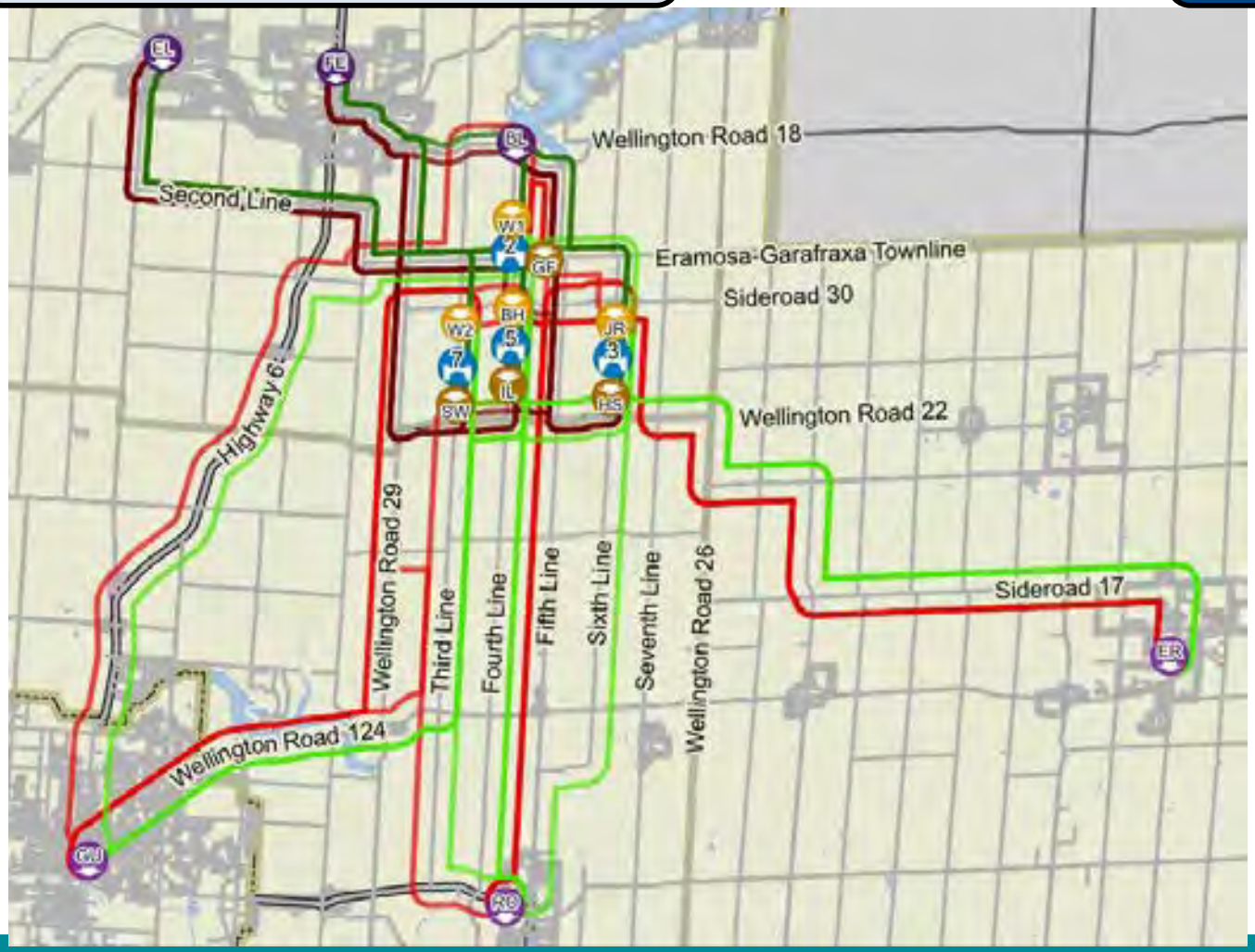
Transportation Studies

Problem / Opportunity

Concerns related to increased commute times

Study Solution

Cross-Community Traffic Impact Study



Results:

Rank	Bridge	Score
1	2-WG	4.0
2	5-E	2.7
3	7-E	2.4
4	3-E	2.1

Transportation Study Summary

Individual Structure Evaluation:

Criteria / Alternative	2-WG	3-E	5-E	7-E
Cross-Community Travel	3.5	4.0	2.4	3.0
Emergency Response	0.0	0.0	4.0	1.2
Slow-Moving Equipment	4.0	2.3	3.2	2.6
Local Community Travel	4.0	1.6	1.9	1.7
TRANSPORTATION	**11.5**	**7.9**	**11.5**	**8.5**
TRANSPORTATION RANKING:	1	4	1	3

Structure Type Evaluation

Problem / Opportunity

Use culverts or single lane Bridges because they are cheaper

Study Solution

Structure Type Evaluation



Multi-Cell Corrugated Steel Pipe



Precast Concrete Box Culverts



Corrugated Steel Pipe Open-Footing Arch Culverts



Single Span Precast Concrete Rigid Frame



Single Span Prestressed Girder Bridge

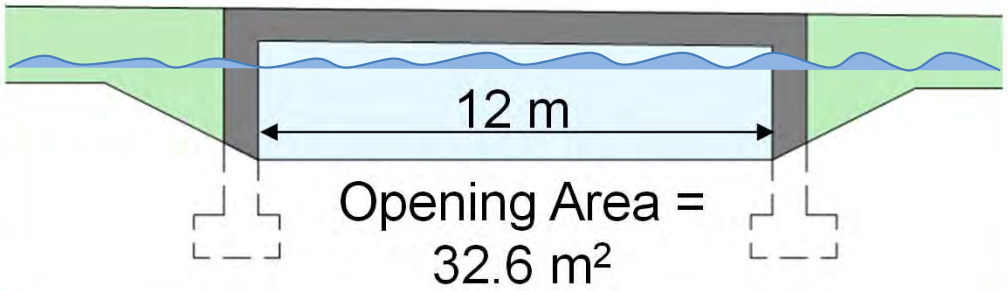


Prefabricated Modular Bridge

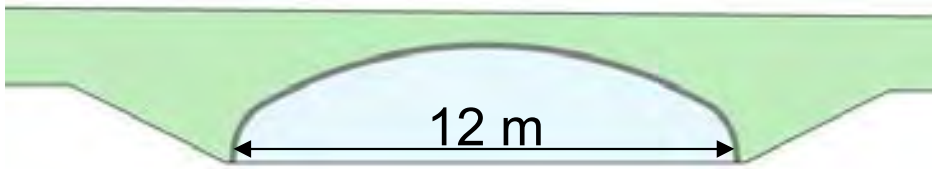
Structure Type Evaluation

HYDRAULIC CAPACITY:

SINGLE SPAN BRIDGE: PREFERRED

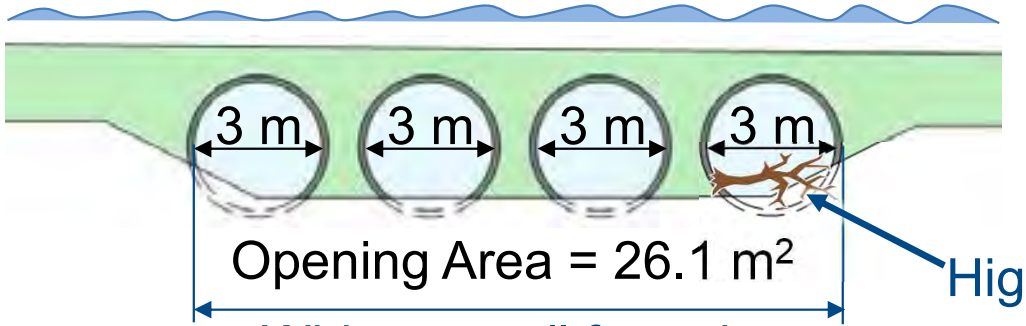


LARGE ARCH CULVERTS:



Opening Area = 23.3 m²

MULTI-CELL CULVERTS:



Higher potential for blockage

Structure Type Evaluation

NARROW BRIDGES:

- Single lane bridge (up to 4.9 m) too narrow for larger agricultural equipment



- Narrow Two-Lane Bridge (6.0 m) was considered but found to be less preferred than Township standard (9.1 m)

Preferred Structure Type

Preferred Structure Type (***if replaced***):

For Span < 16m:



Single Span Precast Concrete Rigid Frame

- 2-WG = 15.0 m
- 5-E = 15.0 m
- 7-E = 12.5 m

For Span > 16m:



Single Span Prestressed Girder Bridge

- 3-E = 18.0 m

Public Feedback

Problem / Opportunity	Study Solution
Ineffective signage for bridge closures	Township has installed additional signage at currently closed bridges
Concerns of increased traffic & speed if bridges re-opened	Posted regulated speed limits of 50 – 60 km/h
Conflict with pedestrian use if bridges re-opened	Wider structures with shoulders for pedestrian use
Better planning required for coordination with nearby closures	Impacts of future work on bridges within surrounding areas was considered



Public Feedback

Problem / Opportunity

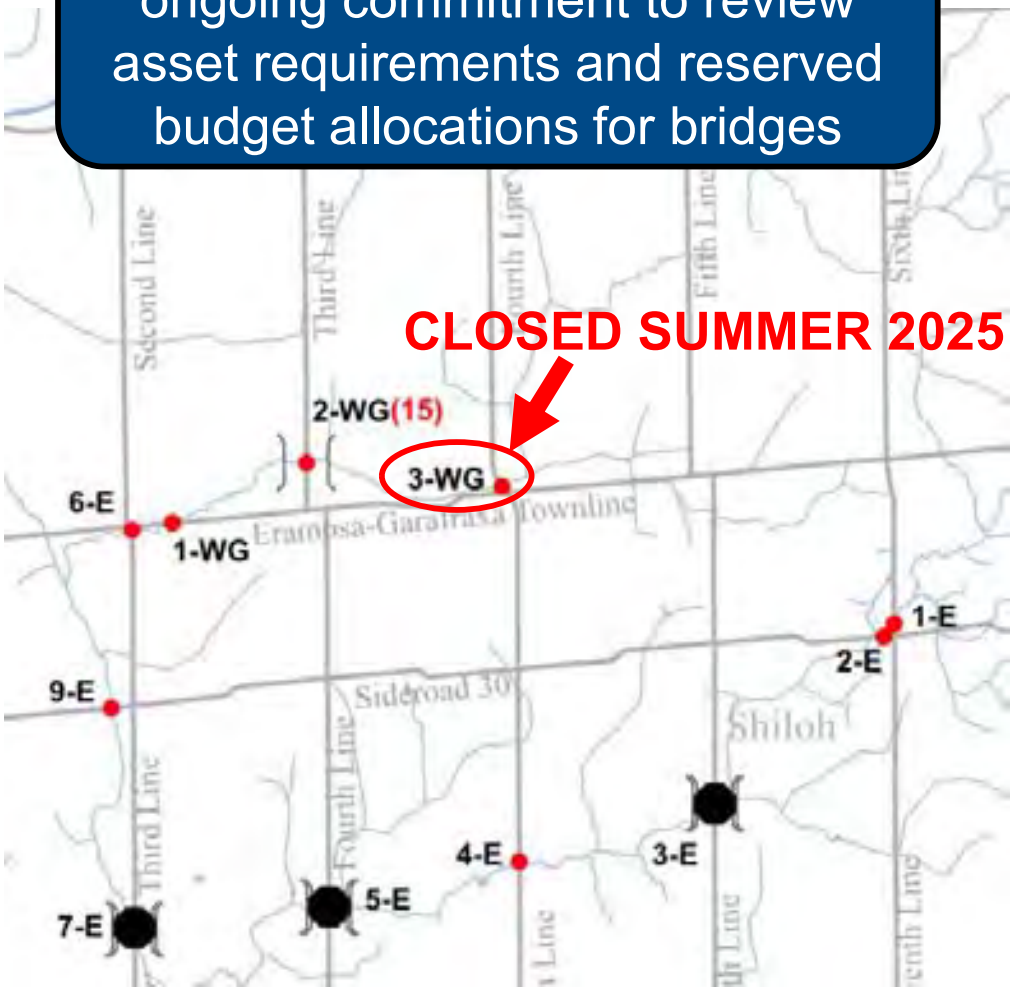
Infrastructure in the study area has been neglected

Study Solution

This Study & the Township's ongoing commitment to review asset requirements and reserved budget allocations for bridges

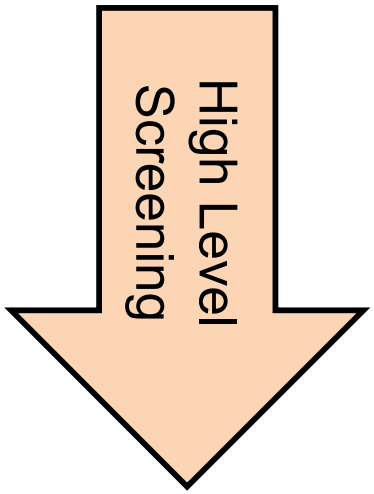
BRIDGE 3-WG
(4TH LINE, WEST-GARAFRAXA)
WILL BE
CLOSED FOR CONSTRUCTION
SUMMER 2025.

MAJOR REHABILITATION WORK TO EXTEND SERVICE LIFE



Alternatives

16 Alternatives



- Do Nothing always considered
- All Bridges closed used for baseline
- Screening of remaining options to narrow down to 6 alternatives

6 Alternatives Carried Forward:

	1	2	3	4	5	6
2-WG	O	X	O	O	O	O
3-E	X	X	O	O	X	X
5-E	X	X	O	X	O	X
7-E	X	X	O	O	O	O

O Bridge Open

X Bridge Closed

Evaluation Criteria

The alternatives being assessed were evaluated on a series of considerations including, but not limited to:



Transportation

- Cross-Community Travel
- Emergency Response
- Slow Moving Vehicle Accommodation
- Local Community Travel



Natural Environment

- Environmentally Sensitive Areas
- Wildlife Habitats
- Fisheries/Aquatic Habitat
- Species at Risk



Social & Cultural Environment

- Socio-Economic Conditions
- Archaeological, Built & Cultural Heritage
- Community Input

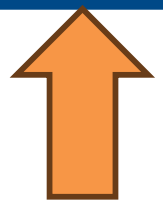


Economic Environment

- Capital Costs
- Lifecycle Costs
- Operational and Maintenance Costs

Evaluation of Alternatives

CRITERIA	Alternative 1: Do Nothing	Alternative 2: All Bridges Closed	Alternative 3: All Bridges Open	Alternative 4: Bridges 2WG, 3E & 7E Open	Alternative 5: Bridges 2-WG, 5-E & 7-E Open	Alternative 6: Bridges 2-WG & 7-E Open
Transportation	1.18	0.00	**4.00**	2.42	3.45	1.93
Environmental	1.92	**3.75**	1.25	1.69	2.02	2.21
Economic	1.85	**4.00**	0.50	1.50	1.61	2.60
Social & Cultural	1.60	1.38	2.88	**2.89**	2.79	2.18
Equal Weight	**6.55**	**9.13**	**8.63**	**8.71**	**9.87**	**8.92**



PREFERRED ALTERNATIVE

Preferred Alternative

REPLACEMENT OF BRIDGES 2-WG, 5-E & 7-E

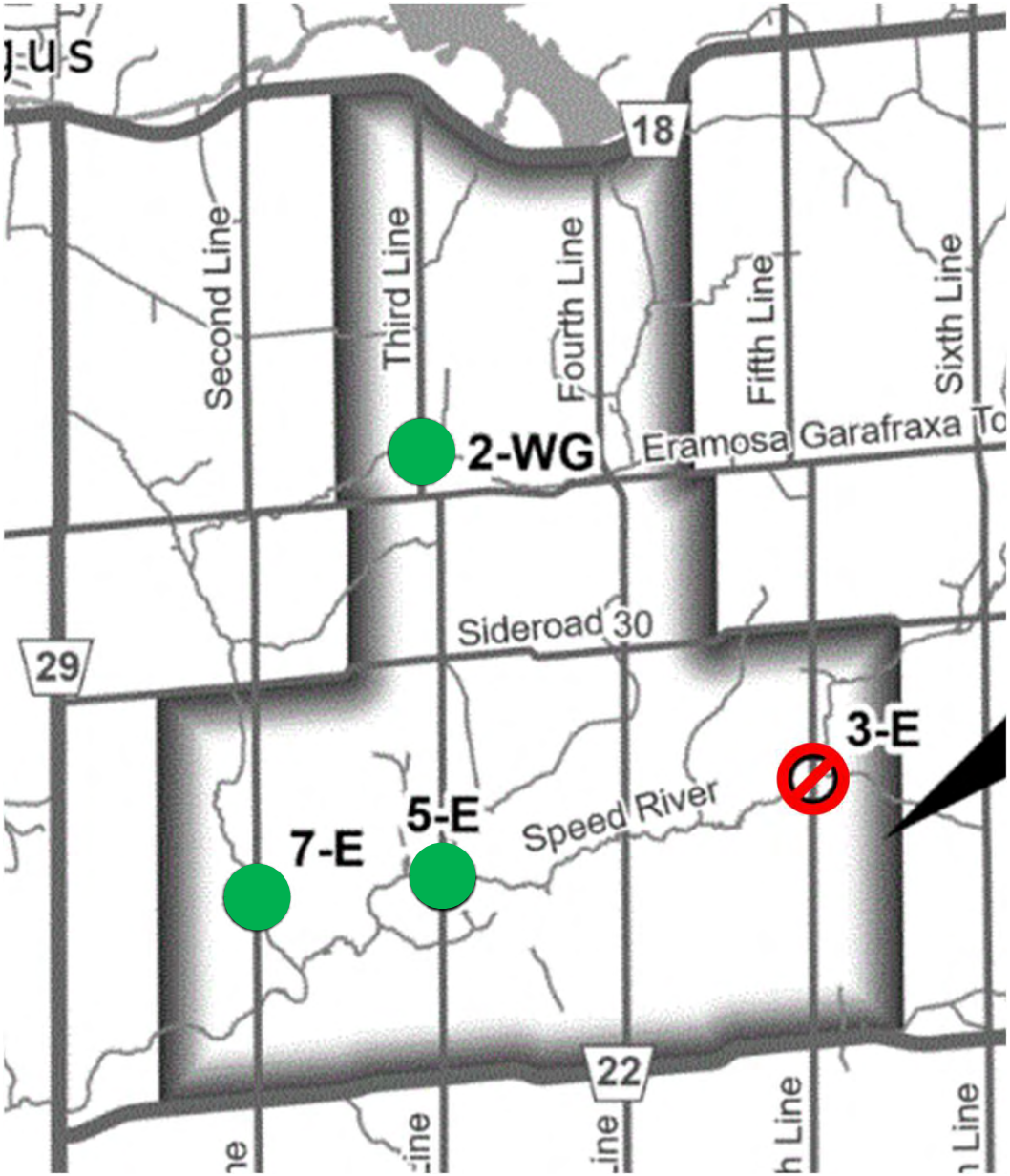
- Most benefit to emergency first response times
- Top 3 Bridges for Traffic Improvements
- Provides alternatives to busy roads for farm equipment
- Opens bridges adjacent to County Roads for Emergency Detours
- Opportunities for environmental improvements
- Highest Cost-Benefit ratio

Bridge 3-E

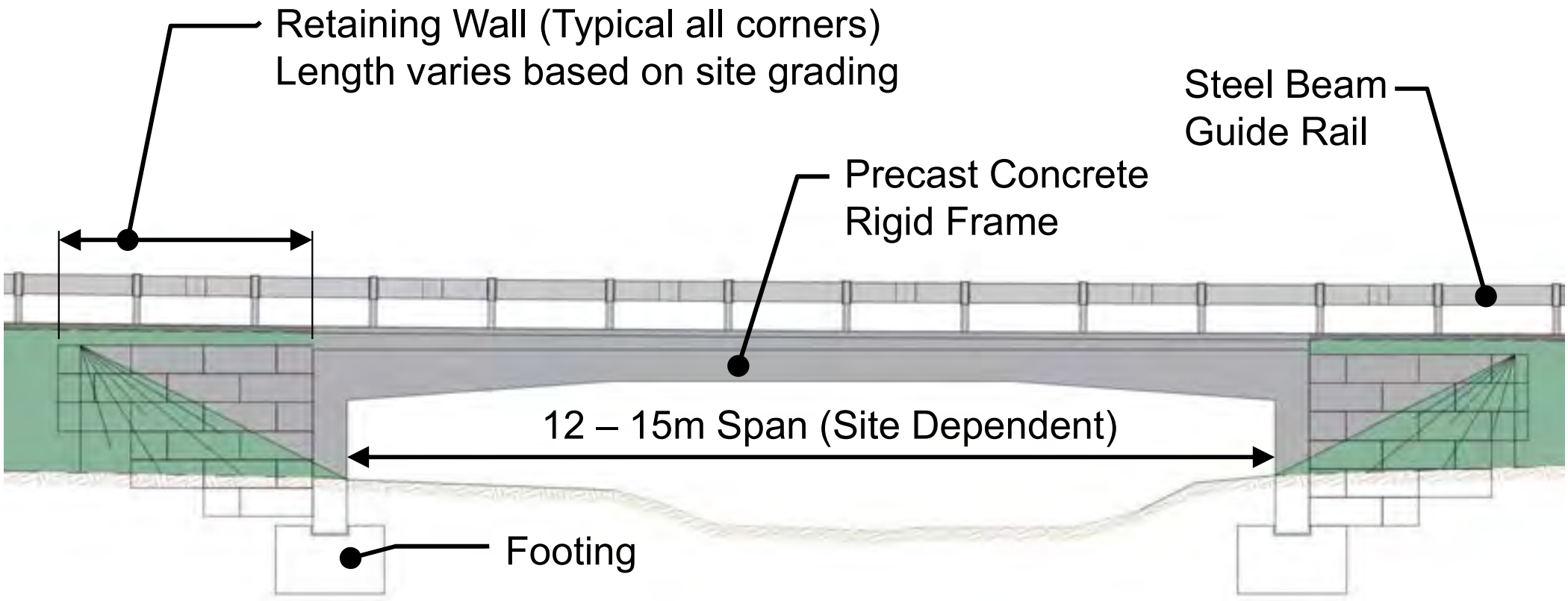
- Remain open for pedestrian use until deemed unsafe
- Prolongs Heritage

Capital Work Prioritization

1. 5-E
2. 2-WG
3. 7-E

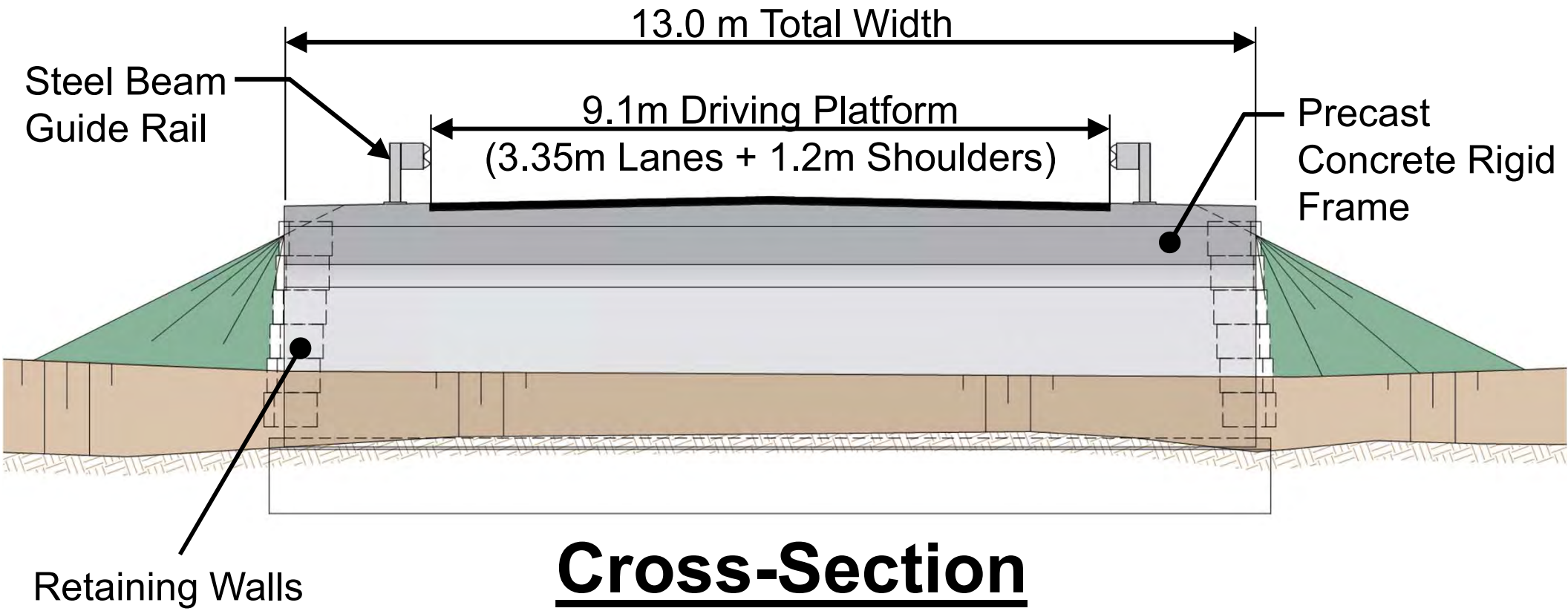


Conceptual Design



Elevation View

Conceptual Design



Cross-Section Through Mid-Span

Conceptual Design



Similar bridge (during construction)

We want to hear from you!

Invitation for Participation

You are invited to provide comments by completing a comment sheet and submitting it to the comment box today or emailing one of the Project Team members below by December 20th, 2024:

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square
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Tel: 519-846-9691 ext. 355
adickieson@centrewellington.ca

Andrew Dawson, P.Eng
Consultant Project Manager
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andrew.dawson@rjburnside.com

The display boards, a narrated slideshow and all project updates will be available on the Township's project webpage after the open house:

www.connectcw.ca/bridge-transportation-network-study-four-bridges

BURNSIDE

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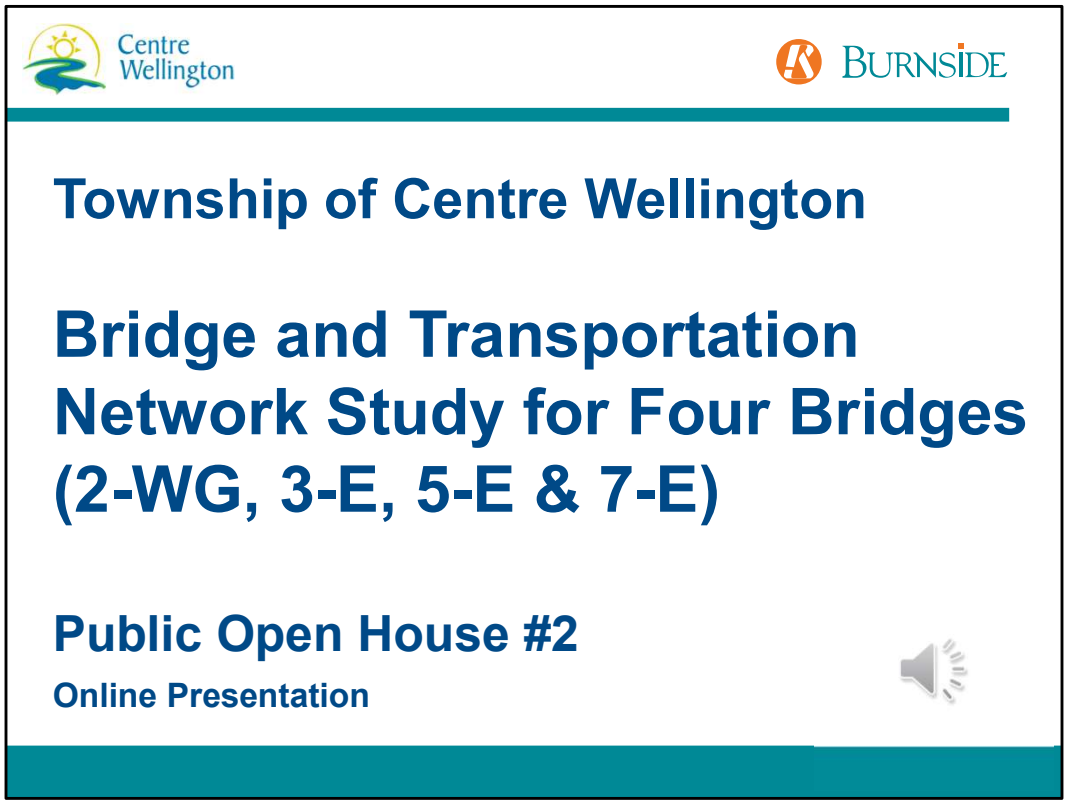
Appendix E

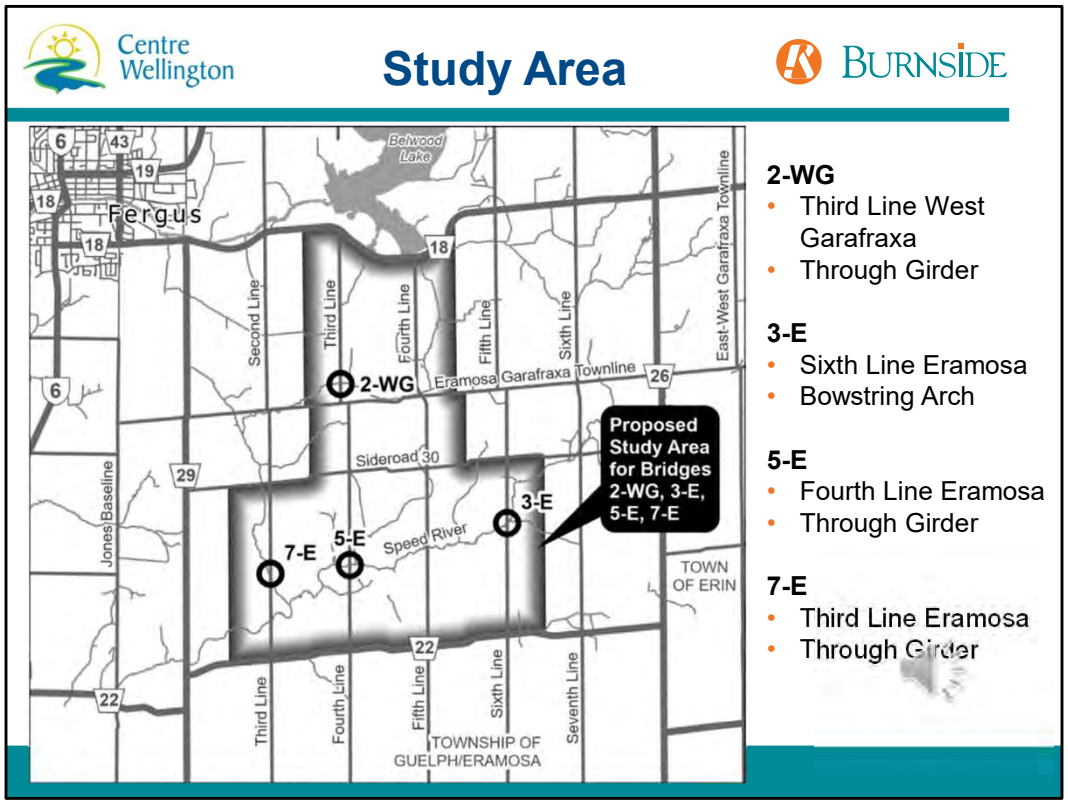
Online Presentation Slide Show with Text



Hello and welcome to the online version of the Second Public Open House for the Bridge and Transportation Network Study for Four Bridges in the Township of Centre Wellington – Bridges 2-WG, 3-E, 5-E and 7-E. This is a narrated presentation of the information originally presented at the Public Open House held on December 2nd, 2024

My name is Andrew Dawson. I am the Project Manager with R.J. Burnside & Associates Ltd., also known as Burnside. Burnside are the Consulting Engineers who have undertaken this study alongside the Township of Centre Wellington

I would like to extend my appreciation in you taking your time to review this presentation. Engagement with the public is a very important aspect of this study process and we welcome any comments or input you may have following your review of the information presented. Information on how to submit your comments will be provided at the end of this presentation.



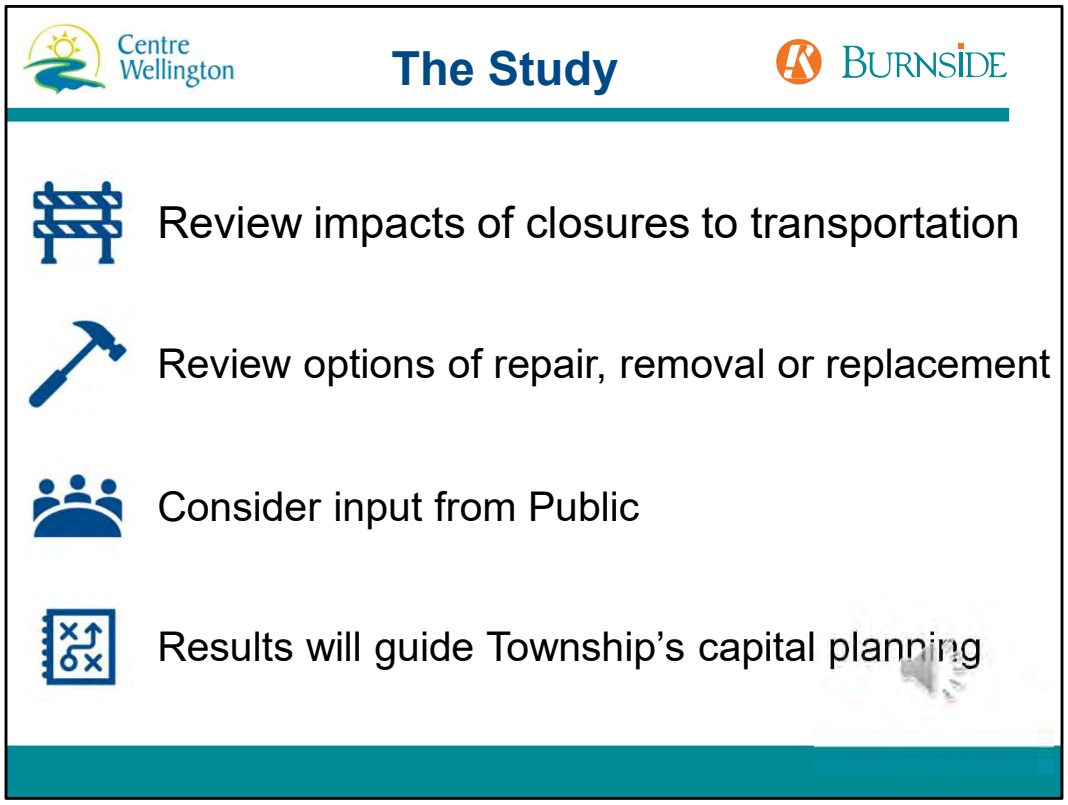
I am going to start by providing a brief overview of the locations of the bridges. I will be referring to these bridges by their Number code throughout the presentation, so it is important that you have an understanding of where each bridge is located.

Bridge 2-WG is located on Third-Line of West-Garafraxa. It is the bridge which is just north of Eramosa Garafraxa Townline that is currently load limited.

Bridge 3-E is located on Sixth Line Eramosa, between Sideroad 30 and Wellington Road 22. It is the bridge with the large arch shaped concrete trusses that is currently closed.

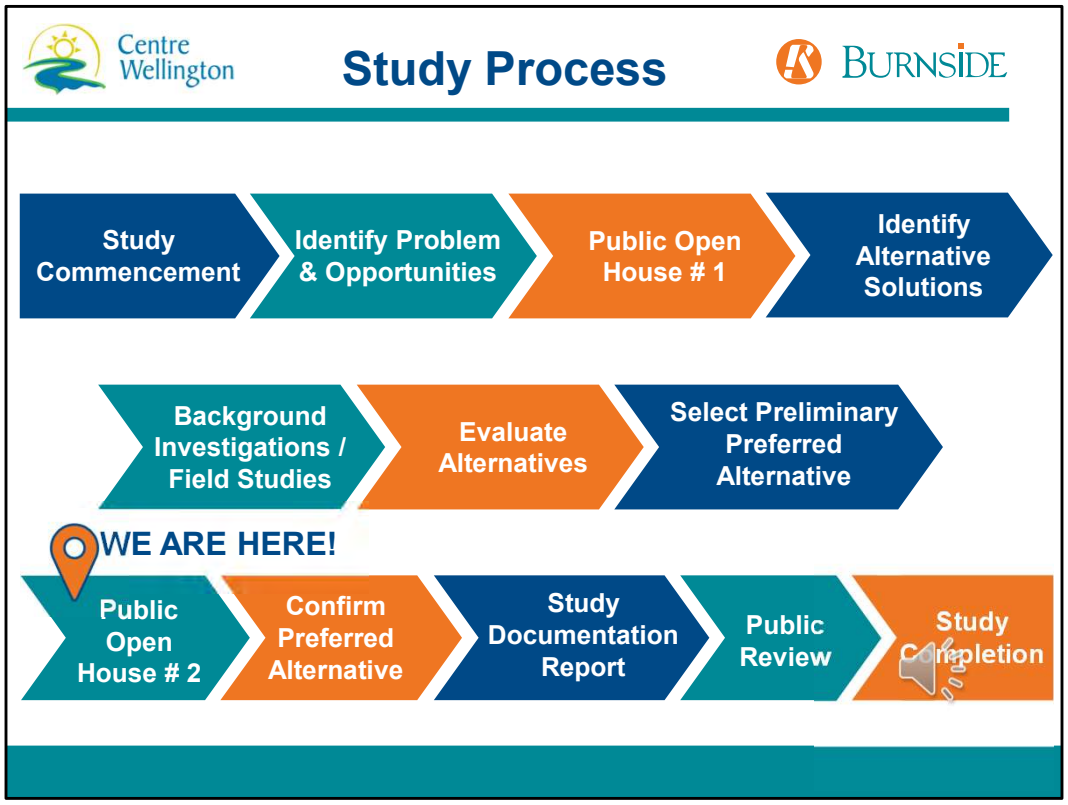
Bridge 5-E is located on Fourth Line Eramosa, between Sideroad 30 and Wellington Road 22. This bridge has the large deteriorated concrete barriers on each side of the road and is currently closed to traffic.

Lastly, 7-E is located on Third Line Eramosa, about mid-way between Sideroad 30 and Wellington Road 22. This is the bridge that is currently closed to traffic and has the severely deteriorated concrete barriers.

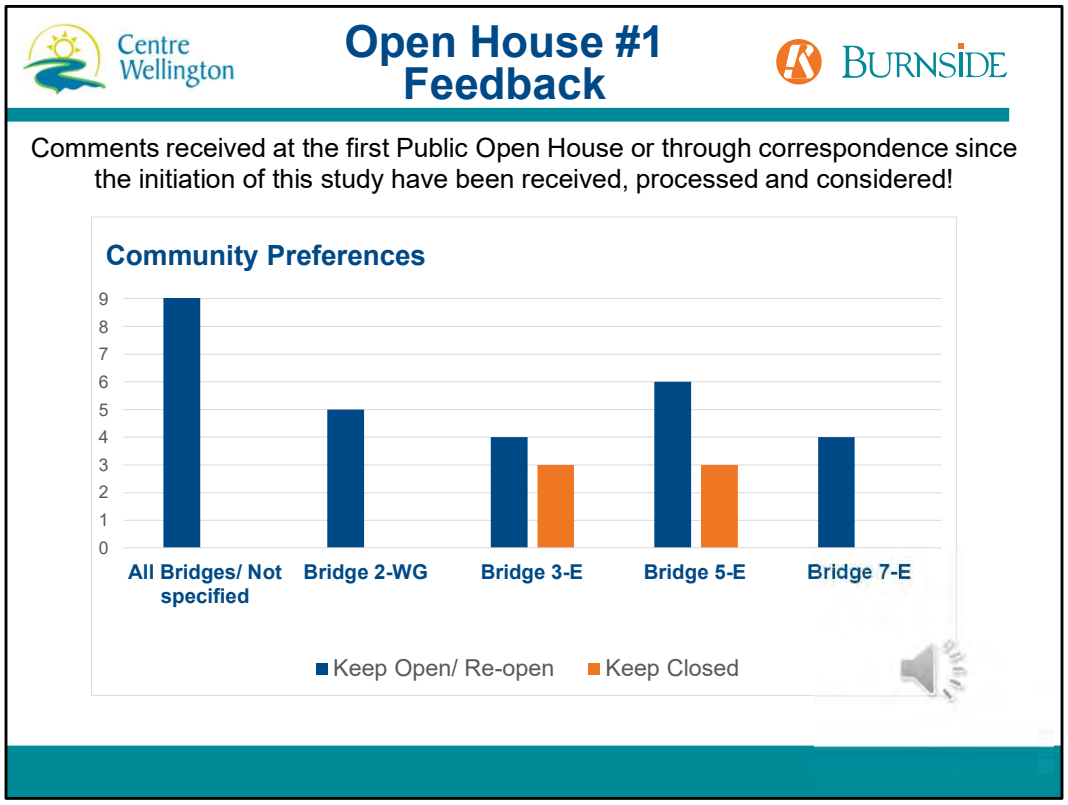


The Township has decided to undertake this Bridge and Transportation Network to evaluate the preferred solution to the four bridges for future capital planning.

- The study has reviewed the impacts of closures on the transportation network and has looked at repair, removal or replacement options at each bridge location.
- Throughout the study, the Township has looked to engage with the Public and stakeholders of the project, and use your input to help determine problems or opportunities that were explored throughout the study.
- The Township will use the results of this study to guide their future capital planning and budgeting

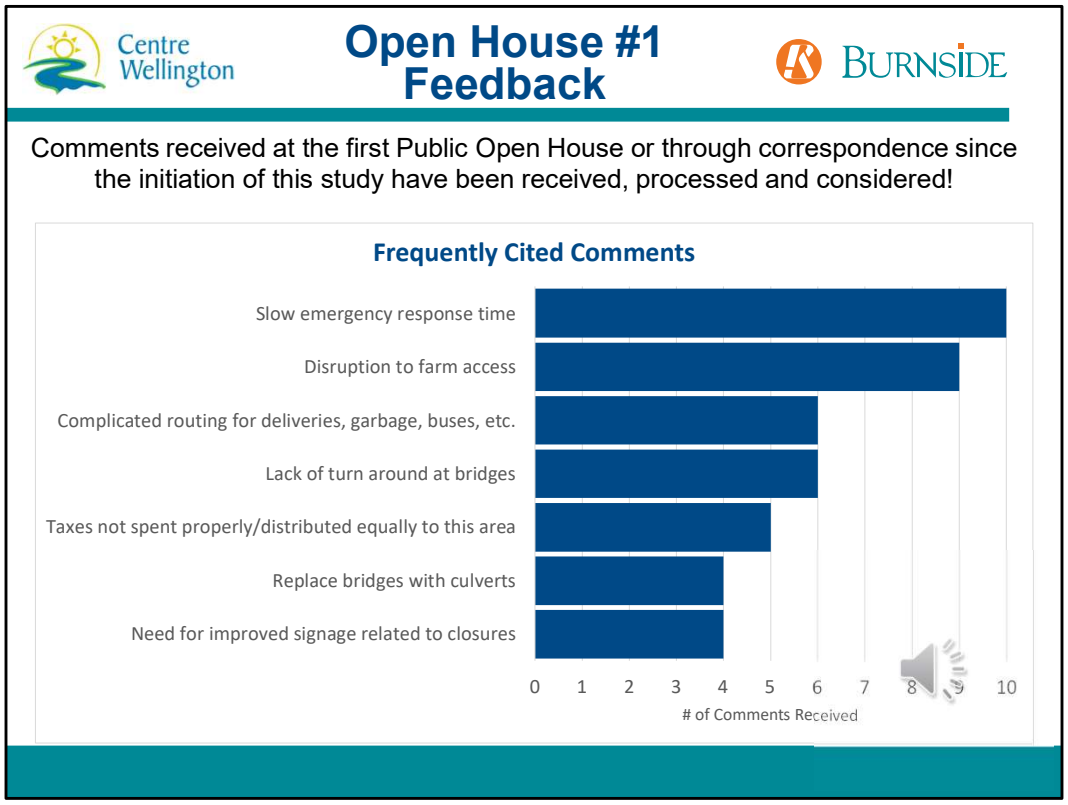


This graphic shows an overview of the study process
Earlier this year, the team identified problems and opportunities presented by the closure / opening of bridges. The public's input from the first Open House was utilized to determine these problems and opportunities and select the background investigations and field studies required.
Since then, the team has identified a short list of alternatives that were evaluated against a set of criteria in order to determine the preliminary preferred alternative, which is to be presented here today.
Following today, we will take into consideration any further comments received from the Public and confirm or revise the preferred alternative.
A final report will then be prepared and presented to council for approval. Once approved at council, this report will be made available to the public for review.



I wanted to start by providing a review of the opinions received from the public during our first open house, held earlier this year.
The graph here shows the preferences noted by the community in their comments. As shown, a number of comments were received indicating a preference for all bridges, or specific bridges to be open; however, there were also a few comments received in preference of bridges remaining closed.

I want you to know that these votes were directly considered as one of the rating criteria used in the selection of the preferred alternative.

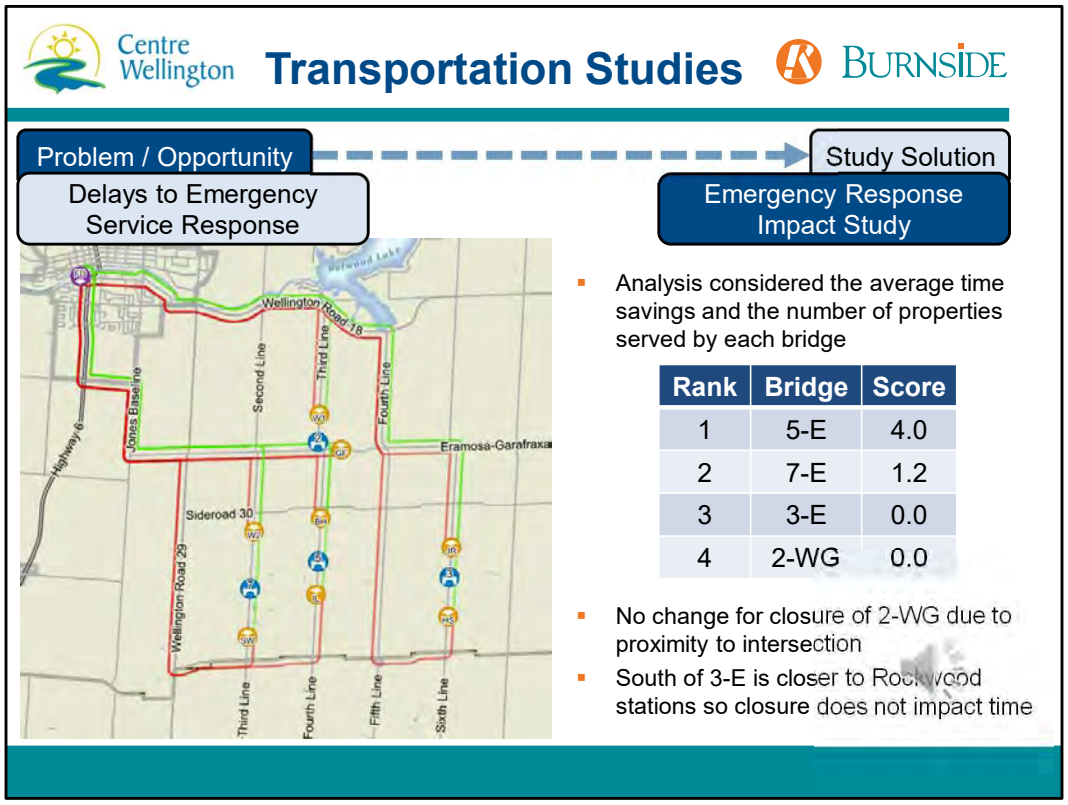


Similarly, shown here is a summary of more frequently cited comments received following the first open house

A lot of comments received were related to transportation and delays, including emergency response, farm access, service vehicles and commute times.

Another set of comments were also related to the opportunity for the use of certain structure types, such as culverts or narrow bridges, to help reduce costs.

As you will see throughout this presentation, the study has been structured to evaluate these concerns brought forth by the public when determining the preferred alternative.



I am now going to walk through a series of background studies that were conducted to address the problems or opportunities brought forth by the public.

I will note that there are also information boards that will be available for download on the Connect CW webpage which provide some additional details related to these studies. These information boards can be reviewed as a suplement to this presentation, and you can reach out to a member of the Project Team if you have any further questions.

The first study we will discuss is the Emergency Response Impact study, which was completed to address the Public's concerns related to delayed first response times.

This study analyzed routes from local Fergus and Rockwood emergency stations to properties north and south of the bridges. The map shown on this slide shows the routes from the purple circle in Fergus to the multiple different destinations shown as the gold circles.

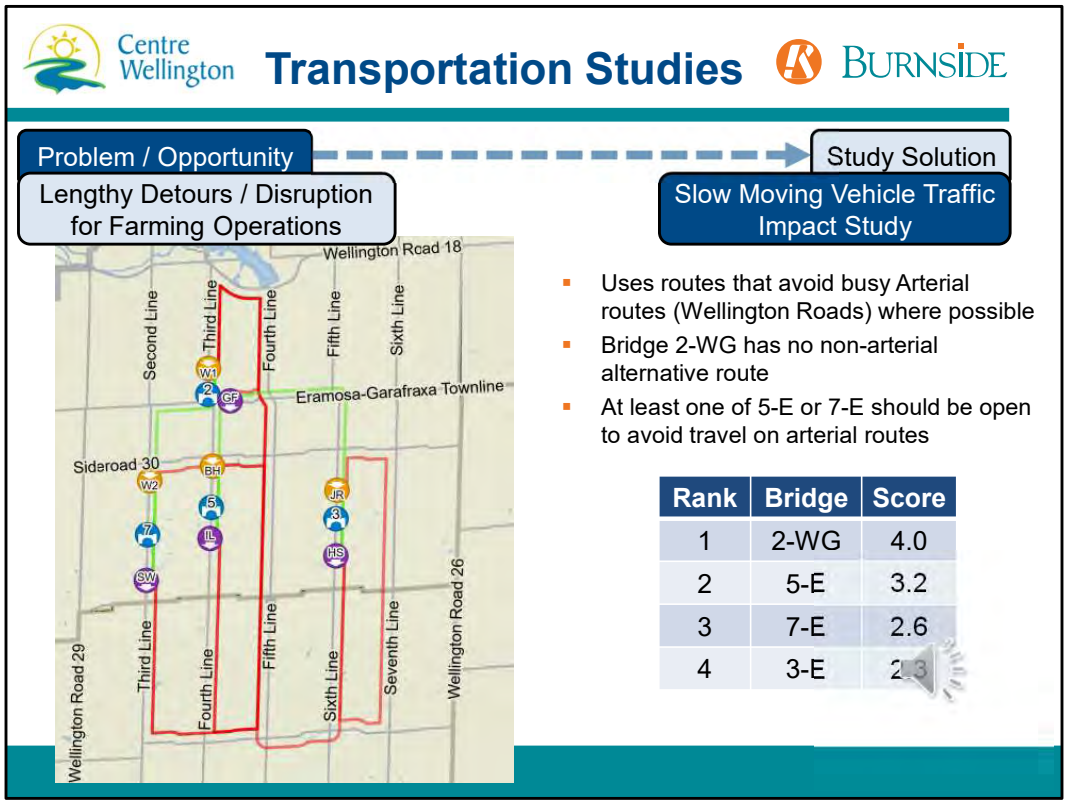
Generally, it was only response to properties south of the bridge that were affected for the routes from Fergus, as the routes to north of the bridges were unaffected from Fergus.

The additional response times related to bridge closures was weighted by the amount

of properties impacted to determine the overall ranking for the structures.

Ranking is shown on the table in this slide. The rank of 1 and a score of 4.0 indicates the bridge that offers the most benefit when opened. A score of 0 indicates no benefit if the bridge is opened as compared to closed.

For this study, Bridge 5-E provided the most benefit if opened, followed by 7-E.
Bridge 2–WG had no change in response times due to proximity to the intersection making the preferred route the same for the scenarios of the bridge being opened or closed.
Properties south of Bridge 3-E are closer to Rockwood stations and so were also not affected by the closure.



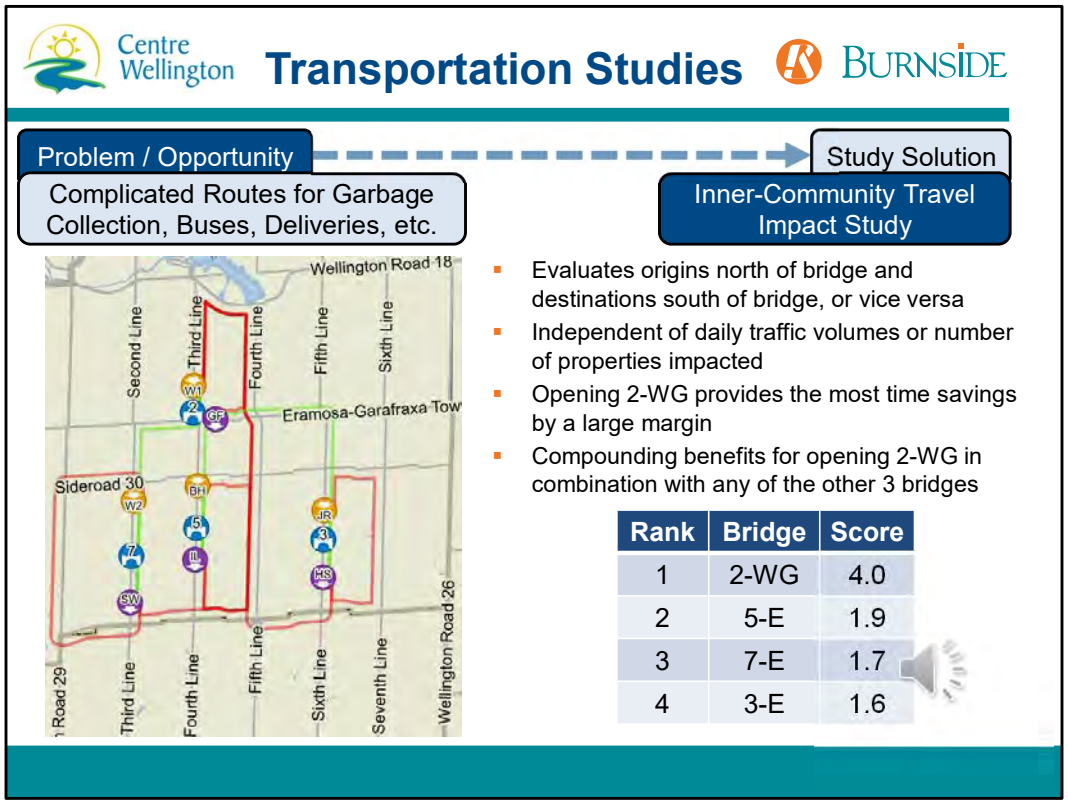
To address concerns related to length detours and disruptions for farm operations, we conducted a study that reviews the additional time for slow moving equipment to travel around bridge closures.

In recognition that it may be preferred to avoid the use of arterial routes for the safety of the operator, we reviewed routes which do not use Wellington Roads, where possible.

In some situations, such as at Bridge 2-WG, there is no route available that doesn't use county roads if the bridge is closed.

The preference to have alternative routes to County Roads and Fifth Line Eramosa is recognized, and that is why it was determined that opening 2-WG and at least one of 5-E and 7-E is preferred.

The ranking of this study is shown in the table, with 2-WG offering the most benefit when opened, followed by 5-E, 7-E and 3-E



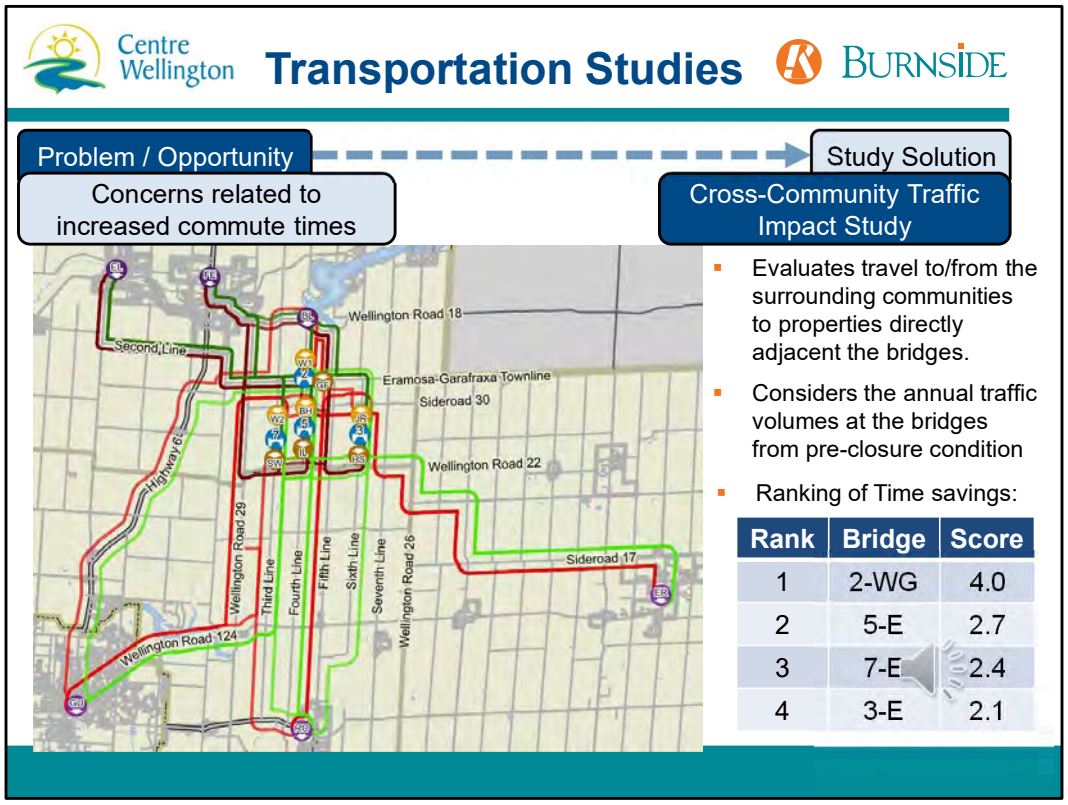
We also heard concerns that the closures cause complicated routes for buses, delivery vehicles, waste collection services, snowploughs and similar type service vehicles.

This was addressed by reviewing time impacts for travelling within the study area. These time differences were not weighted, as these types of vehicles generally have to travel the roads regardless of how many properties are present or how much traffic typically uses the roads.

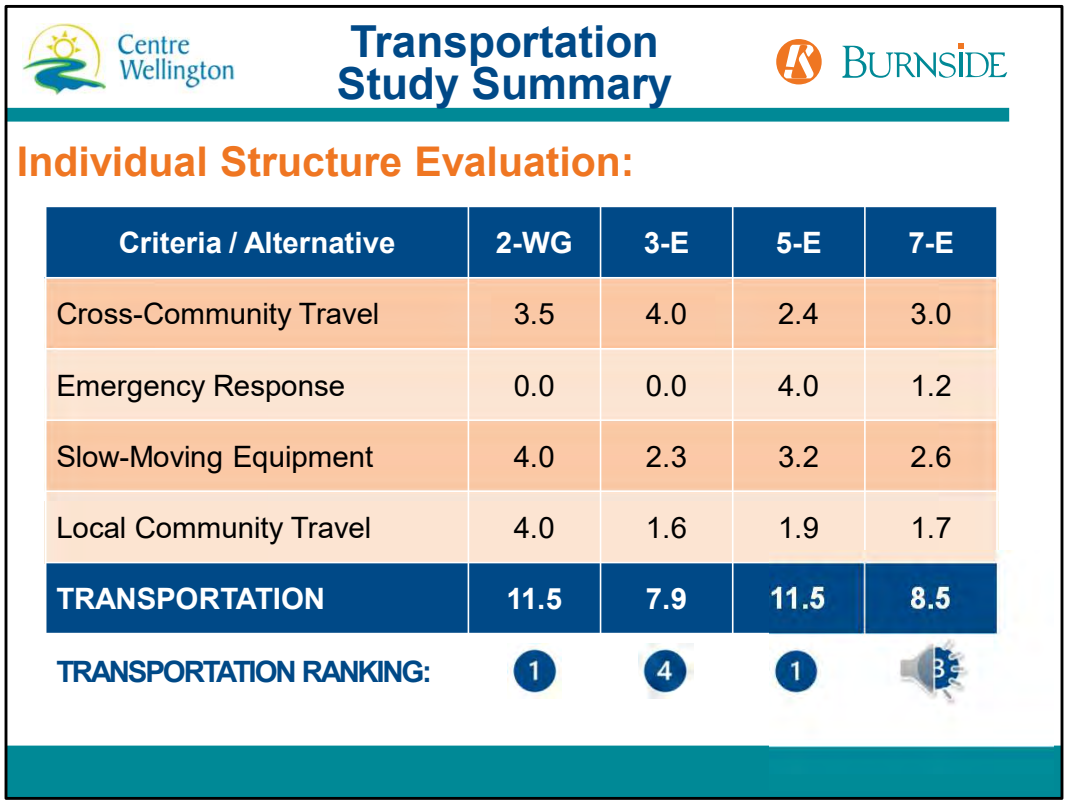
The study found that having 2-WG open offers the most time savings, with the remaining three bridges offering less improvement, with similar time savings between the three.

There are also compounding benefits when combining opening of 2-WG with other bridges.

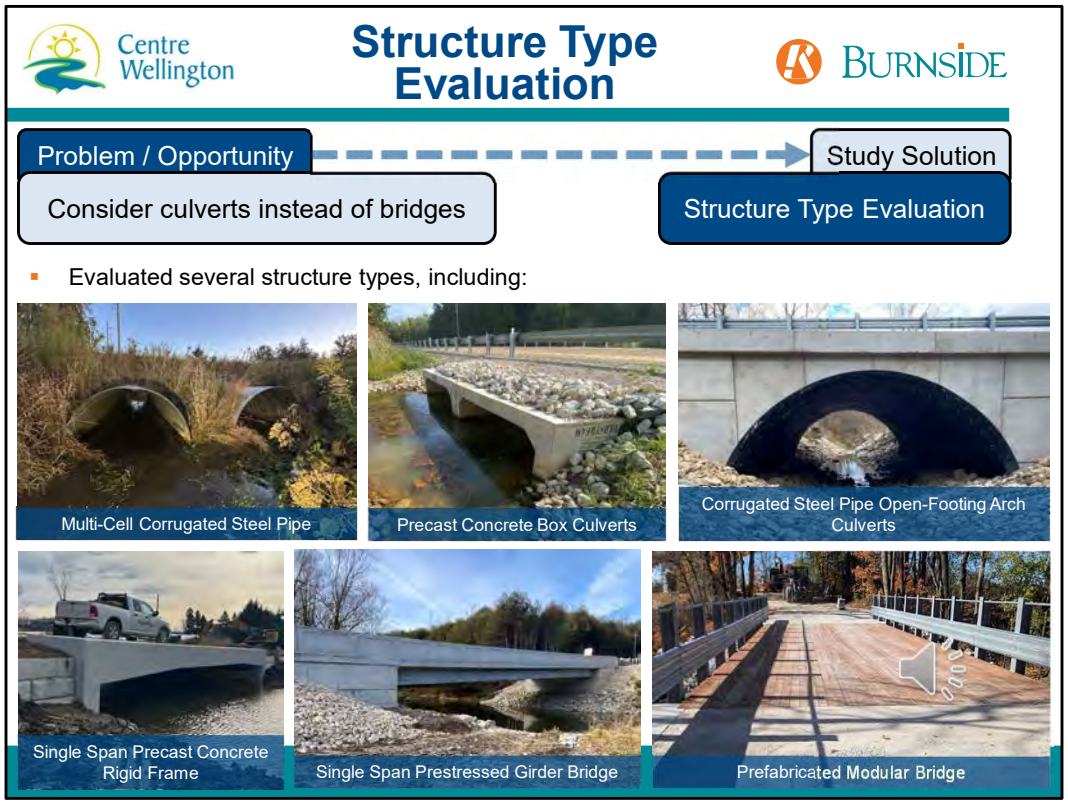
For example, with bridges 5-E and 2-WG closed, a delivery vehicle travelling from south of 5-E to north of 2-WG would take 7 minutes longer if both bridges 5-E and 2-WG were closed.



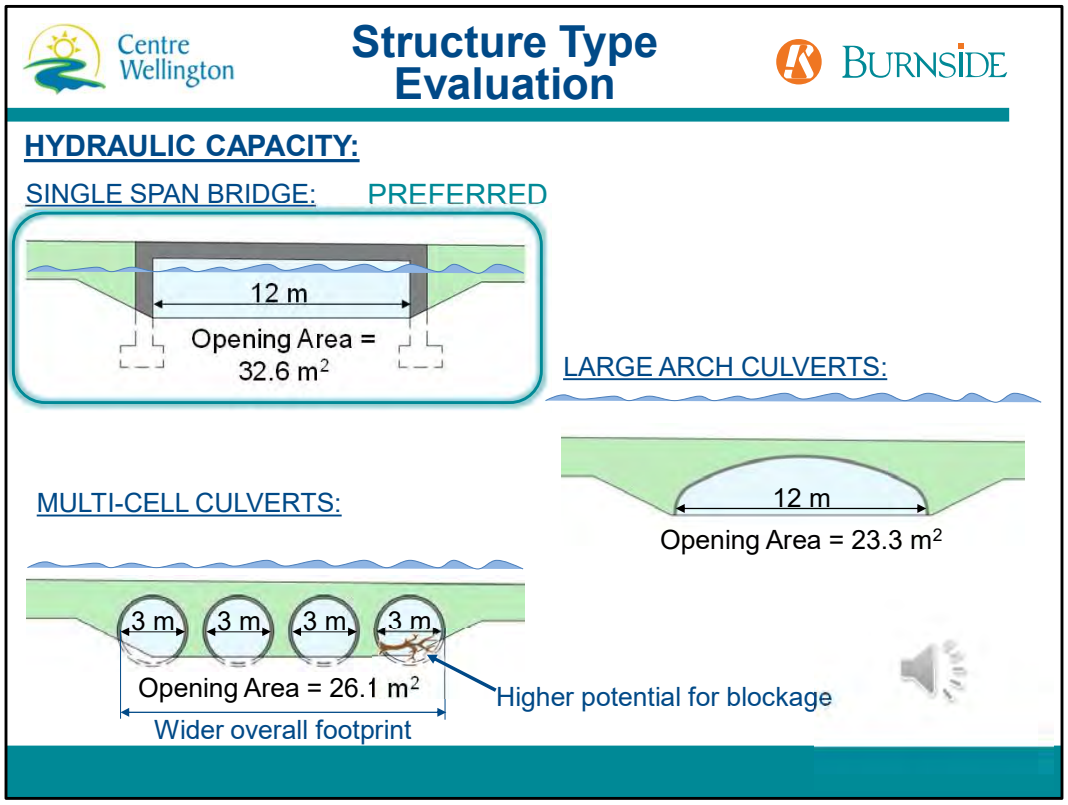
In response to your comments related to increased commute times, we conducted a study which analyzed routes from north of the bridges to Erin, Guelph and Rockwood or from south of the bridges to Elora, Fergus or Belwood.
Bridge 2-WG had the most time savings, and bridge 3-E had the least time savings;
In the overall analysis, these time savings were weighted by the pre-closure average traffic volumes



- This table provides an overview of the transportation evaluation which includes the last four studies discussed.
- In summary, 2-WG and 5-E are tied for the most benefit if open, followed by 7-E then 3-E.



- There were several comments received regarding how large bridges aren't necessary and that smaller structures or culverts could be used for cheaper replacement options.
- As part of the study, an evaluation of several structure types was completed to determine the most suitable option
- Rehabilitation was considered at each site; however, was found to be least preferred, as the extent of deterioration would not allow for load limitations or width restrictions to be eliminated.
- Several replacement options were considered , including….
- It should be noted that the pictures shown here are just for visual reference only and don't indicate the size of structures that would necessarily be required at the sites.
- Not all of these structure types may be achievable at a given site. For example, Single Span Precast Concrete Frames are generally limited to a maximum of 16m span.



- One criteria that must be considered during the selection of a structure type is the hydraulic capacity – the ability of the structure to pass water during high flow storm events.
- Need to meet criteria set out by the Conservation Authorities and the Township - ensuring there is no additional flooding upstream of the bridge and making sure the road doesn't flood over during certain storm events.
- Lets look at an example of a 12m span bridge. For this bridge, with a rectangular opening, we have opening area for water of about 32.6 m2
- Now if we look at squeezing a bunch of cheaper, smaller corrugated steel pipes into that same 12m wide channel, we have a smaller area of 26.1 m2.
- This would mean, for the same flows in the river, the water levels would be higher and cause additional flooding with the culverts.
- The smaller cells would also be more prone to blockages caused by ice or debris, which would increase flooding even further.
- The overall footprint of the culverts is also larger, and has a closed-bottom, which has negative environmental impacts of denaturalizing the channel.
- If we were to look at a large corrugated steel culvert of similar 12m span, the area available for flow is only 23.3 m2, due to the arch shape required for its strength. With this decreased opening area, there would be even higher flooding.
- For these reasons, the single span bridge is the preferred alternative, even when considering the difference in cost for the structures

Structure Type Evaluation

NARROW BRIDGES:

- Single lane bridge (up to 4.9 m) too narrow for larger agricultural equipment



4.4m – 5.3m

- Narrow Two-Lane Bridge (6.0 m) was considered but found to be less preferred than Township standard (9.1 m)

- Another recommendation made was that narrow or single lane structures be used as a cheaper alternative.
- Single lanes are only allowed to be up to 4.9m in width, which would limit the ability for wider agricultural equipment to cross the bridge, so these were not further considered given the agricultural land use of the study area.
- Two-lane bridges are allowed to be a minimum of 6.0m between barriers, which would allow most standard size agricultural equipment to fit.
- However, narrow two-lane bridges increase the chance of accidents and provide uncomfortable tunneling effects as you approach the bridge, since the barriers are immediately adjacent the 3.0m lanes
- Without a shoulder beyond the travelled lane, pedestrians would also be at risk when crossing the bridge
- Based on these reasonings, a Two-Lane bridge with the Township standard cross-section of 9.1m between barriers is preferred, even when considering the cost difference.

Preferred Structure Type

Preferred Structure Type (***if replaced***):

For Span < 16m:



Single Span Precast Concrete Rigid Frame

- 2-WG = 15.0 m
- 5-E = 15.0 m
- 7-E = 12.5 m

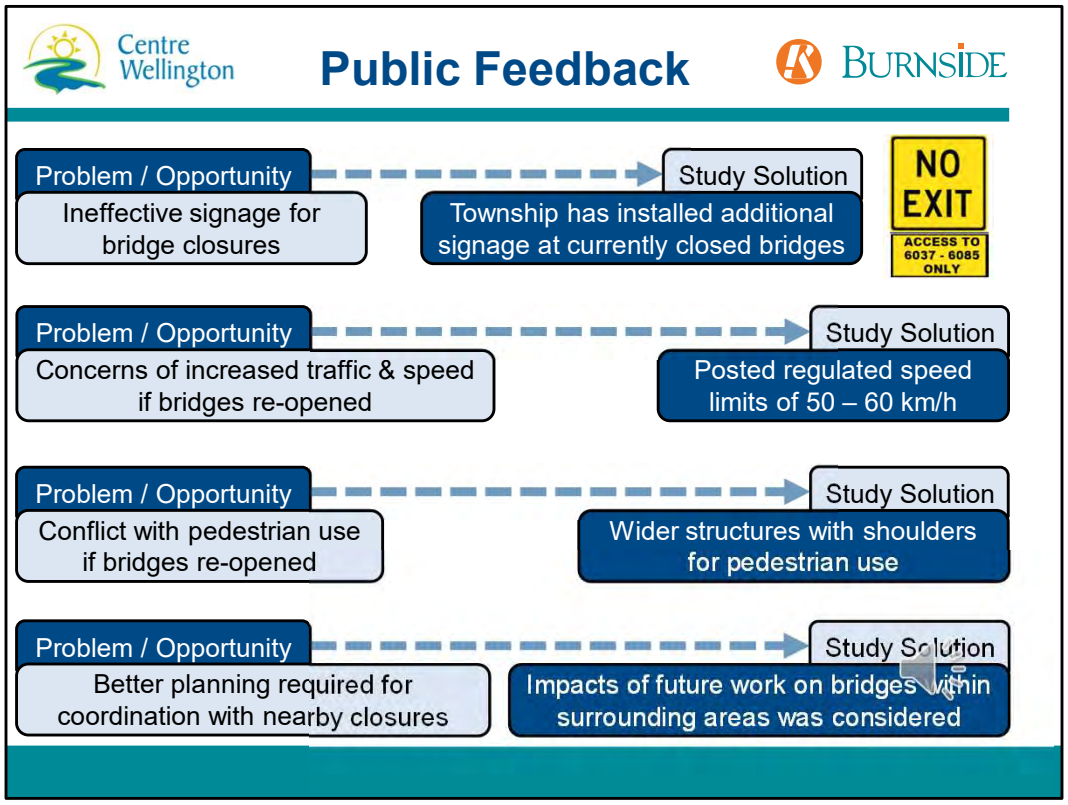
For Span > 16m:



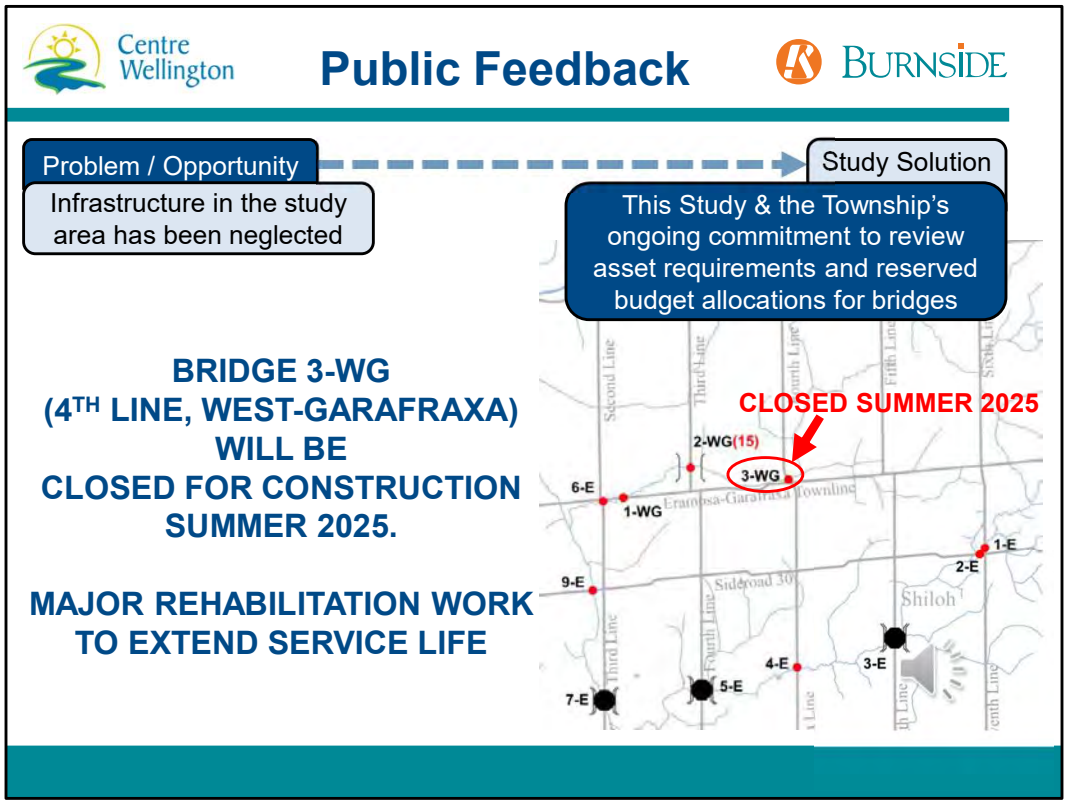
Single Span Prestressed Girder Bridge

- 3-E = 18.0 m

- The structure types were evaluated against a series of criteria based on capacity, cost, environmental impacts, service life and other criteria.
- There is an info-board around the room that has the full breakdown of scoring and evaluation.
- In summary, if the preference is for a bridge to be replaced, the results of the structure type evaluation were as follows:
- For structures with a span less than 16m, a Single-Span Precast Rigid Frame bridge was preferred.
- This applies to 2-WG, 5-E and 7-E if it is determined that any of these structures are to be replaced.
- The preliminary spans, which are based on hydraulic requirements and site geometry, are shown here.
- For spans over 16m, the preferred structure type would be a prestressed concrete girder bridge. This applies to bridge 3-E, if it is determined that Bridge 3-E is to be replaced.

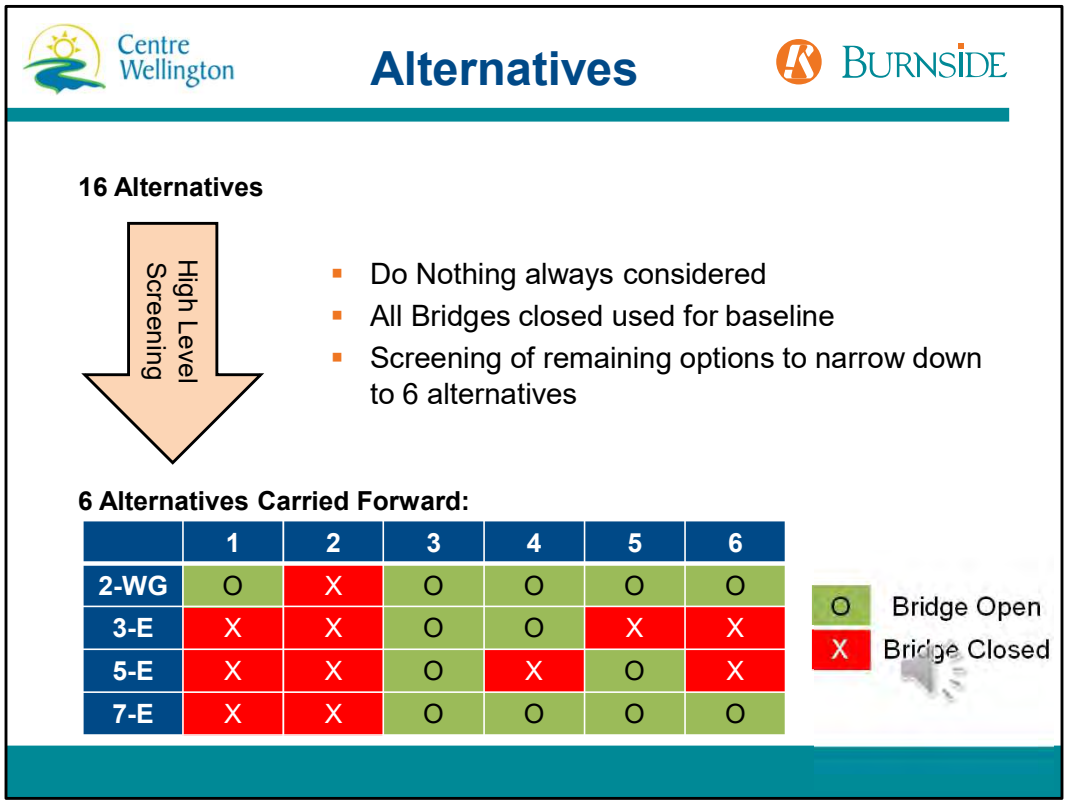


A few more problems and opportunities are shown here.
The Township has already worked to provide additional signage to address Public comments regarding ineffective signage. New signs have recently been installed to identify which properties can be accessed.
Where bridges are re-opened, a speed limit of 50-60 km/h will be posted to address concerns related to increased traffic and speeds
To address concerns related to shared pedestrian use on the roads, wider structures with shoulders have been noted as preferred for structure replacements
The study also considered the impacts of future work on bridges within surrounding areas for better future planning. For example, it is recognized that if 7-E were to remain closed, properties between it and bridge 8-E to the south would be landlocked during future work at 8-E.



Hopefully this study and the Township's ongoing commitment to reviewing the state of their infrastructure through biennial inspections, and allocating budgets for infrastructure repairs helps ease the concerns voiced in relation to the study area being neglected.

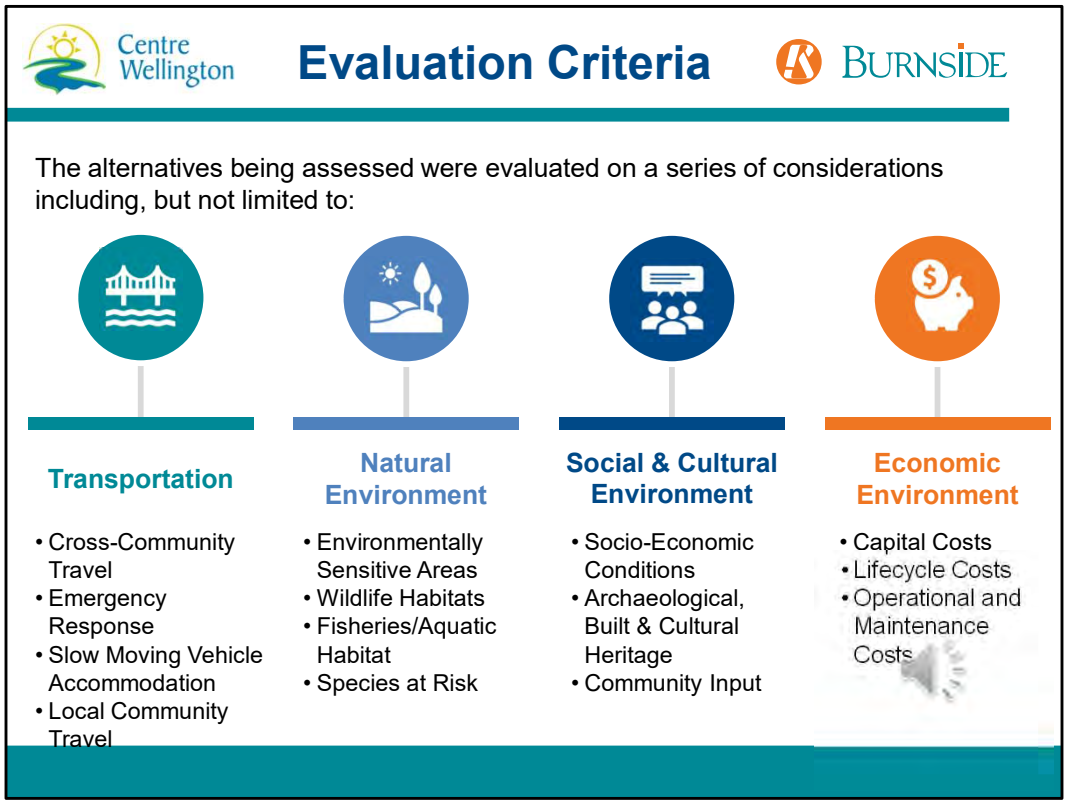
As part of these commitments, the Township would like to inform you that bridge 3-WG on forth line of West-Garafraxa will be undergoing major rehabilitation work in Summer 2025. The structure will be closed for the duration of construction.



	1	2	3	4	5	6
2-WG	O	X	O	O	O	O
3-E	X	X	O	O	X	X
5-E	X	X	O	X	O	X
7-E	X	X	O	O	O	O

- Now that we've discussed some of the background studies, lets look at the big picture
- We have to determine which combinations of bridges should be opened.
- With 4 bridges able to be opened or closed there were 16 alternatives to be considered.
- Narrowed it down based on some high-level screening criteria.
- We have to consider the 'Do Nothing option' – which is option 1 here with 2-WG open
- We also consider the 'Close all Bridges' as a baseline for comparisons, which is option 2
- Then we narrowed the remaining options to 4 scenarios.
- We noted that 2-WG should be kept open, as there is no alternative route to Wellington 18
- We also previously stated that either 5-E or 7-E should remain open to provide alternatives to busier roads of Wellington 29 or Fifth Line
- Also, in order to prevent land-locking of properties when Bridge 8-E on Third Line requires work, 7-E should be replaced.
- This narrows the remaining 4 options down to:

Alternative 3: All Bridges Open
Alternative 4: Bridges 2-WG, 3-E & 7-E Open
Alternative 5: Bridges 2-WG, 5-E & 7-E Open
Alternative 6: Bridges 2-WG and 7-E Open



- To evaluate each of the alternatives, they were scored quantitatively and qualitatively against a series of criteria related to the Technical, Natural, Social, Cultural and Economic Environments.
- The Transportation criteria considers the previously outlined aspects of travel within the community, from the community to surrounding areas, emergency response times, and farm equipment accessibility.
- The Natural environment criteria was evaluated based on how the alternatives will impact natural areas surrounding the bridges.
- This includes impacts to areas such as bird, fish and other wildlife habitats, especially in the case where species at risk are identified, and other environmentally sensitive areas such as wetlands.
- The areas of impact were evaluated based on anticipated construction activities and limits of disturbance of each alternative.
- The extent of impacts, and the ability to mitigate such impacts or provide enhancements to the natural environment determine the rating of the alternative.
- The Social and Cultural Environment includes consideration of how each alternative will impact the people and the history of the study area.
- This includes how the local community, users of the roadways and bridges, farming, businesses and other organizations within the study area are affected.
- It also includes the review of archeological potential in the area and consideration of what role the structures play on providing context to the built or

cultural heritage of the area or community interests.

- Considered as part of the Cultural Environment is that the existing Bowstring Arch structure of Bridge 3-E has cultural value based on its
- Additionally, the economic environment was also be considered. The evaluation of upfront capital and long-term maintenance cost of each option was completed to help determine the cost-benefit ratio of each all solutions.

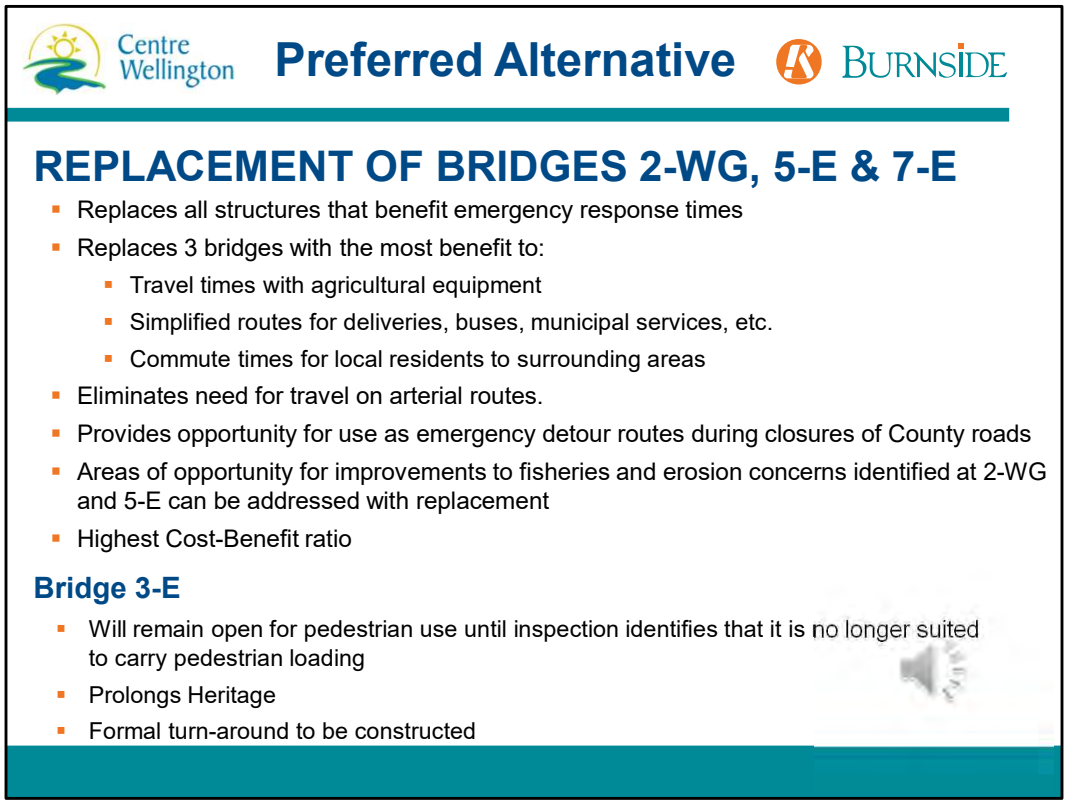
Evaluation of Alternatives

CRITERIA	Alternative 1: Do Nothing	Alternative 2: All Bridges Closed	Alternative 3: All Bridges Open	Alternative 4: Bridges 2WG, 3E & 7E Open	Alternative 5: Bridges 2-WG, 5-E & 7-E Open	Alternative 6: Bridges 2-WG & 7-E Open
Transportation	1.18	0.00	**4.00**	2.42	3.45	1.93
Environmental	1.92	**3.75**	1.25	1.69	2.02	2.21
Economic	1.85	**4.00**	0.50	1.50	1.61	2.60
Social & Cultural	1.60	1.38	2.88	**2.89**	2.79	2.18
Equal Weight	**6.55**	**9.13**	**8.63**	**8.71**	**9.87**	**8.92**

PREFERRED ALTERNATIVE

For the evaluation, we provide numerical scores out of 4 to each of the criteria based on the benefits or impacts each option provides.
This slide shows a summary of the scores for each of main criteria.

- As you can see, different scenarios are preferred for different aspects being considered.
- For example, and maybe somewhat obvious, opening all bridges is the most preferred from a transportation perspective, whereas removing all bridges is the cheapest option and is most beneficial to the environment, because the watercourse can be re-naturalized.
- However, when we look at all aspects together, and consider each of the main criteria equally weighted, the preferred alternative is to have Bridges 2-WG, 5-E and 7-E opened.



A summary of the reasoning for the preferred scenario of replacement of bridge 2-WG, 5-# and 7-E is summarized here.

This option

Replaces all structures that benefit first response times for emergency services

Replaces the 3 bridges with the most benefit to the transportation network

Eliminates the need for travel on busier county roads or Fifth Line

Provides opportunities for routes adjacent to County Roads to be used for emergency detours in the case of accidents

Provides opportunities for improvements to fisheries and erosion concerns that were identified during the natural environment review at bridges 2-WG and 5-E

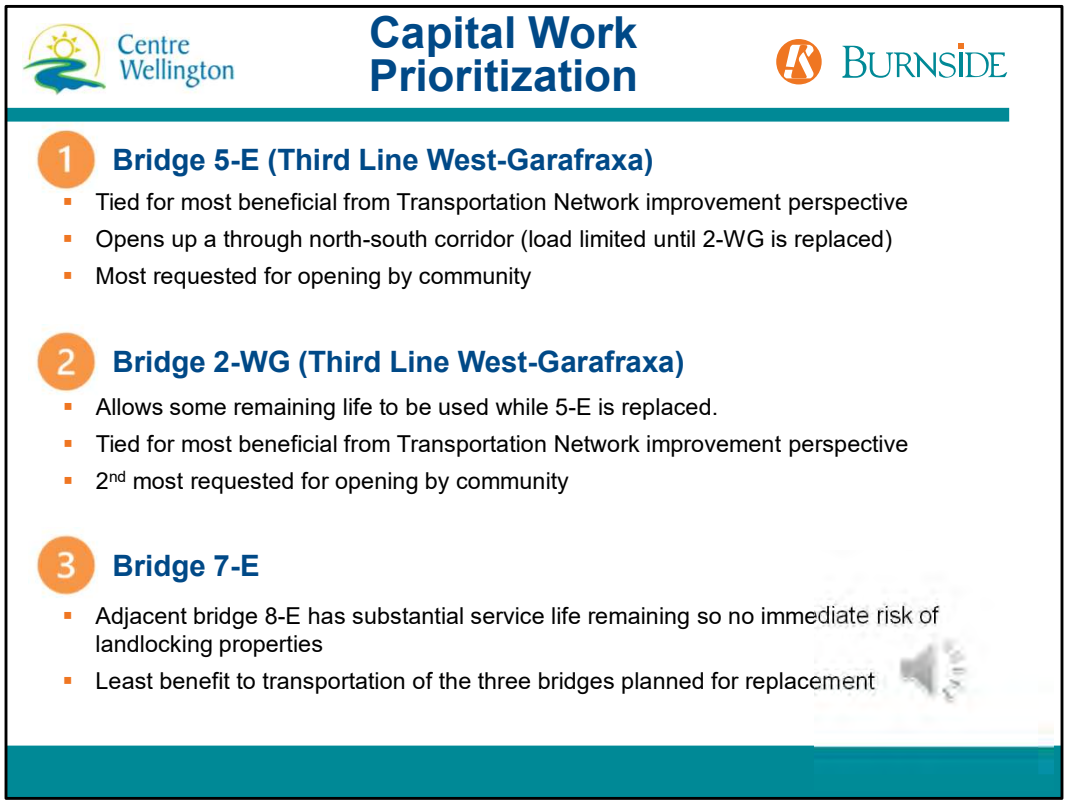
And provides the highest cost-benefit ratio for opening structures

In regards to Bridge 3-E, it is proposed that the structure will remain open for pedestrian use until inspections identify that the state of deterioration reaches a point that is no longer suitable to carry pedestrian loading.

This helps prolong the heritage aspects of 3-E that were identified during the study.

The Township will also look to construct a formal turn-around at Bridge 3-E to address

concerns related to the dead-end road.



Not all of these bridges can be replaced at once, so the Township will have to select a prioritization for replacements. Based on current conditions and information, the preliminary order of prioritization is shown here.

BRIDGE 5-E is considered the top priority for replacement.

- It is tied with Bridge 2-WG for most benefit to the Transportation Network, however is considered priority given that 2-WG remains open.
- Opening 5-E will provide a through north-south corridor, although it will be load limited until 2-WG is replaced.
- Bridge 5-E was also the most requested for opening by community

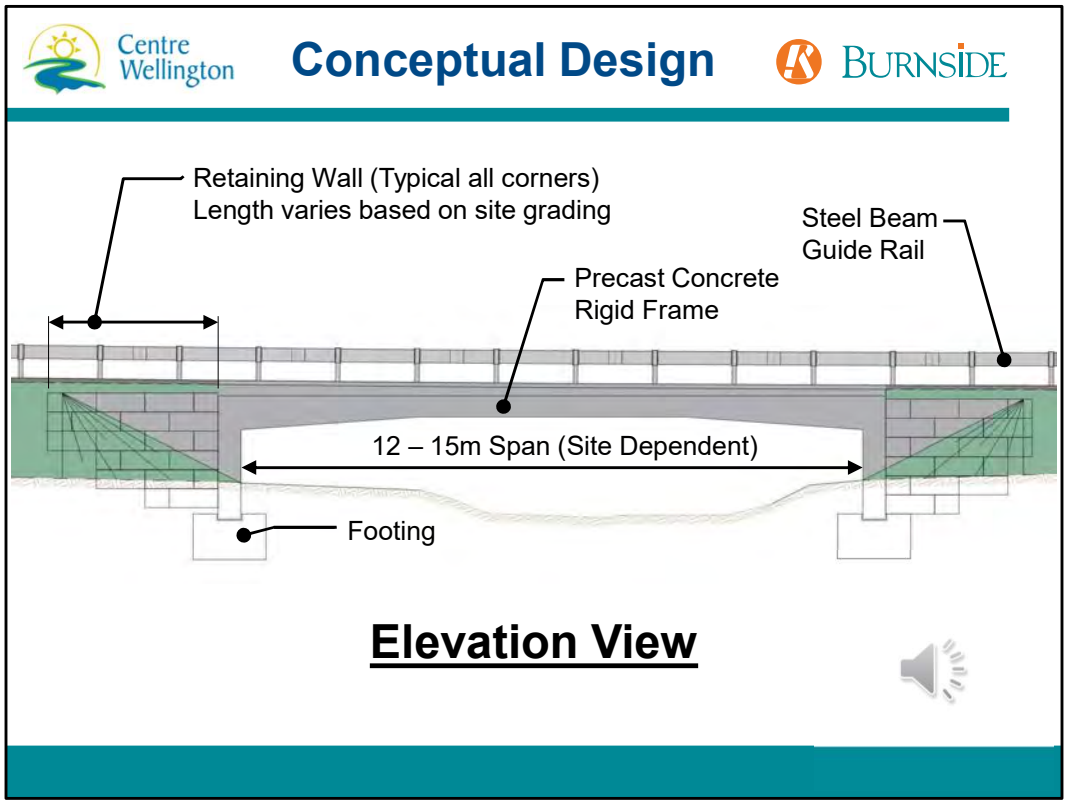
BRIDGE 2-WG would be the next priority for replacement

- Replacing the structure would remove the load limit and allow all traffic to achieve the most benefit to the Transportation Network.
- It was also the 2nd most requested for opening by community

BRIDGE 7-E

- Of the three bridges being considered for replacement, Bridge 7-E offered the lesser improvements, so it will be considered the lower priority.
- The adjacent bridge 8-E has considerable service life remaining, so there is no immediate risk of those properties between the structures being

landlocked, as previously identified

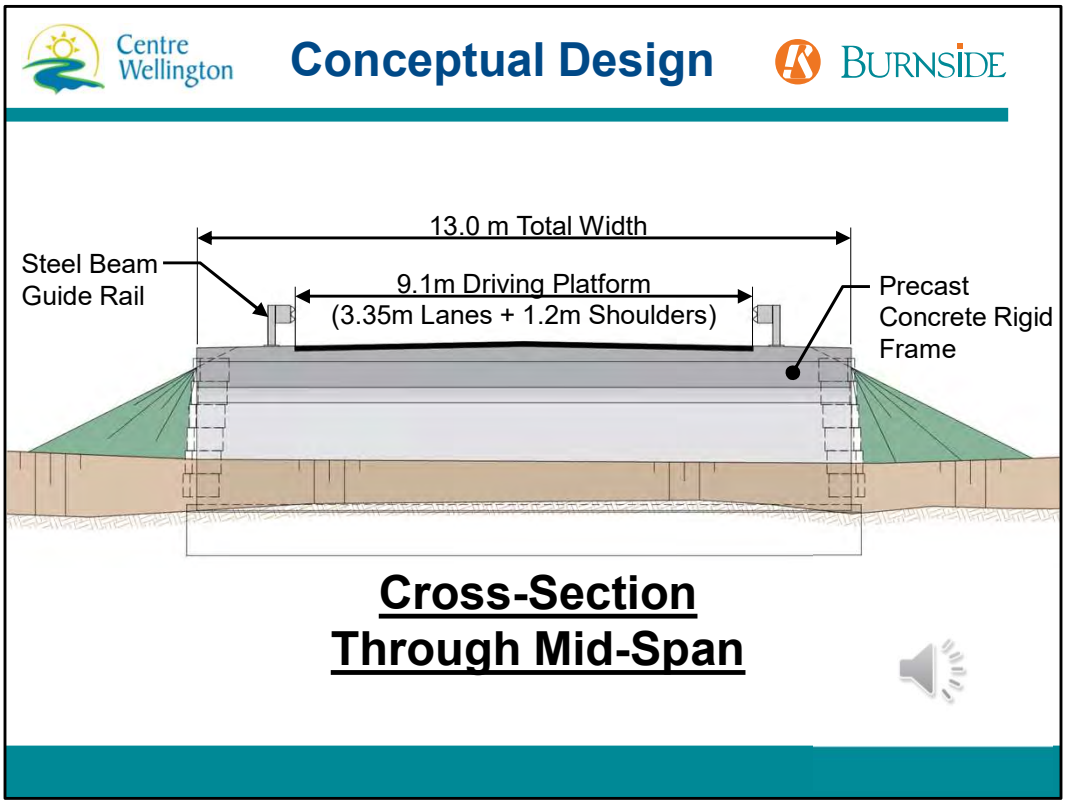


Prior to concluding this presentation, we wanted to provide an overview of the general design to be used for Bridges 2-WG, 5-E and 7-E. A typical precast concrete rigid frame structure is illustrated here from the perspective if you were to be standing in the river and looking at the bridge.

The span of the bridge will vary, depending on the hydraulic requirements of the site. The open bottom structure allows the area between the two footings on each side of the watercourse remain undisturbed, which is a benefit to the natural environment.

Block type retaining walls can be used at the four corners to limit the width of the bridge, which will help reduce costs and keep the structure off of adjacent private properties.

A Steel Beam Guide Rail barrier system is proposed to protect vehicles from entering the watercourse. This barrier type minimizes the visual impact to the surrounding natural areas in comparison to large concrete barriers and better suits the rural nature of the area.



Another view, from the perspective if you cut the bridge down the middle of the river and looked up the road is shown here.

- The Township standard 9.1m wide driving platform provides room for two 3.35m wide lanes, as well as 1.2m wide shoulders on each side of the road for increased safety of vehicles and pedestrians.
- This platform width allows for all standard agricultural equipment to pass over the bridge.

Conceptual Design



Similar bridge (during construction)

- Here is a similar job that is currently being constructed, which helps show what the final product would look similar to.
- Note that guide rail barrier is still to be added to this bridge to protect vehicles from entering the watercourse
- These structure types look somewhat similar to a culvert, without the large concrete barriers and wingwalls, which we believe will better blend with the more rural nature of this community.



Thank you for your time in reviewing this presentation. We hope that you have found the information presented informative. If you have any questions or comments, or would like to speak directly with a project team member, please do not hesitate to contact one of the members shown below.

As a reminder, there are additional information boards available for download on the Connect CW website. Any further updates, including the final project report, will be uploaded to the Connect CW webpage as they become available.

Thank you once again!

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix F

Comment Sheets and Email

Centre Wellington

Public Open House #2
Bridge and Transportation Network Study for Four Bridges (2-WG, 3-E, 5-E, 7-E)

BURNSIDE

Comment Sheet

Public Open House

December 2, 2024
6:00 p.m. – 8:00 p.m.

Centre Wellington Community Sportsplex – Gord Brown Hall

Name:

Address:

Postal Code:

Phone:

Email:

Comments/Questions/Suggestions (additional space on second page):

My preferred option for bridge 7E ~~is~~ is to keep it closed for as long as possible assuming the main bridge is in good condition. Traffic issue when 7E was open ~~are~~ are my main issue. Often car/trucks were speeding well in excess of 80km. Since the bridge has been closed in the last 4 years there has been no issue with speeding up that section of 3rd Line

Information will be collected in accordance with the *Municipal Freedom of Information and Protection of Privacy Act*. Except for personal information (e.g., name, address, phone number), all comments will become part of the public record that is available to the general public.
Project information will be made available in an alternative format upon request in accordance with the *Accessibility Standard for Information and Communication under the Accessibility for Ontarians with Disabilities Act, 2005*. If you have accessibility requirements in order to participate, please contact one of the project team members listed above.

Centre Wellington

Public Open House #2
Bridge and Transportation Network Study for Four Bridges (2-WG, 3-E, 5-E, 7-E)

BURNSIDE

Comment Sheet

Public Open House

December 2, 2024
6:00 p.m. – 8:00 p.m.

Centre Wellington Community Sportsplex – Gord Brown Hall

Name:

Address:

Postal Code:

Phone:

Email:

Comments/Questions/Suggestions (additional space on second page):

- IF + WHEN OUR BRIDGE WILL BE REOPENED WHEN WILL THIS HAPPEN
- IF OUR BRIDGE IS NOT TO BE REOPENED WHEN WILL OUR PORTION OF THE LEVE BE RETURNED
- THE CONSULTANTS FIGURES ARE NOT ACCURATE SINCE OUR BRIDGE HAS BEEN OUT FOR 11 YEARS
- I STILL THINK THE CULVERTS WOULD BE THE BEST OPTION
- I WILL BE LOOKING FOR A DETAILED LIST OF ALL THE INFRACTURE UPDATES THAT HAVE BEEN COMPLETED SINCE IT WENT INTO EFFECT
- WHERE WAS OUR COUNCIL REPRESENTATIVE TONIGHT

Information will be collected in accordance with the *Municipal Freedom of Information and Protection of Privacy Act*. Except for personal information (e.g., name, address, phone number), all comments will become part of the public record that is available to the general public.
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Centre Wellington

Public Open House #2
Bridge and Transportation Network Study for Four Bridges (2-WG, 3-E, 5-E, 7-E)

BURNSIDE

Comment Sheet

Public Open House

December 2, 2024
6:00 p.m. – 8:00 p.m.

Centre Wellington Community Sportsplex – Gord Brown Hall

Name:

Address:

Postal Code

Phone:

Email:

Comments/Questions/Suggestions (additional space on second page):

THANK YOU FOR A WELL PRESENTED EXPLANATION OF THE STUDY.
ROAD AND BRIDGE INFRASTRUCTURE IS IMPORTANT TO
PEOPLE FOR MANY REASONS BUT I FEEL THAT SAFETY AND
ECONOMIC REASONS MAY BE THE MOST IMPORTANT.
IT WILL BE INTERESTING TO SEE HOW MUCH LONGER SOME OF THESE
BRIDGES WILL BE CLOSED, ALSO WHAT THE TIME OF ACTUAL CONSTRUCTION
WILL BE.

Information will be collected in accordance with the *Municipal Freedom of Information and Protection of Privacy Act*. Except for personal information (e.g., name, address, phone number), all comments will become part of the public record that is available to the general public.
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Centre Wellington

Public Open House #2
Bridge and Transportation Network Study for Four Bridges (2-WG, 3-E, 5-E, 7-E)

BURNSIDE

Thank you

Comment Sheet

Public Open House

December 2, 2024
6:00 p.m. – 8:00 p.m.

Centre Wellington Community Sportsplex – Gord Brown Hall

Name:

Address:

Postal Code:

Phone:

Email:

Comments/Questions/Suggestions (additional space on second page):

Suggestion to improve my life (our lives) on 4th Line.

· ~~He~~ — rename road so it is not confused with a 4th Line in Enn. Deliveries sent to wrong address

- My husband had collasped lung last Jan and the emergency vehicle went to wrong side of broken bridge (but I gave clear warning on 911 call) they took more than 20+ mins. ~~He regained~~

- My husband lived but was in critical care during recovery.

- First responders could have walked over bridge but did not..

+ I would like tunnels for animals to cross under roads

Information will be collected in accordance with the *Municipal Freedom of Information and Protection of Privacy Act*. Except for personal information (e.g., name, address, phone number), all comments will become part of the public record that is available to the general public.

Project information will be made available in an alternative format upon request in accordance with the *Accessibility Standard for Information and Communication under the Accessibility for Ontarians with Disabilities Act, 2005*. If you have accessibility requirements in order to participate, please contact one of the project team members listed above.

Andrew Dawson

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Tuesday, December 17, 2024 8:09 AM
To:
Cc: Andrew Dawson; Mishaal Rizwan
Subject: RE: Township of Centre Wellington, Notice for Public Open House 2 - Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E, & 7E)

I am the Township's representative for the Transportation Network Study for Four Bridges. I am sorry that you were unable to attend the public meeting earlier this month. I understand your disappointment with study outcomes. Please find below responses to the questions that you provided.

1. **Emergency services** - My Horse arena was an insurance claim from a 1980's barn fire. What exposure or liability does the township have, if a closed bridge prevents first responders from adequately attending a fire, or worse a medical emergency.

I sincerely hope that there are no issues with the first responders attending to any emergency to any properties in the area of any of the closed bridges in Centre Wellington. Before dispatching from the firehall, Centre Wellington Fire Rescue refer to an emergency response map that shows all current limitations and road restrictions to ensure that a direct clear route is selected. The Transportation Network Study for Four Bridges also analyzed the impacts to emergency response. The emergency response analysis has shown that emergency response times from Centre Wellington emergency response out of the Fergus area to your property at 6th Line would not be impacted by the closure of any of the bridges in the study area, including Bridge 3-E on Sixth Line. The quickest emergency response route utilizes Wellington Road 18, to Fourth Line, to Eramosa-Garafraxa Townline and then to Sixth Line to your property. This route is not affected by any bridge closures.

2. **School buses** use my farm yard and laneway to safety turn around as the pad located at the base of the bridge, at the bottom of the hill that the township created is inadequate, un-fit and un-safe for school bus use. Don't believe me - ask them.

An outcome from the preferred alternative not to replace the 6th Line bridge crossing also included a recommendation to create formal turn around areas to allow vehicles such as school bases and snowplows better alternative than using driveway entrances.

3. 6th line most likely has the largest tax base which includes the Herwynen Sawmill, Gravel pit, multiple homes and farms. How is this bridge not a priority based on tax dollars and road use.

The Transportation Network Study for Four Bridges uses a number of evaluation criteria factors to determine alternatives for each bridge crossing these factors are as follows:

Transportation
- Cross-Community Travel
- Emergency Response
- Slow Moving Vehicle Accommodation
- Local Community Travel

Natural Environment
- Environmentally Sensitive Areas
- Wildlife Habitats

- Fisheries/Aquatic Habitat
- Species at Risk

Social and Cultural Environment
- Socio-Economic Conditions
- Archaeological, Built & Cultural Heritage
- Community Input

Economic Environment
- Capital Costs
- Lifecycle Costs
- Operational and Maintenance Costs

The evaluation has included for the average number of users of the roadway (pre-closure), the number of properties and farms associated with this stretch of 6th line and has considered the local businesses impacted by any closures. Alternatives which included opening bridge 3-E did have a higher score for the Socio-Economic aspect of the analysis, given the presence of businesses and Herwynen Sawmill; however, when considering all other aspects of the analysis, the preferred alternative still remains to not replace the 6th Line bridge, as it was outweighed by other aspects. As it relates to the gravel pit and even the sawmill, large trucks hauling heavy loads should be utilizing routes along more arterial routes such as Wellington Roads or Fifth Line, as these roadways are built to handle heavier traffic.

4. You are devaluing my property by closing a bridge that touches my property on both sides of the river. Shall I expect a property tax reduction?

No.

5. I run a horse boarding and hay business out of my farm. You are affecting my business, forcing my customers to travel further distances.

I understand this inconvenience and regret the impact to your business.

6. Throughout the last two years, I have found people camping at the bridge. What guarantee can you give me that this will not be an issue ongoing once the bridge is permanently closed.

Camping on a public road allowance is illegal. The OPP will need to be contacted if this activity persists.

7. The 6th line bridge was identified for replacement during the previous 10 year budget cycle, which means it's been on the radar for over 15 years, if you use your original 2026 replacement date. How has this project slipped through the cracks, while other projects of other lesser importance take priority?

The 10 year budget cycle contains a great number of bridge and culvert replacement and repair options and assumptions. It is not until the Township has more details that the projects are determined to be scheduled and adequately funded with available budgeted funding.

7. Finally, years a go we were re-zoned from Rockwood/ Eramosa to Centre Wellington. Why? Centre Wellington cannot afford to support us. The new township line is county rd 22. If you look south of 22. Every bridge has been repaired and fully functioning. Many roads are paved. If you can't afford to service us? Please re-zone us back to Rockwood/ Eramosa.

The idea of adjusting the Township limits is not likely. Township boundaries have been set in a Township amalgamation process set out over 25 years ago.

Again, I understand that the study outcomes are not what you had anticipated. Please contact me if you wish to discuss further.

Regards,

Adam.



Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Sent: December 13, 2024 2:54 PM
To: Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Cc: Adam Dickieson <ADickieson@centrewellington.ca>
Subject: RE: Township of Centre Wellington, Notice for Public Open House 2 - Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E, & 7E)

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Hello
I just wanted to touch base and let you know that we have received your comments / concerns. We will look to provide you a response in the coming week once we have had a chance to discuss further with the Town and the project team.

Enjoy your weekend.

Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From:
Sent: Monday, December 09, 2024 6:52 PM
To: Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Cc: Andrew Dawson <Andrew.Dawson@rjburnside.com>; Adam Dickieson (Centre Wellington) <adickieson@centrewellington.ca>
Subject: Re: Township of Centre Wellington, Notice for Public Open House 2 - Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E, & 7E)

Hi Mishaal,

Unfortunately I was travelling for work when this last meeting occurred. I have to say I'm EXTREMELY disappointed with your offices decision and direction. My concerns are:

1. **Emergency services** - My Horse arena was an insurance claim from a 1980's barn fire. What exposure or liability does the township have, if a closed bridge prevents first responders from adequately attending a fire, or worse a medical emergency.

2. **School buses** use my farm yard and laneway to safety turn around as the pad located at the base of the bridge, at the bottom of the hill that the township created is inadequate, un-fit and un-safe for school bus use. Don't believe me - ask them.

3. 6th line most likely has the largest tax base which includes the Herwynen Sawmill, Gravel pit, multiple homes and farms. How is this bridge not a priority based on tax dollars and road use.

4. You are devaluing my property by closing a bridge that touches my property on both sides of the river. Shall I expect a property tax reduction?

5. I run a horse boarding and hay business out of my farm. You are affecting my business, forcing my customers to travel further distances.

6. Throughout the last two years, I have found people camping at the bridge. What guarantee can you give me that this will not be an issue ongoing once the bridge is permanently closed.

7. The 6th line bridge was identified for replacement during the previous 10 year budget cycle, which means it's been on the radar for over 15 years, if you use your original 2026 replacement date. How has this project slipped through the cracks, while other projects of other lesser importance take priority?

8. Finally, years a go we were re-zoned from Rockwood/ Eramosa to Centre Wellington. Why? Centre Wellington cannot afford to support us. The new township line is county rd 22. If you look south of 22. Every bridge has been repaired and fully functioning. Many roads are paved. If you can't afford to service us? Please re-zone us back to Rockwood/ Eramosa.

I look forward to your reply and further discussions.

Best regards.

> On Nov 20, 2024, at 4:18 PM, Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com> wrote:
>
> Hi
>
> Further to our call, thank you for confirming your email address for us. Please find attached the Notice for the upcoming Open House as discussed.

Thank you,


Mishaal Rizwan
Environmental Planner

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Unit 20, Guelph, Ontario, N1H 1C4
Office: 800-265-9662 Direct Line: 226-343-7014
www.rjburnside.com

From: Mishaal Rizwan
Sent: Thursday, November 14, 2024 2:32 PM
Cc: Adam Dickieson (Centre Wellington) <adickieson@centrewellington.ca>; Andrew Dawson <Andrew.Dawson@rjburnside.com>
Subject: Township of Centre Wellington, Notice for Public Open House 2 - Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E, & 7E)

Good afternoon,

On behalf of the Township of Centre Wellington, please find attached the Notice for Public Open House #2 for the Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E, & 7E).

December 2, 2024, 6:00 pm – 8:00 pm
Centre Wellington Community Sportsplex – Gord Brown Hall
550 Belsyde Avenue East, Fergus

If you have any questions about the study, please contact one of the Project Team members below:

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0
519-846-9691 x 355
adickieson@centrewellington.ca

Andrew Dawson, P. Eng.
Consultant Project Manager
R.J. Burnside & Associates Ltd.
292 Speedvale Ave W. #20, Guelph, ON N1H 1C4
705-797-4310
andrew.dawson@rjburnside.com

Best regards,


Mishaal Rizwan
Environmental Planner

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Unit 20, Guelph, Ontario, N1H 1C4
Office: 800-265-9662 Direct Line: 226-343-7014
www.rjburnside.com

<Notice of Public Open House - 4 Bridges Transportation Study.pdf>

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix B.5

Indigenous Communities Consultation Records

Tricia Radburn

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Thursday, June 20, 2024 4:09 PM
To: janicewilliams@hdi.land
Cc: Andrew Dawson; Crystal Ferguson; Tricia Radburn; communications@hdi.land; jocko@sixnationsns.com; info@hdi.land; 1749resource@gmail.com
Subject: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24
Attachments: 058117_Upcoming Study_HDI.pdf

Janice,

As follow-up to a call to your office, I was requested to provide details through an email as you are currently working out of the office. I am hoping that the attached letter was received via Canada Post by your office last week. Please find attached a copy of the same letter that provides the details of an upcoming Township of Centre Wellington study. Let me know if project notifications are being received and if there are others that the Township should include in project correspondence.

Re: Upcoming Study to Review Four Bridges in Centre Wellington (Former West Garafraxa and Eramosa Townships)

The Township of Centre Wellington is scoping for a Municipal Class Environmental Assessment (MCEA) to evaluate options for four (4) bridges which are either currently closed to vehicular traffic or have a load restriction due to their poor condition. The Bridge and Transportation will consider the role of these bridges in the Township's road network and their value in connecting points across the community when determining the preferred alternative.
A summary of the project is as follows:

Project Lead:	• Township of Centre Wellington
Project consultant:	• R.J. Burnside & Associates Limited
Approval Process:	• Municipal Class EA
Project Location:	• Four bridges in the former West Garafraxa and Eramosa Townships (refer to attached letter for a map)
Duty to Consult:	• The province has delegated the responsibility for consultation to the Township of Centre Wellington
Project Purpose:	• To assess whether one or more of the four bridges should be reopened or remain closed.
Studies to be completed:	• Traffic study to review traffic patterns, volumes and flow. • Archaeological screening and additional archaeological studies, if required. • Cultural Heritage Screening and additional heritage studies, if required. • Ecological study using existing records and field observations. • Geotechnical study to assess soil conditions and stability, if required.
Potential impacts to Treaty/Aboriginal Rights:	• To be determined, based on information received from your community.

We are notifying you of the upcoming project (see attached letter) in hopes that you can assist our project team in determining if your community may hold interest in this project. Your comments are welcome and will be taken into consideration throughout this study.
As new information is made available the Bridge & Transportation Network Study for Four Bridges | Connect CW Township web site will be updated as well as regular notifications.
If you have an interest in this project, please contact one of the Project Team members below. The team is happy to provide additional information, provide opportunities for your community to participate in studies or review project reports, or meet with team members to answer questions and resolve concerns.

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0
519-846-9691 x 355
adickieson@centrewellington.ca

Andrew Dawson, P. Eng.
Consultant Project Manager
R.J. Burnside & Associates Ltd.
292 Speedvale Ave W. #20, Guelph, ON N1H 1C4
705-797-4310
andrew.dawson@rjburnside.com

Information will be collected in accordance with the *Municipal Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record.

Sincerely,
Adam Dickieson

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Tricia Radburn

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Wednesday, July 17, 2024 8:41 AM
To: Shannon Hill; Raechelle Williams
Cc: HDI Administration; Todd Williams; Sharann Martin; Tricia Radburn; Andrew Dawson
Subject: RE: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Shannon, Raechelle,

I am back in the office and getting caught up on my emails. Please send the agreement to me when it has been prepared.

Thank you,
Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Sent: Tuesday, July 9, 2024 12:16 PM
To: Shannon Hill <shannonhill@hdi.land>; Raechelle Williams <raechellewilliams@hdi.land>
Cc: HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>; Tricia Radburn <Tricia.Radburn@rjburnside.com>
Subject: RE: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

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Shannon,
Thank you for the update! Is it possible that you could cc me when the agreement is sent to Adam D? Given that Adam will be away until the 15th , I'd like to keep the ball rolling on this and can discuss the agreement with Adam's manager at the Township in his absence.

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Shannon Hill <shannonhill@hdi.land>
Sent: Tuesday, July 09, 2024 10:48 AM
To: Andrew Dawson <Andrew.Dawson@rjburnside.com>; Raechelle Williams <raechellewilliams@hdi.land>
Cc: HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>; Tricia Radburn <Tricia.Radburn@rjburnside.com>
Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

The agreement is ready to be sent out to Adam Dickieson, it will be sent later today

Thank you,

Shannon Hill
Finance Assistant
Haudenosaunee Development Institute
PO Box 714
Ohsweken, Ontario N0A 1M0

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Sent: Tuesday, July 9, 2024 10:23 AM
To: Raechelle Williams <raechellewilliams@hdi.land>
Cc: Shannon Hill <shannonhill@hdi.land>; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>; Tricia Radburn <Tricia.Radburn@rjburnside.com>
Subject: RE: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Raechelle,
Adam Dickieson from the Township is currently out of office, so I will respond on his behalf.

R.J. Burnside's staff will be conducting the environmental field studies listed below. I have cc'd Tricia Radburn on this email, who will be coordinating those studies. It would be ideal for us to have the studies completed within the next couple of weeks, but we do not have a definitive date set yet, as we wanted to confirm HDI's level of involvement and finalize any agreements before scheduling.

As such, I believe the next step will be the review of HDI's agreement for these works with the Township once it is received. Once an agreement is made, we can coordinate scheduling the work between your team and Tricia.

We look forward to hearing from Todd and Sharran as well regarding the archaeological items!

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Raechelle Williams <raechellewilliams@hdi.land>
Sent: Friday, July 05, 2024 3:34 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>

Cc: Shannon Hill <shannonhill@hdi.land>; Andrew Dawson <Andrew.Dawson@rjburnside.com>; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>
Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Sge:no Adam,

To answer your question regarding the natural environment studies, yes HDI will have a monitor be present for the studies below and will also like to receive the draft environmental impact study report for review.

- ELC
- Botanical/Tree Inventory
- Aquatic Habitats survey
- Terrestrial Habitats survey

Can you forward the consultant who is performing these surveys scheduled and we can arrange to have a monitor participate with them in the field.

As for the archaeology portion of this project, I will leave this response with my colleagues Todd Williams and Sharann Martin.

Regards,

Raechelle Williams

HDI Environmental Supervisor

Haudenosaunee Development Institute

P.O. Box 714

Ohsweken, ON

N0A 1M0

Ph: 519-445-4222

(Direct): 519-802-9402

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On Thu, Jul 4, 2024 at 11:18 AM Adam Dickieson <ADickieson@centrewellington.ca> wrote:

> Shannon and Raechelle,

Nya:weh / Thank-you for your interest in the Township's project. We are looking forward to working with your community and hearing further information related your community's interest in the proposed activities.

In regards to Shannon's request for information, please see responses below:

1. **Project name and address:**

   Bridge and Transportation Network Study for Four Bridges
   Locations:
   Bridge 2-WG = Third Line, approximately 330 m north of Eramosa-Garafraxa Townline (https://maps.app.goo.gl/h3JsWbNqG87vK8Xp8)
   Bridge 3-E = Sixth Line, approximately 1.9 km north of Wellington Road 22 (https://maps.app.goo.gl/WKgbhkFX54BoNJhS9)
   Bridge 5-E = Fourth Line, approximately 1.5 km north of Wellington Road 22 (https://maps.app.goo.gl/6TfHwJGcC8BMhpgV8)
   Bridge 7-E = Third Line, approximately 1.5 km north of Wellington Road 22 (https://maps.app.goo.gl/FUBE7fj7WQKZPT6g9)

2. **Proper company name and address**: Township of Centre Wellington, 1 MacDonald Square, Elora, ON N0B 1S0
3. **Contact information for the individual responsible for executing the agreement (Name, phone number and email):** Adam Dickieson, adickieson@centrewellington.ca
4. **Invoicing information (Name and email):** Adam Dickieson, adickieson@centrewellington.ca

To help us understand your desired level of involvement, I am providing a brief overview of the project status and anticipated impacts below for your consideration and ask that you outline which specific aspects of the project you have interest in, and whether that interest is field monitoring and/or document review:

The four bridge structures are watercourse crossings of the Speed River and its tributaries, which are part of the Grand Rivier watershed. The existing structures are narrow, single lane structures that were constructed between 1919 and 1923. Three of the four structures have been closed to traffic and the fourth has been load restricted to 15 tonnes due to the deteriorated state and concerns regarding load carrying capacity. The multiple closures of structures within this study area has resulted in disruptions to transportation connectivity and the Township is looking to confirm their preferred approach for this system of structures. The study will examine the effects of opening several combinations of structures, including no structures or all structures.

The potential impacts to the natural environment will be dependent on the selective alternative at each site. From a preliminary perspective, we are looking at considering several options at each site, including:

- Do Nothing (deteriorated structures remain in place and closed to traffic)
- Permanent Removal of Structure
- Rehabilitation of Structure (likely to be deemed unfeasible due to the state of the structures)
- Replacement of Structure

Based on these alternatives we can foresee that potential impacts to the natural environment could possibly include:

- Disturbance (excavation / re-grading) of the study area (for bridge replacement alternative)
- Temporary in-water works, including temporary isolation of the structure and localized unwatering of the watercourse to allow works to be completed in the dry.

- Vegetation removals (if required) for widening of structure or roadway, regrading, construction access, etc.

We are in the process of undergoing desktop and field studies of the natural, heritage, built and economic environments to determine areas of interest and possible impacts.
A Cultural Heritage Evaluation and a Stage 1 Archaeological Assessment (AA) study have been completed on all four structures to date. Only Bridge 3E was found to have cultural heritage value/interest. A Heritage Impact Assessment will be scheduled for Bridge 3E, tentatively in August, to provide further context of impacts to heritage features and recommendations for conservation of these interests. The Stage 1 AA found that all bridges had low archaeological potential and indicated that no further investigations are required for the sites. The draft reports of these studies are provided at the link below for your reference. **Can you please con□rm i□you intend to review these dra□t reports and, i□so, could you please provide comments by July 19, 2024**.
058117 - CHER and Stage 1 AA

From a Municipal Class Environmental Assessment perspective, the applicable schedule of these projects will be further reviewed and determined based on results of background studies. At current, it is anticipated that Bridges 2-WG, 5-E and 7-E will be exempt from the Environmental Assessment Act as per Project Description 31a of the MCEA Document as the studies completed indicated no heritage value or interest. Pending the results of the Heritage Impact Assessment (HIA), the Township may look to conserve heritage attributes of Bridge 3-E in accordance with the HIA and therefore that project may also be considered exempt through the Archaeological Screening Process (ASP). In order to complete the ASP and confirm the appropriate project schedule, **can HDI con□rm the □ollowing**:

- Is there Aboriginal knowledge of archaeological sites on or within 500 metres of Bridge 3-E?
- Is there Aboriginal knowledge or historically documented evidence of past Aboriginal use on or within 500 meters of Bridge 3-E?
- Is there aboriginal knowledge of marine archaeological sites on or within 500 metres of Bridge 3-E?

We are scheduling field work for the natural environment studies in the coming weeks; however, we would like to confirm your preferred level of involvement in these field studies with you prior to them being undertaken. **Can you please con□rm whether your request is to have a □ield monitor present □or the studies below, or just to receive the dra□t environmental impacts study report □or review?**

- Ecological Land Classification
- Botanical / Tree Inventory
- Aquatic Habitats survey
- Terrestrial Habitats survey

We hope that the above information allows you to confirm your desired level of involvement in the project and better outline the scope and terms of an agreement associated with the project. Should you have any questions or like further clarification on any aspects of this study, please do not hesitate to contact a member of the project team below. If you feel it would be beneficial, we could set up a meeting for further discussions regarding the project and agreement.

Adam Dickieson Engineering Services Coordinator Township of Centre Wellington 1 MacDonald Square, Elora, ON N0B 1S0 519-846-9691 x 355 adickieson@centrewellington.ca	Andrew Dawson, P. Eng. Consultant Project Manager R.J. Burnside & Associates Ltd. 292 Speedvale Ave W. #20, Guelph, ON N1H 1C4 705-797-4310 andrew.dawson@rjburnside.com

Regards,
Adam.



Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

O□ice located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Shannon Hill <shannonhill@hdi.land>
Sent: Monday, July 1, 2024 5:27 PM
To: Raechelle Williams <raechellewilliams@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>
Cc: andrew.dawson@rjburnside.com; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>
Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

You don't often get email from shannonhill@hdi.land. Learn why this is important

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Afternoon,

Could you please send the following details to get the agreement in order?

Could you please send us the details below:

1. Project name and address
2. Proper company name and address
3. Contact information for the individual responsible for executing the agreement (Name, phone number and email)
4. Invoicing information (Name and email)

We'll also need the PIF number licensee's name and email (if known)

Once this information is received agreement will be generated and sent.

Thank you,

Shannon Hill

Finance Assistant
Haudenosaunee Development Institute
PO Box 714
Ohsweken, Ontario N0A 1M0

From: Raechelle Williams <raechellewilliams@hdi.land>
Sent: Wednesday, June 26, 2024 4:30 PM
To: adickieson@centrewellington.ca <adickieson@centrewellington.ca>
Cc: andrew.dawson@rjburnside.com <andrew.dawson@rjburnside.com>; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Shannon Hill <shannonhill@hdi.land>
Subject: Fwd: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Sge:no Adam,

Nya:weh for reaching out regarding this study to review the four existing bridges in the Township of Centre Wellington. We would like to participate in this project and be involved with any infield and report reviewing for the natural environment assessment and archaeology assessments. Once the evaluation is completed, we wish to have a construction monitor be involved on any bridges requiring any rehabilitation or reconstruction.

I will have one of my colleagues prepare a 2024 Monitoring Agreement and send it to you. Once this is completed and signed by both parties, please forward the scheduled work to Todd Williams, archeaology@hdi.land and myself.

Nya:weh,

Raechelle Williams

HDI Environmental Supervisor

Haudenosaunee Development Institute

P.O. Box 714

Ohsweken, ON

N0A 1M0

Ph: 519-445-4222

(Direct): 519-802-9402

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---------- Forwarded message ---------
From: **Tracey General** <traceyghdi@gmail.com>
Date: Wed, Jun 12, 2024 at 12:59 PM
Subject: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045
To: Brian Doolittle <ganowa@me.com>, Aaron Detlor <aarondetlor@gmail.com>, Todd Williams <toddwilliams@hdi.land>, Raechelle Williams <raechellewilliams@hdi.land>, Sharann Martin <sharannmartin@hdi.land>

Good Afternoon:

RE: STUDY OF FOUR BRIDGES IN THE TOWNSHIP OF CENTRE WELLINGTON
PROJECT NO.: 300058117

Please see attachment.

Thank you!
Tracey

Crystal Ferguson

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Thursday, June 20, 2024 4:09 PM
To: janicewilliams@hdi.land
Cc: Andrew Dawson; Crystal Ferguson; Tricia Radburn; communications@hdi.land; jocko@sixnationsns.com; info@hdi.land; 1749resource@gmail.com
Subject: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24
Attachments: 058117_Upcoming Study_HDI.pdf

Categories: Brown

Janice,

As follow-up to a call to your office, I was requested to provide details through an email as you are currently working out of the office. I am hoping that the attached letter was received via Canada Post by your office last week. Please find attached a copy of the same letter that provides the details of an upcoming Township of Centre Wellington study. Let me know if project notifications are being received and if there are others that the Township should include in project correspondence.

Re: Upcoming Study to Review Four Bridges in Centre Wellington (Former West Garafraxa and Eramosa Townships)

The Township of Centre Wellington is scoping for a Municipal Class Environmental Assessment (MCEA) to evaluate options for four (4) bridges which are either currently closed to vehicular traffic or have a load restriction due to their poor condition. The Bridge and Transportation will consider the role of these bridges in the Township's road network and their value in connecting points across the community when determining the preferred alternative.
A summary of the project is as follows:

Project Lead:	• Township of Centre Wellington
Project consultant:	• R.J. Burnside & Associates Limited
Approval Process:	• Municipal Class EA
Project Location:	• Four bridges in the former West Garafraxa and Eramosa Townships (refer to attached letter for a map)
Duty to Consult:	• The province has delegated the responsibility for consultation to the Township of Centre Wellington
Project Purpose:	• To assess whether one or more of the four bridges should be reopened or remain closed.
Studies to be completed:	• Traffic study to review traffic patterns, volumes and flow. • Archaeological screening and additional archaeological studies, if required. • Cultural Heritage Screening and additional heritage studies, if required. • Ecological study using existing records and field observations. • Geotechnical study to assess soil conditions and stability, if required.

Potential impacts to Treaty/Aboriginal Rights:	• To be determined, based on information received from your community.

We are notifying you of the upcoming project (see attached letter) in hopes that you can assist our project team in determining if your community may hold interest in this project. Your comments are welcome and will be taken into consideration throughout this study.
As new information is made available the Bridge & Transportation Network Study for Four Bridges | Connect CW Township web site will be updated as well as regular notifications.
If you have an interest in this project, please contact one of the Project Team members below. The team is happy to provide additional information, provide opportunities for your community to participate in studies or review project reports, or meet with team members to answer questions and resolve concerns.

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0
519-846-9691 x 355
adickieson@centrewellington.ca

Andrew Dawson, P. Eng.
Consultant Project Manager
R.J. Burnside & Associates Ltd.
292 Speedvale Ave W. #20, Guelph, ON N1H 1C4
705-797-4310
andrew.dawson@rjburnside.com

Information will be collected in accordance with the *Municipal Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record.

Sincerely,
Adam Dickieson

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Centre Wellington

June 11, 2024

Via: Canada Post Registered Mail

Environmental Supervisor
Haudenosaunee Confederacy
16 Sunrise Court, Suite 600, P.O. Box 714
Ohsweken, ON
N0A 1M0

Dear Raechelle (Janice) Williams:

Re: Study of Four Bridges in the Township of Centre Wellington
Project No.: 300058117

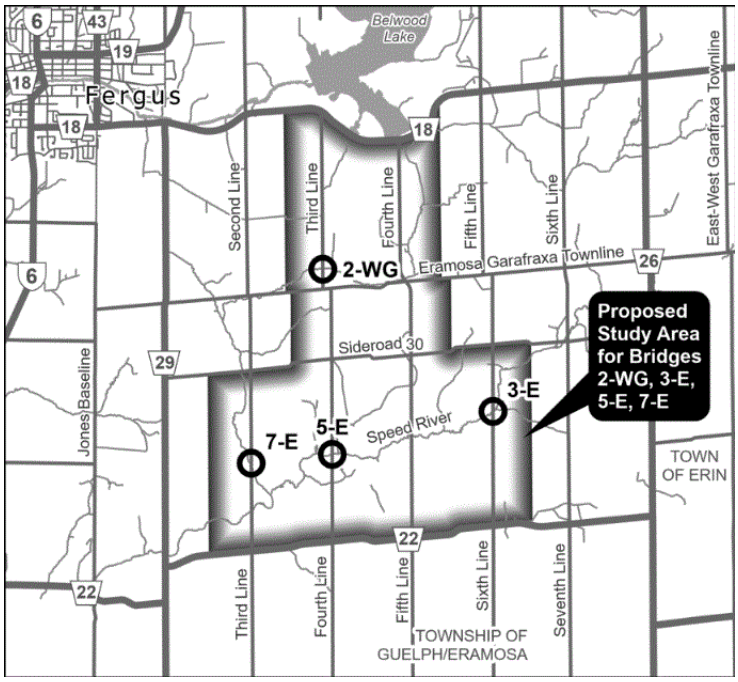
We are writing to inform you of an upcoming study to review **four existing bridges** in the Township of Centre Wellington. The bridges are located southwest of the community of Fergus, as shown in the area on the map below. Each bridge spans a tributary of the Speed River, which is part of the Grand River watershed.

The bridges, are currently in poor or deteriorating condition, as follows:

- Bridge 2-WG: Open with load restrictions
- Bridge 7-E: Temporarily closed due to poor condition
- Bridge 5-E: Temporarily closed due to poor condition
- Bridge 3-E: Temporarily closed due to poor condition

The Township has contracted R.J. Burnside & Associates Limited (Burnside) to evaluate whether each bridge should be:

- Closed permanently;
- Rehabilitated (within minor upgrades and modifications); or
- Reconstructed.



The study will be completed in accordance with **the Municipal Class Environmental Assessment (MCEA) process**. This includes an **Archaeological Assessment**, as required; **plant and wildlife habitat and species at risk** reviews; **cultural heritage** reviews as well as an assessment of any potential impacts to **Aboriginal or Treaty Rights**.

When evaluating whether each bridge should be closed, rehabilitated or reconstructed, the Township will consider archaeological resources, cultural heritage and the natural environment. The study will also assess the impact of closing one or more bridges on the community, how the community is connected, traffic patterns and response time for emergency services.

We recognize the importance of consultation with Haudenosaunee Development Institute as part of this study.

If you have an interest in this project, please contact one of the Project Team members below. The team is happy to provide additional information, provide opportunities for your community to participate in any potential studies or review project reports, or meet with team members to answer questions and resolve concerns.

Adam Dickieson Engineering Services Coordinator Township of Centre Wellington 1 MacDonald Square, Elora, ON N0B 1S0 519-846-9691 x 355 adickieson@centrewellington.ca	Andrew Dawson, P. Eng. Consultant Project Manager R.J. Burnside & Associates Ltd. 292 Speedvale Ave W. #20, Guelph, ON N1H 1C4 705-797-4310 andrew.dawson@rjburnside.com

Yours truly,



Township of Centre Wellington
Adam Dickieson
Engineering Services Coordinator

Crystal Ferguson

From: Raechelle Williams <raechellewilliams@hdi.land>
Sent: Wednesday, June 26, 2024 4:28 PM
To: adickieson@centrewellinaton.ca
Cc: Andrew Dawson; HDI Administration; Todd Williams; Shannon Hill
Subject: Fwd: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045
Attachments: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045 RE STUDY OF FOUR BRIDGES IN THE TOWNSHIP OF CENTRE WELLINGTON.pdf

Sge:no Adam,

Nya:weh for reaching out regarding this study to review the four existing bridges in the Township of Centre Wellington. We would like to participate in this project and be involved with any infield and report reviewing for the natural environment assessment and archaeology assessments. Once the evaluation is completed, we wish to have a construction monitor be involved on any bridges requiring any rehabilitation or reconstruction.

I will have one of my colleagues prepare a 2024 Monitoring Agreement and send it to you. Once this is completed and signed by both parties, please forward the scheduled work to Todd Williams, archeaology@hdi.land and myself.

Nya:weh,

Raechelle Williams
HDI Environmental Supervisor
Haudenosaunee Development Institute
P.O. Box 714
Ohsweken, ON
N0A 1M0
Ph: 519-445-4222
(Direct): 519-802-9402

The content of this email is confidential and intended for the recipient specified in message only. It is strictly forbidden to share any part of this message with any third party, without a written consent of the sender. If you received this message by mistake, please reply to this message and follow with its deletion, so that we can ensure such a mistake does not occur in the future.

---------- Forwarded message ---------
From: **Tracey General** <traceyghdi@gmail.com>
Date: Wed, Jun 12, 2024 at 12:59 PM
Subject: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045
To: Brian Doolittle <ganowa@me.com>, Aaron Detlor <aarondetlor@gmail.com>, Todd Williams <toddwilliams@hdi.land>, Raechelle Williams <raechellewilliams@hdi.land>, Sharann Martin <sharannmartin@hdi.land>

Good Afternoon:

RE: STUDY OF FOUR BRIDGES IN THE TOWNSHIP OF CENTRE WELLINGTON
PROJECT NO.: 300058117

Please see attachment.

Thank you!
Tracey

Centre Wellington

030-200-045
RECEIVED

June 11, 2024

Via: Canada Post Registered Mail

Secretary to the Haudenosaunee Confederacy
Haudenosaunee Confederacy
16 Sunrise Court, Suite 600, P.O. Box 714
Ohsweken, ON
N0A 1M0

Dear Leroy Hill:

Re: Study of Four Bridges in the Township of Centre Wellington
Project No.: 300058117

We are writing to inform you of an upcoming study to review **four existing bridges** in the Township of Centre Wellington. The bridges are located southwest of the community of Fergus, as shown in the area on the map below. Each bridge spans a tributary of the Speed River, which is part of the Grand River watershed.

The bridges, are currently in poor or deteriorating condition, as follows:

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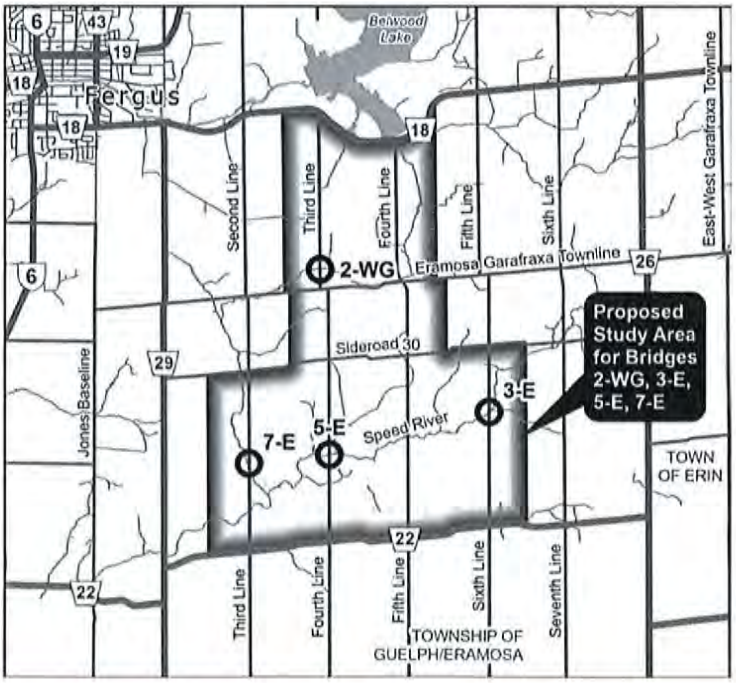
The Township has contracted R.J. Burnside & Associates Limited (Burnside) to evaluate whether each bridge should be:

- Closed permanently;
- Rehabilitated (within minor upgrades and modifications); or
- Reconstructed.



The study will be completed in accordance with **the Municipal Class Environmental Assessment (MCEA) process**. This includes an **Archaeological Assessment**, as required; **plant and wildlife habitat and species at risk** reviews; **cultural heritage** reviews as well as an assessment of any potential impacts to **Aboriginal or Treaty Rights**.

When evaluating whether each bridge should be closed, rehabilitated or reconstructed, the Township will consider archaeological resources, cultural heritage and the natural environment. The study will also assess the impact of closing one or more bridges on the community, how the community is connected, traffic patterns and response time for emergency services.

We recognize the importance of consultation with Haudenosaunee Development Institute as part of this study.

If you have an interest in this project, please contact one of the Project Team members below. The team is happy to provide additional information, provide opportunities for your community to participate in any potential studies or review project reports, or meet with team members to answer questions and resolve concerns.

Adam Dickieson Engineering Services Coordinator Township of Centre Wellington 1 MacDonald Square, Elora, ON N0B 1S0 519-846-9691 x 355 adickieson@centrewellington.ca	Andrew Dawson, P. Eng. Consultant Project Manager R.J. Burnside & Associates Ltd. 292 Speedvale Ave W. #20, Guelph, ON N1H 1C4 705-797-4310 andrew.dawson@rjburnside.com

Yours truly,

Township of Centre Wellington
Adam Dickieson
Engineering Services Coordinator

Crystal Ferguson

From: Shannon Hill <shannonhill@hdi.land>
Sent: Monday, July 01, 2024 5:27 PM
To: Raechelle Williams; adickieson@centrewellington.ca
Cc: Andrew Dawson; HDI Administration; Todd Williams; Sharann Martin
Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Follow Up Flag: Follow up
Flag Status: Flagged

Afternoon,

Could you please send the following details to get the agreement in order?

Could you please send us the details below:

1. Project name and address
2. Proper company name and address
3. Contact information for the individual responsible for executing the agreement (Name, phone number and email)
4. Invoicing information (Name and email)

We'll also need the PIF number licensee's name and email (if known)

Once this information is received agreement will be generated and sent.

Thank you,

Shannon Hill
Finance Assistant
Haudenosaunee Development Institute
PO Box 714
Ohsweken, Ontario N0A 1M0

From: Raechelle Williams <raechellewilliams@hdi.land>
Sent: Wednesday, June 26, 2024 4:30 PM
To: adickieson@centrewellington.ca <adickieson@centrewellington.ca>
Cc: andrew.dawson@rjburnside.com <andrew.dawson@rjburnside.com>; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Shannon Hill <shannonhill@hdi.land>
Subject: Fwd: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Sge:no Adam,

Nya:weh for reaching out regarding this study to review the four existing bridges in the Township of Centre Wellington. We would like to participate in this project and be involved with any infield and report reviewing for the natural environment assessment and archaeology assessments. Once the evaluation is

completed, we wish to have a construction monitor be involved on any bridges requiring any rehabilitation or reconstruction.

I will have one of my colleagues prepare a 2024 Monitoring Agreement and send it to you. Once this is completed and signed by both parties, please forward the scheduled work to Todd Williams, archeaology@hdi.land and myself.

Nya:weh,

Raechelle Williams
HDI Environmental Supervisor
Haudenosaunee Development Institute
P.O. Box 714
Ohsweken, ON
N0A 1M0
Ph: 519-445-4222
(Direct): 519-802-9402



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Date: Wed, Jun 12, 2024 at 12:59 PM
Subject: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045
To: Brian Doolittle <ganowa@me.com>, Aaron Detlor <aarondetlor@gmail.com>, Todd Williams <toddwilliams@hdi.land>, Raechelle Williams <raechellewilliams@hdi.land>, Sharann Martin <sharannmartin@hdi.land>

Good Afternoon:

RE: STUDY OF FOUR BRIDGES IN THE TOWNSHIP OF CENTRE WELLINGTON
PROJECT NO.: 300058117

Please see attachment.

Thank you!
Tracey

Crystal Ferguson

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Thursday, July 04, 2024 11:18 AM
To: Shannon Hill; Raechelle Williams
Cc: Andrew Dawson; HDI Administration; Todd Williams; Sharann Martin
Subject: RE: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Shannon and Raechelle,

Nya:weh / Thank-you for your interest in the Township's project. We are looking forward to working with your community and hearing further information related your community's interest in the proposed activities.

In regards to Shannon's request for information, please see responses below:

1. **Project name and address:**
   Bridge and Transportation Network Study for Four Bridges
   Locations:
   Bridge 2-WG = Third Line, approximately 330 m north of Eramosa-Garafraxa Townline (https://maps.app.goo.gl/h3JsWbNqG87vK8Xp8)
   Bridge 3-E = Sixth Line, approximately 1.9 km north of Wellington Road 22 (https://maps.app.goo.gl/WKgbhkFX54BoNJhS9)
   Bridge 5-E = Fourth Line, approximately 1.5 km north of Wellington Road 22 (https://maps.app.goo.gl/6TfHwJGcC8BMhpgV8)
   Bridge 7-E = Third Line, approximately 1.5 km north of Wellington Road 22 (https://maps.app.goo.gl/FUBE7fj7WQKZPT6g9)
2. **Proper company name and address**: Township of Centre Wellington, 1 MacDonald Square, Elora, ON N0B 1S0
3. **Contact information for the individual responsible for executing the agreement (Name, phone number and email):** Adam Dickieson, adickieson@centrewellington.ca
4. **Invoicing information (Name and email):** Adam Dickieson, adickieson@centrewellington.ca

To help us understand your desired level of involvement, I am providing a brief overview of the project status and anticipated impacts below for your consideration and ask that you outline which specific aspects of the project you have interest in, and whether that interest is field monitoring and/or document review:

The four bridge structures are watercourse crossings of the Speed River and its tributaries, which are part of the Grand Rivier watershed. The existing structures are narrow, single lane structures that were constructed between 1919 and 1923. Three of the four structures have been closed to traffic and the fourth has been load restricted to 15 tonnes due to the deteriorated state and concerns regarding load carrying capacity. The multiple closures of structures within this study area has resulted in disruptions to transportation connectivity and the Township is looking to confirm their preferred approach for this system of structures. The study will examine the effects of opening several combinations of structures, including no structures or all structures.

The potential impacts to the natural environment will be dependent on the selective alternative at each site. From a preliminary perspective, we are looking at considering several options at each site, including:

- Do Nothing (deteriorated structures remain in place and closed to traffic)
- Permanent Removal of Structure
- Rehabilitation of Structure (likely to be deemed unfeasible due to the state of the structures)
- Replacement of Structure

Based on these alternatives we can foresee that potential impacts to the natural environment could possibly include:

- Disturbance (excavation / re-grading) of the study area (for bridge replacement alternative)
- Temporary in-water works, including temporary isolation of the structure and localized unwatering of the watercourse to allow works to be completed in the dry.
- Vegetation removals (if required) for widening of structure or roadway, regrading, construction access, etc.

We are in the process of undergoing desktop and field studies of the natural, heritage, built and economic environments to determine areas of interest and possible impacts.
A Cultural Heritage Evaluation and a Stage 1 Archaeological Assessment (AA) study have been completed on all four structures to date. Only Bridge 3E was found to have cultural heritage value/interest. A Heritage Impact Assessment will be scheduled for Bridge 3E, tentatively in August, to provide further context of impacts to heritage features and recommendations for conservation of these interests. The Stage 1 AA found that all bridges had low archaeological potential and indicated that no further investigations are required for the sites. The draft reports of these studies are provided at the link below for your reference. **Can you please confirm if you intend to review these draft reports and, if so, could you please provide comments by July 19, 2024**.
058117 - CHER and Stage 1 AA

From a Municipal Class Environmental Assessment perspective, the applicable schedule of these projects will be further reviewed and determined based on results of background studies. At current, it is anticipated that Bridges 2-WG, 5-E and 7-E will be exempt from the Environmental Assessment Act as per Project Description 31a of the MCEA Document as the studies completed indicated no heritage value or interest. Pending the results of the Heritage Impact Assessment (HIA), the Township may look to conserve heritage attributes of Bridge 3-E in accordance with the HIA and therefore that project may also be considered exempt through the Archaeological Screening Process (ASP). In order to complete the ASP and confirm the appropriate project schedule, **can HDI confirm the following**:

- Is there Aboriginal knowledge of archaeological sites on or within 500 metres of Bridge 3-E?
- Is there Aboriginal knowledge or historically documented evidence of past Aboriginal use on or within 500 meters of Bridge 3-E?
- Is there aboriginal knowledge of marine archaeological sites on or within 500 metres of Bridge 3-E?

We are scheduling field work for the natural environment studies in the coming weeks; however, we would like to confirm your preferred level of involvement in these field studies with you prior to them being undertaken. **Can you please confirm whether your request is to have a field monitor present for the studies below, or just to receive the draft environmental impacts study report for review?**

- Ecological Land Classification
- Botanical / Tree Inventory
- Aquatic Habitats survey
- Terrestrial Habitats survey

We hope that the above information allows you to confirm your desired level of involvement in the project and better outline the scope and terms of an agreement associated with the project. Should you have any questions or like further clarification on any aspects of this study, please do not hesitate to contact a member of the project team below. If you feel it would be beneficial, we could set up a meeting for further discussions regarding the project and agreement.

Adam Dickieson Engineering Services Coordinator Township of Centre Wellington 1 MacDonald Square, Flora, ON N0B 1S0	Andrew Daws Consultant Pr R.J. Burnside 292 Speedval Guelph, ON N

Regards,
Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Shannon Hill <shannonhill@hdi.land>
Sent: Monday, July 1, 2024 5:27 PM
To: Raechelle Williams <raechellewilliams@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>
Cc: andrew.dawson@rjburnside.com; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>
Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

You don't often get email from shannonhill@hdi.land. Learn why this is important

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Afternoon,

Could you please send the following details to get the agreement in order?

Could you please send us the details below:

1. Project name and address
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4. Invoicing information (Name and email)

We'll also need the PIF number licensee's name and email (if known)

Once this information is received agreement will be generated and sent.

Thank you,

Shannon Hill
Finance Assistant

Haudenosaunee Development Institute
PO Box 714
Ohsweken, Ontario N0A 1M0

From: Raechelle Williams <raechellewilliams@hdi.land>
Sent: Wednesday, June 26, 2024 4:30 PM
To: adickieson@centrewellington.ca <adickieson@centrewellington.ca>
Cc: andrew.dawson@rjburnside.com <andrew.dawson@rjburnside.com>; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Shannon Hill <shannonhill@hdi.land>
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Sge:no Adam,

Nya:weh for reaching out regarding this study to review the four existing bridges in the Township of Centre Wellington. We would like to participate in this project and be involved with any infield and report reviewing for the natural environment assessment and archaeology assessments. Once the evaluation is completed, we wish to have a construction monitor be involved on any bridges requiring any rehabilitation or reconstruction.

I will have one of my colleagues prepare a 2024 Monitoring Agreement and send it to you. Once this is completed and signed by both parties, please forward the scheduled work to Todd Williams, archeaology@hdi.land and myself.

Nya:weh,

Raechelle Williams

HDI Environmental Supervisor

Haudenosaunee Development Institute

P.O. Box 714

Ohsweken, ON

N0A 1M0

Ph: 519-445-4222

(Direct): 519-802-9402



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Good Afternoon:

RE: STUDY OF FOUR BRIDGES IN THE TOWNSHIP OF CENTRE WELLINGTON
PROJECT NO.: 300058117

Please see attachment.

Thank you!
Tracey

Crystal Ferguson

From: Jamie Lemon <jlemon@phcgroup.ca>
Sent: Thursday, July 04, 2024 11:50 AM
To: Sharann Martin
Cc: archaeology@hdi.land; Owen Greene; Todd Williams; Andrew Dawson; Matt Brooks; Adam Dickieson
Subject: RE: Centre Wellington Bridges EA (RFP #09-23) - Stage 2 AA

Hi Sharann,

The PIF for this work is P1056-0257-2024. I am the licensee.

Thank you,

Jamie

Jamie Lemon, MA
Senior Archaeologist/Project Manager
jlemon@phcgroup.ca
226-230-0607

PHC is pleased to support a 4-day work week. Our core hours are Monday to Thursday, 8am – 5pm.

Parslow Heritage Consultancy Inc.
www.phcgroup.ca



From: Sharann Martin <sharannmartin@hdi.land>
Sent: Wednesday, July 3, 2024 3:45 PM
To: Jamie Lemon <jlemon@phcgroup.ca>
Cc: archaeology@hdi.land; Owen Greene <owengreene@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Andrew Dawson <Andrew.Dawson@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>
Subject: Re: Centre Wellington Bridges EA (RFP #09-23) - Stage 2 AA

Good morning Jamie,

Thank you for reaching out regarding this project. We would like to meaningfully participate in this assessment and will be sending our 2024 Monitoring Agreement along shortly.

Adam, could you provide the following:

1. Project name
2. Proper company name and address of the project
3. Contact information for the individual responsible for executing the agreement
4. Invoicing information

We'll also need the PIF number and the licensee's name and email.

Once we have this information, we can get the agreement together and send it out.

When the work has been scheduled please send deployment information to archaeology@hdi.land, with Todd Williams (toddwilliams@hdi.land), and Owen Greene (owengreene@hdi.land) copied.

Nyá:wen,

Sharann Martin
Interim Archaeology Logistics Coordinator
Haudenosaunee Development Institute
O: (519) 445-4222
M: (226) 456-2508
sharannmartin@hdi.land

As of June 21, 2024, I will no longer be the Archaeology Logistics Coordinator. I will be assisting with the transition but going forward, please send deployment and cancellation notices to archaeology@hdi.land, owengreene@hdi.land, and toddwilliams@hdi.land.

On Fri, Jun 28, 2024 at 12:22 PM Jamie Lemon <jlemon@phcgroup.ca> wrote:

> Good afternoon,
>
> PHC has been retained by RJ Burnside & Associates Ltd. to complete Stage 2 test pit survey for two bridges in the Township of Centre Wellington. The end client is the Township. These bridges, identified as 28-P and 33-P, are illustrated on the attached map. Note – of the bridges circled on the attached map, only 28-P and 33-P are part of the Stage 2 scope.
>
> At the direction of the Township, we would like to notify you of the upcoming Stage 2 fieldwork, to give you an opportunity to provide an archaeological monitor for the duration of the work (1 day). In order to allow

time for agreements with the Township to be finalized, we anticipate the fieldwork being undertaken in mid to late July.

Should you elect to provide an archaeological monitor for the fieldwork, and/or be provided with the draft archaeological assessment report for review, please provide your monitoring agreement to Adam Dickieson from the Township of Centre Wellington (cc'd).

Please do not hesitate to reach out if there are any questions. @Owen Greene and @Todd Williams, I have not included Sharann, per her notice of role change on her signature line, but please let me know if I am to continue including her on correspondence.

Thank you,

Jamie

Jamie Lemon, MA

Senior Archaeologist/Project Manager

jlemon@phcgroup.ca

226-230-0607

PHC is pleased to support a 4-day work week. Our core hours are Monday to Thursday, 8am – 5pm.

Parslow Heritage Consultancy Inc.

www.phcgroup.ca


Health and Safety
Excellence program
Member
wsib
ONTARIO
2024

Crystal Ferguson

From: Raechelle Williams <raechellewilliams@hdi.land>
Sent: Friday, July 05, 2024 3:34 PM
To: Adam Dickieson
Cc: Shannon Hill; Andrew Dawson; HDI Administration; Todd Williams; Sharann Martin
Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Follow Up Flag: Follow up
Flag Status: Flagged

Sge:no Adam,

To answer your question regarding the natural environment studies, yes HDI will have a monitor be present for the studies below and will also like to receive the draft environmental impact study report for review.

- ELC
- Botanical/Tree Inventory
- Aquatic Habitats survey
- Terrestrial Habitats survey

Can you forward the consultant who is performing these surveys scheduled and we can arrange to have a monitor participate with them in the field.

As for the archaeology portion of this project, I will leave this response with my colleagues Todd Williams and Sharann Martin.

Regards,

Raechelle Williams
HDI Environmental Supervisor
Haudenosaunee Development Institute
P.O. Box 714
Ohsweken, ON
N0A 1M0
Ph: 519-445-4222
(Direct): 519-802-9402

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On Thu, Jul 4, 2024 at 11:18 AM Adam Dickieson <ADickieson@centrewellington.ca> wrote:

> Shannon and Raechelle,

Nya:weh / Thank-you for your interest in the Township's project. We are looking forward to working with your community and hearing further information related your community's interest in the proposed activities.

In regards to Shannon's request for information, please see responses below:

1. **Project name and address:**

   Bridge and Transportation Network Study for Four Bridges

   Locations:

   Bridge 2-WG = Third Line, approximately 330 m north of Eramosa-Garafraxa Townline (https://maps.app.goo.gl/h3JsWbNqG87vK8Xp8)

   Bridge 3-E = Sixth Line, approximately 1.9 km north of Wellington Road 22 (https://maps.app.goo.gl/WKgbhkFX54BoNJhS9)

   Bridge 5-E = Fourth Line, approximately 1.5 km north of Wellington Road 22 (https://maps.app.goo.gl/6TfHwJGcC8BMhpgV8)

   Bridge 7-E = Third Line, approximately 1.5 km north of Wellington Road 22 (https://maps.app.goo.gl/FUBE7fj7WQKZPT6g9)

2. **Proper company name and address**: Township of Centre Wellington, 1 MacDonald Square, Elora, ON N0B 1S0
3. **Contact information for the individual responsible for executing the agreement (Name, phone number and email):** Adam Dickieson, adickieson@centrewellington.ca
4. **Invoicing information (Name and email):** Adam Dickieson, adickieson@centrewellington.ca

To help us understand your desired level of involvement, I am providing a brief overview of the project status and anticipated impacts below for your consideration and ask that you outline which specific aspects of the project you have interest in, and whether that interest is field monitoring and/or document review:

The four bridge structures are watercourse crossings of the Speed River and its tributaries, which are part of the Grand Rivier watershed. The existing structures are narrow, single lane structures that were constructed between 1919 and 1923. Three of the four structures have been closed to traffic and the fourth has been load restricted to 15 tonnes due to the deteriorated state and concerns regarding load carrying capacity. The multiple closures of structures within this study area has resulted in disruptions to transportation connectivity and the Township is looking to confirm their preferred approach for this system of structures. The study will examine the effects of opening several combinations of structures, including no structures or all structures.

The potential impacts to the natural environment will be dependent on the selective alternative at each site. From a preliminary perspective, we are looking at considering several options at each site, including:

- Do Nothing (deteriorated structures remain in place and closed to traffic)
- Permanent Removal of Structure
- Rehabilitation of Structure (likely to be deemed unfeasible due to the state of the structures)
- Replacement of Structure

Based on these alternatives we can foresee that potential impacts to the natural environment could possibly include:

- Disturbance (excavation / re-grading) of the study area (for bridge replacement alternative)
- Temporary in-water works, including temporary isolation of the structure and localized unwatering of the watercourse to allow works to be completed in the dry.
- Vegetation removals (if required) for widening of structure or roadway, regrading, construction access, etc.

We are in the process of undergoing desktop and field studies of the natural, heritage, built and economic environments to determine areas of interest and possible impacts.

A Cultural Heritage Evaluation and a Stage 1 Archaeological Assessment (AA) study have been completed on all four structures to date. Only Bridge 3E was found to have cultural heritage value/interest. A Heritage Impact Assessment will be scheduled for Bridge 3E, tentatively in August, to provide further context of impacts to heritage features and recommendations for conservation of these interests. The Stage 1 AA found that all bridges had low archaeological potential and indicated that no further investigations are required for the sites. The draft reports of these studies are provided at the link below for your reference. **Can you please confirm if you intend to review these draft reports and, if so, could you please provide comments by July 19, 2024**.

058117 - CHER and Stage 1 AA

From a Municipal Class Environmental Assessment perspective, the applicable schedule of these projects will be further reviewed and determined based on results of background studies. At current, it is anticipated that Bridges 2-WG, 5-E and 7-E will be exempt from the Environmental Assessment Act as per Project Description 31a of the MCEA Document as the studies completed indicated no heritage value or interest. Pending the results of the Heritage Impact Assessment (HIA), the Township may look to conserve heritage attributes of Bridge 3-E in accordance with the HIA and therefore that project may also be considered exempt through the Archaeological Screening Process (ASP). In order to complete the ASP and confirm the appropriate project schedule, **can HDI confirm the following**:

- Is there Aboriginal knowledge of archaeological sites on or within 500 metres of Bridge 3-E?
- Is there Aboriginal knowledge or historically documented evidence of past Aboriginal use on or within 500 meters of Bridge 3-E?
- Is there aboriginal knowledge of marine archaeological sites on or within 500 metres of Bridge 3-E?

We are scheduling field work for the natural environment studies in the coming weeks; however, we would like to confirm your preferred level of involvement in these field studies with you prior to them being undertaken. **Can you please confirm whether your request is to have a field monitor present for the studies below, or just to receive the draft environmental impacts study report for review?**

- Ecological Land Classification
- Botanical / Tree Inventory
- Aquatic Habitats survey
- Terrestrial Habitats survey

We hope that the above information allows you to confirm your desired level of involvement in the project and better outline the scope and terms of an agreement associated with the project. Should you have any questions or like further clarification on any aspects of this study, please do not hesitate to contact a member of the project team below. If you feel it would be beneficial, we could set up a meeting for further discussions regarding the project and agreement.

Adam Dickieson Engineering Services Coordinator Township of Centre Wellington 1 MacDonald Square, Elora, ON N0B 1S0	Andrew Daws Consultant Pr R.J. Burnside 292 Speedval Guelph, ON N

Regards,

Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0

519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Shannon Hill <shannonhill@hdi.land>
Sent: Monday, July 1, 2024 5:27 PM
To: Raechelle Williams <raechellewilliams@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>
Cc: andrew.dawson@rjburnside.com; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>
Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

You don't often get email from shannonhill@hdi.land. Learn why this is important

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Afternoon,

Could you please send the following details to get the agreement in order?

Could you please send us the details below:

1. Project name and address
2. Proper company name and address
3. Contact information for the individual responsible for executing the agreement (Name, phone number and email)
4. Invoicing information (Name and email)

We'll also need the PIF number licensee's name and email (if known)

Once this information is received agreement will be generated and sent.

Thank you,

Shannon Hill

Finance Assistant

Haudenosaunee Development Institute

PO Box 714

Ohsweken, Ontario N0A 1M0

From: Raechelle Williams <raechellewilliams@hdi.land>
Sent: Wednesday, June 26, 2024 4:30 PM
To: adickieson@centrewellington.ca <adickieson@centrewellington.ca>
Cc: andrew.dawson@rjburnside.com <andrew.dawson@rjburnside.com>; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Shannon Hill <shannonhill@hdi.land>
Subject: Fwd: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Sge:no Adam,

Nya:weh for reaching out regarding this study to review the four existing bridges in the Township of Centre Wellington. We would like to participate in this project and be involved with any infield and report reviewing for the natural environment assessment and archaeology assessments. Once the evaluation is completed, we wish to have a construction monitor be involved on any bridges requiring any rehabilitation or reconstruction.

I will have one of my colleagues prepare a 2024 Monitoring Agreement and send it to you. Once this is completed and signed by both parties, please forward the scheduled work to Todd Williams, archeaology@hdi.land and myself.

Nya:weh,

Raechelle Williams

HDI Environmental Supervisor

Haudenosaunee Development Institute

P.O. Box 714

Ohsweken, ON

N0A 1M0

Ph: 519-445-4222

(Direct): 519-802-9402



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---------- Forwarded message ---------
From: **Tracey General** <traceyghdi@gmail.com>
Date: Wed, Jun 12, 2024 at 12:59 PM
Subject: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045
To: Brian Doolittle <ganowa@me.com>, Aaron Detlor <aarondetlor@gmail.com>, Todd Williams <toddwilliams@hdi.land>, Raechelle Williams <raechellewilliams@hdi.land>, Sharann Martin <sharannmartin@hdi.land>

Good Afternoon:

RE: STUDY OF FOUR BRIDGES IN THE TOWNSHIP OF CENTRE WELLINGTON
PROJECT NO.: 300058117

Please see attachment.

Thank you!
Tracey

Crystal Ferguson

From: Andrew Dawson
Sent: Tuesday, July 09, 2024 10:23 AM
To: Raechelle Williams
Cc: Shannon Hill; HDI Administration; Todd Williams; Sharann Martin; Adam Dickieson; Tricia Radburn
Subject: RE: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Raechelle,
Adam Dickieson from the Township is currently out of office, so I will respond on his behalf.

R.J. Burnside's staff will be conducting the environmental field studies listed below. I have cc'd Tricia Radburn on this email, who will be coordinating those studies. It would be ideal for us to have the studies completed within the next couple of weeks, but we do not have a definitive date set yet, as we wanted to confirm HDI's level of involvement and finalize any agreements before scheduling.

As such, I believe the next step will be the review of HDI's agreement for these works with the Township once it is received. Once an agreement is made, we can coordinate scheduling the work between your team and Tricia.

We look forward to hearing from Todd and Sharran as well regarding the archaeological items!

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Raechelle Williams <raechellewilliams@hdi.land>
Sent: Friday, July 05, 2024 3:34 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Cc: Shannon Hill <shannonhill@hdi.land>; Andrew Dawson <Andrew.Dawson@rjburnside.com>; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>
Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Sge:no Adam,

To answer your question regarding the natural environment studies, yes HDI will have a monitor be present for the studies below and will also like to receive the draft environmental impact study report for review.

- ELC
- Botanical/Tree Inventory
- Aquatic Habitats survey
- Terrestrial Habitats survey

Can you forward the consultant who is performing these surveys scheduled and we can arrange to have a monitor participate with them in the field.

As for the archaeology portion of this project, I will leave this response with my colleagues Todd Williams and Sharann Martin.

Regards,

Raechelle Williams
HDI Environmental Supervisor
Haudenosaunee Development Institute
P.O. Box 714
Ohsweken, ON
N0A 1M0
Ph: 519-445-4222
(Direct): 519-802-9402

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> Shannon and Raechelle,
>
> Nya:weh / Thank-you for your interest in the Township's project. We are looking forward to working with your community and hearing further information related your community's interest in the proposed activities.
>
> In regards to Shannon's request for information, please see responses below:
>
> 1. **Project name and address:**
>
> Bridge and Transportation Network Study for Four Bridges
>
> Locations:
>
> Bridge 2-WG = Third Line, approximately 330 m north of Eramosa-Garafraxa Townline (https://maps.app.goo.gl/h3JsWbNqG87vK8Xp8)
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2. **Proper company name and address**: Township of Centre Wellington, 1 MacDonald Square, Elora, ON N0B 1S0
3. **Contact information for the individual responsible for executing the agreement (Name, phone number and email):** Adam Dickieson, adickieson@centrewellington.ca
4. **Invoicing information (Name and email):** Adam Dickieson, adickieson@centrewellington.ca

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058117 - CHER and Stage 1 AA

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- Terrestrial Habitats survey

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Adam Dickieson Engineering Services Coordinator Township of Centre Wellington 1 MacDonald Square, Flora, ON N0B 1S0	Andrew Daws Consultant Pr R.J. Burnside 292 Speedval Guelph, ON N

Regards,

Adam.



Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0

519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Shannon Hill <shannonhill@hdi.land>
Sent: Monday, July 1, 2024 5:27 PM
To: Raechelle Williams <raechellewilliams@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>
Cc: andrew.dawson@rjburnside.com; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>
Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

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Afternoon,

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Could you please send us the details below:

1. Project name and address
2. Proper company name and address
3. Contact information for the individual responsible for executing the agreement (Name, phone number and email)
4. Invoicing information (Name and email)

We'll also need the PIF number licensee's name and email (if known)

Once this information is received agreement will be generated and sent.

Thank you,

Shannon Hill

Finance Assistant

Haudenosaunee Development Institute

PO Box 714

Ohsweken, Ontario N0A 1M0

From: Raechelle Williams <raechellewilliams@hdi.land>
Sent: Wednesday, June 26, 2024 4:30 PM
To: adickieson@centrewellington.ca <adickieson@centrewellington.ca>
Cc: andrew.dawson@rjburnside.com <andrew.dawson@rjburnside.com>; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Shannon Hill <shannonhill@hdi.land>
Subject: Fwd: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Sge:no Adam,

Nya:weh for reaching out regarding this study to review the four existing bridges in the Township of Centre Wellington. We would like to participate in this project and be involved with any infield and report reviewing for the natural environment assessment and archaeology assessments. Once the evaluation is completed, we wish to have a construction monitor be involved on any bridges requiring any rehabilitation or reconstruction.

I will have one of my colleagues prepare a 2024 Monitoring Agreement and send it to you. Once this is completed and signed by both parties, please forward the scheduled work to Todd Williams, archeaology@hdi.land and myself.

Nya:weh,

Raechelle Williams

HDI Environmental Supervisor

Haudenosaunee Development Institute

P.O. Box 714

Ohsweken, ON

N0A 1M0

Ph: 519-445-4222

(Direct): 519-802-9402

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---------- Forwarded message ---------
From: **Tracey General** <traceyghdi@gmail.com>
Date: Wed, Jun 12, 2024 at 12:59 PM
Subject: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045
To: Brian Doolittle <ganowa@me.com>, Aaron Detlor <aarondetlor@gmail.com>, Todd Williams

<toddwilliams@hdi.land>, Raechelle Williams <raechellewilliams@hdi.land>, Sharann Martin <sharannmartin@hdi.land>

Good Afternoon:

RE: STUDY OF FOUR BRIDGES IN THE TOWNSHIP OF CENTRE WELLINGTON
PROJECT NO.: 300058117

Please see attachment.

Thank you!
Tracey

Crystal Ferguson

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Thursday, August 08, 2024 11:43 AM
To: Todd Williams
Cc: Andrew Dawson; Owen Greene; Shannon Hill; Archaeology Department; Raechelle Williams
Subject: RE: HDI Monitoring Agreement for the Study of Four Bridges in Township of Centre Wellington
Attachments: 2024-25 HDI Monitor Agree-TCW Bridge & Transp. Network Study.pdf

Todd,

Please find attached a Township of Centre Wellington signed copy of the HDI Monitoring agreement.

The Township consultant (R.J. Burnside) will be communicating with HDI shortly regarding an upcoming environmental field study that is to be scheduled as part of this Four Bridge Study.

Regards,
Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Todd Williams <toddwilliams@hdi.land>
Sent: Wednesday, August 7, 2024 3:06 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Cc: Andrew.Dawson@rjburnside.com; Owen Greene <owengreene@hdi.land>; Shannon Hill <shannonhill@hdi.land>; Archaeology Department <archaeology@hdi.land>; Raechelle Williams <raechellewilliams@hdi.land>
Subject: Re: HDI Monitoring Agreement for the Study of Four Bridges in Township of Centre Wellington

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Afternoon Adam,

See attached updated agreement with the requested changes.

Please review and send back a signed copy.

Thanks Todd

On Wed, Jul 31, 2024 at 4:30 PM Adam Dickieson <ADickieson@centrewellington.ca> wrote:

> Todd,
>
> The Township is prepared to enter into the attached monitoring agreement with HDI for the Bridge and Transportation Network Study (4
>
> Bridges.
>
> I would like to request the following two revisions in bold to the attached draft agreement ahead of signing:
>
> - #11. *And copied to any Licensed Archaeologist involved in the Project at:*
>
> **Jamie Lemon**
>
> **jlemon@phcgroup.ca**
>
> - Please revise the Township signing authority to
>
> **Adam McNabb, Township of Centre Wellington**
>
> Let me know if the are any additional details required at this time.
>
> Regards,
>
> Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0

519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Todd Williams <toddwilliams@hdi.land>
Sent: Wednesday, July 17, 2024 1:02 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Cc: Andrew.Dawson@rjburnside.com; Owen Greene <owengreene@hdi.land>; Shannon Hill <shannonhill@hdi.land>; Archaeology Department <archaeology@hdi.land>; Raechelle Williams <raechellewilliams@hdi.land>
Subject: HDI Monitoring Agreement for the Study of Four Bridges in Township of Centre Wellington

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Sge:no(hi) Adam,

I'm emailing in regards to the email notification HDI received regarding the above mentioned project.

To accommodate HDI's participation in this project, I've attached a copy of HDI's standard monitoring agreement.

Please review...If agreed too, please sign and return a copy.

Nya:weh (thanks),

Todd E. Williams, P.Eng

Monitoring Program Coordinator

Haudenosaunee Development Institute (HDI)

Haudenosaunee Confederacy Chiefs Council (HCCC)
Haudenosaunee 1755 Treaty Territory

O: 519-445-4222

M: 519-761-1794

https://hdi.land/
https://www.haudenosauneeconfederacy.com/

https://www.loc.gov/resource/g3300.np000009/?r=0.369,0.207,0.25,0.114,0

---------- Forwarded message ---------
From: **Adam Dickieson** <ADickieson@centrewellington.ca>
Date: Wed, Jul 17, 2024 at 8:40 AM
Subject: RE: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045
To: Shannon Hill <shannonhill@hdi.land>, Raechelle Williams <raechellewilliams@hdi.land>
Cc: HDI Administration <administration@hdi.land>, Todd Williams <toddwilliams@hdi.land>, Sharann Martin <sharannmartin@hdi.land>, Tricia Radburn <Tricia.Radburn@rjburnside.com>, Andrew Dawson <Andrew.Dawson@rjburnside.com>

Shannon, Raechelle,

I am back in the office and getting caught up on my emails. Please send the agreement to me when it has been prepared.

Thank you,

Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0

519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Sent: Tuesday, July 9, 2024 12:16 PM
To: Shannon Hill <shannonhill@hdi.land>; Raechelle Williams <raechellewilliams@hdi.land>
Cc: HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>; Tricia Radburn <Tricia.Radburn@rjburnside.com>
Subject: RE: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

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Shannon,

Thank you for the update! Is it possible that you could cc me when the agreement is sent to Adam D? Given that Adam will be away until the 15th , I'd like to keep the ball rolling on this and can discuss the agreement with Adam's manager at the Township in his absence.

Regards,

Andrew

Andrew Dawson
Project Engineer

R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Shannon Hill <shannonhill@hdi.land>
Sent: Tuesday, July 09, 2024 10:48 AM
To: Andrew Dawson <Andrew.Dawson@rjburnside.com>; Raechelle Williams <raechellewilliams@hdi.land>
Cc: HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>; Tricia Radburn <Tricia.Radburn@rjburnside.com>
Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

The agreement is ready to be sent out to Adam Dickieson, it will be sent later today

Thank you,

Shannon Hill

Finance Assistant

Haudenosaunee Development Institute

PO Box 714

Ohsweken, Ontario N0A 1M0

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Sent: Tuesday, July 9, 2024 10:23 AM
To: Raechelle Williams <raechellewilliams@hdi.land>
Cc: Shannon Hill <shannonhill@hdi.land>; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>; Tricia Radburn <Tricia.Radburn@rjburnside.com>
Subject: RE: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Raechelle,

Adam Dickieson from the Township is currently out of office, so I will respond on his behalf.

R.J. Burnside's staff will be conducting the environmental field studies listed below. I have cc'd Tricia Radburn on this email, who will be coordinating those studies. It would be ideal for us to have the studies completed within the next couple of weeks, but we do not have a definitive date set yet, as we wanted to confirm HDI's level of involvement and finalize any agreements before scheduling.

As such, I believe the next step will be the review of HDI's agreement for these works with the Township once it is received. Once an agreement is made, we can coordinate scheduling the work between your team and Tricia.

We look forward to hearing from Todd and Sharran as well regarding the archaeological items!

Regards,

Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Raechelle Williams <raechellewilliams@hdi.land>
Sent: Friday, July 05, 2024 3:34 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Cc: Shannon Hill <shannonhill@hdi.land>; Andrew Dawson <Andrew.Dawson@rjburnside.com>; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>
Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Sge:no Adam,

To answer your question regarding the natural environment studies, yes HDI will have a monitor be present for the studies below and will also like to receive the draft environmental impact study report for review.

- ELC
- Botanical/Tree Inventory
- Aquatic Habitats survey
- Terrestrial Habitats survey

Can you forward the consultant who is performing these surveys scheduled and we can arrange to have a monitor participate with them in the field.

As for the archaeology portion of this project, I will leave this response with my colleagues Todd Williams and Sharann Martin.

Regards,

Raechelle Williams

HDI Environmental Supervisor

Haudenosaunee Development Institute

P.O. Box 714

Ohsweken, ON

N0A 1M0

Ph: 519-445-4222

(Direct): 519-802-9402

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On Thu, Jul 4, 2024 at 11:18 AM Adam Dickieson <ADickieson@centrewellington.ca> wrote:

> Shannon and Raechelle,

Nya:weh / Thank-you for your interest in the Township's project. We are looking forward to working with your community and hearing further information related your community's interest in the proposed activities.

In regards to Shannon's request for information, please see responses below:

1. **Project name and address:**

   Bridge and Transportation Network Study for Four Bridges

   Locations:

   Bridge 2-WG = Third Line, approximately 330 m north of Eramosa-Garafraxa Townline (https://maps.app.goo.gl/h3JsWbNqG87vK8Xp8)

   Bridge 3-E = Sixth Line, approximately 1.9 km north of Wellington Road 22 (https://maps.app.goo.gl/WKgbhkFX54BoNJhS9)

   Bridge 5-E = Fourth Line, approximately 1.5 km north of Wellington Road 22 (https://maps.app.goo.gl/6TfHwJGcC8BMhpgV8)

   Bridge 7-E = Third Line, approximately 1.5 km north of Wellington Road 22 (https://maps.app.goo.gl/FUBE7fj7WQKZPT6g9)

2. **Proper company name and address**: Township of Centre Wellington, 1 MacDonald Square, Elora, ON N0B 1S0
3. **Contact information for the individual responsible for executing the agreement (Name, phone number and email):** Adam Dickieson, adickieson@centrewellington.ca
4. **Invoicing information (Name and email):** Adam Dickieson, adickieson@centrewellington.ca

To help us understand your desired level of involvement, I am providing a brief overview of the project status and anticipated impacts below for your consideration and ask that you outline which specific aspects of the project you have interest in, and whether that interest is field monitoring and/or document review:

The four bridge structures are watercourse crossings of the Speed River and its tributaries, which are part of the Grand Rivier watershed. The existing structures are narrow, single lane structures that were constructed between 1919 and 1923. Three of the four structures have been closed to traffic and the fourth has been load restricted to 15 tonnes due to the deteriorated state and concerns regarding load carrying capacity. The multiple closures of structures within this study area has resulted in disruptions to transportation connectivity and the Township is looking to confirm their preferred approach for this system of structures. The study will examine the effects of opening several combinations of structures, including no structures or all structures.

The potential impacts to the natural environment will be dependent on the selective alternative at each site. From a preliminary perspective, we are looking at considering several options at each site, including:

- Do Nothing (deteriorated structures remain in place and closed to traffic)
- Permanent Removal of Structure
- Rehabilitation of Structure (likely to be deemed unfeasible due to the state of the structures)
- Replacement of Structure

Based on these alternatives we can foresee that potential impacts to the natural environment could possibly include:

- Disturbance (excavation / re-grading) of the study area (for bridge replacement alternative)
- Temporary in-water works, including temporary isolation of the structure and localized unwatering of the watercourse to allow works to be completed in the dry.
- Vegetation removals (if required) for widening of structure or roadway, regrading, construction access, etc.

We are in the process of undergoing desktop and field studies of the natural, heritage, built and economic environments to determine areas of interest and possible impacts.

A Cultural Heritage Evaluation and a Stage 1 Archaeological Assessment (AA) study have been completed on all four structures to date. Only Bridge 3E was found to have cultural heritage value/interest. A Heritage Impact Assessment will be scheduled for Bridge 3E, tentatively in August, to provide further context of impacts to heritage features and recommendations for conservation of these interests. The Stage 1 AA found that all bridges had low archaeological potential and indicated that no further investigations are required for the sites. The draft reports of these studies are provided at the link below for your reference. **Can you please confirm if you intend to review these draft reports and, if so, could you please provide comments by July 19, 2024**.

058117 - CHER and Stage 1 AA

From a Municipal Class Environmental Assessment perspective, the applicable schedule of these projects will be further reviewed and determined based on results of background studies. At current, it is anticipated that Bridges 2-WG, 5-E and 7-E will be exempt from the Environmental Assessment Act as per Project Description 31a of the MCEA Document as the studies completed indicated no heritage value or interest. Pending the results of the Heritage Impact Assessment (HIA), the Township may look to conserve heritage attributes of Bridge 3-E in accordance with the HIA and therefore that project may also be considered exempt through the Archaeological Screening Process (ASP). In order to complete the ASP and confirm the appropriate project schedule, **can HDI confirm the following**:

- Is there Aboriginal knowledge of archaeological sites on or within 500 metres of Bridge 3-E?
- Is there Aboriginal knowledge or historically documented evidence of past Aboriginal use on or within 500 meters of Bridge 3-E?
- Is there aboriginal knowledge of marine archaeological sites on or within 500 metres of Bridge 3-E?

We are scheduling field work for the natural environment studies in the coming weeks; however, we would like to confirm your preferred level of involvement in these field studies with you prior to them being undertaken. **Can you please confirm whether your request is to have a field monitor present for the studies below, or just to receive the draft environmental impacts study report for review?**

- Ecological Land Classification
- Botanical / Tree Inventory
- Aquatic Habitats survey
- Terrestrial Habitats survey

We hope that the above information allows you to confirm your desired level of involvement in the project and better outline the scope and terms of an agreement associated with the project. Should you have any questions or like further clarification on any aspects of this study, please do not hesitate to contact a member of the project team below. If you feel it would be beneficial, we could set up a meeting for further discussions regarding the project and agreement.

Adam Dickieson Engineering Services Coordinator Township of Centre Wellington 1 MacDonald Square, Elora, ON N0B 1S0	Andrew Daws Consultant Pr R.J. Burnside 292 Speedval Guelph, ON N

Regards,

Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0

519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Shannon Hill <shannonhill@hdi.land>
Sent: Monday, July 1, 2024 5:27 PM
To: Raechelle Williams <raechellewilliams@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>
Cc: andrew.dawson@rjburnside.com; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>
Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

You don't often get email from shannonhill@hdi.land. Learn why this is important

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Afternoon,

Could you please send the following details to get the agreement in order?

Could you please send us the details below:

1. Project name and address
2. Proper company name and address
3. Contact information for the individual responsible for executing the agreement (Name, phone number and email)
4. Invoicing information (Name and email)

We'll also need the PIF number licensee's name and email (if known)

Once this information is received agreement will be generated and sent.

Thank you,

Shannon Hill

Finance Assistant

Haudenosaunee Development Institute

PO Box 714

Ohsweken, Ontario N0A 1M0

From: Raechelle Williams <raechellewilliams@hdi.land>
Sent: Wednesday, June 26, 2024 4:30 PM
To: adickieson@centrewellington.ca <adickieson@centrewellington.ca>
Cc: andrew.dawson@rjburnside.com <andrew.dawson@rjburnside.com>; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Shannon Hill <shannonhill@hdi.land>
Subject: Fwd: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Sge:no Adam,

Nya:weh for reaching out regarding this study to review the four existing bridges in the Township of Centre Wellington. We would like to participate in this project and be involved with any infield and report reviewing for the natural environment assessment and archaeology assessments. Once the evaluation is completed, we wish to have a construction monitor be involved on any bridges requiring any rehabilitation or reconstruction.

I will have one of my colleagues prepare a 2024 Monitoring Agreement and send it to you. Once this is completed and signed by both parties, please forward the scheduled work to Todd Williams, archeaology@hdi.land and myself.

Nya:weh,

Raechelle Williams

HDI Environmental Supervisor

Haudenosaunee Development Institute

P.O. Box 714

Ohsweken, ON

N0A 1M0

Ph: 519-445-4222

(Direct): 519-802-9402



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---------- Forwarded message ---------
From: **Tracey General** <traceyghdi@gmail.com>
Date: Wed, Jun 12, 2024 at 12:59 PM
Subject: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045
To: Brian Doolittle <ganowa@me.com>, Aaron Detlor <aarondetlor@gmail.com>, Todd Williams <toddwilliams@hdi.land>, Raechelle Williams <raechellewilliams@hdi.land>, Sharann Martin <sharannmartin@hdi.land>

Good Afternoon:

RE: STUDY OF FOUR BRIDGES IN THE TOWNSHIP OF CENTRE WELLINGTON
PROJECT NO.: 300058117

Please see attachment.

Thank you!
Tracey

Crystal Ferguson

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Thursday, August 08, 2024 11:43 AM
To: Todd Williams
Cc: Andrew Dawson; Owen Greene; Shannon Hill; Archaeology Department; Raechelle Williams
Subject: RE: HDI Monitoring Agreement for the Study of Four Bridges in Township of Centre Wellington
Attachments: 2024-25 HDI Monitor Agree-TCW Bridge & Transp. Network Study.pdf

Todd,

Please find attached a Township of Centre Wellington signed copy of the HDI Monitoring agreement.

The Township consultant (R.J. Burnside) will be communicating with HDI shortly regarding an upcoming environmental field study that is to be scheduled as part of this Four Bridge Study.

Regards,
Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Todd Williams <toddwilliams@hdi.land>
Sent: Wednesday, August 7, 2024 3:06 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Cc: Andrew.Dawson@rjburnside.com; Owen Greene <owengreene@hdi.land>; Shannon Hill <shannonhill@hdi.land>; Archaeology Department <archaeology@hdi.land>; Raechelle Williams <raechellewilliams@hdi.land>
Subject: Re: HDI Monitoring Agreement for the Study of Four Bridges in Township of Centre Wellington

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Afternoon Adam,

See attached updated agreement with the requested changes.

Please review and send back a signed copy.

Thanks Todd

On Wed, Jul 31, 2024 at 4:30 PM Adam Dickieson <ADickieson@centrewellington.ca> wrote:

> Todd,
>
> The Township is prepared to enter into the attached monitoring agreement with HDI for the Bridge and Transportation Network Study (4
>
> Bridges.
>
> I would like to request the following two revisions in bold to the attached draft agreement ahead of signing:
>
> - #11. *And copied to any Licensed Archaeologist involved in the Project at:*
>
> **Jamie Lemon**
>
> **jlemon@phcgroup.ca**
>
> - Please revise the Township signing authority to
>
> **Adam McNabb, Township of Centre Wellington**
>
> Let me know if the are any additional details required at this time.
>
> Regards,
>
> Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0

519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Todd Williams <toddwilliams@hdi.land>
Sent: Wednesday, July 17, 2024 1:02 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Cc: Andrew.Dawson@rjburnside.com; Owen Greene <owengreene@hdi.land>; Shannon Hill <shannonhill@hdi.land>; Archaeology Department <archaeology@hdi.land>; Raechelle Williams <raechellewilliams@hdi.land>
Subject: HDI Monitoring Agreement for the Study of Four Bridges in Township of Centre Wellington

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Sge:no(hi) Adam,

I'm emailing in regards to the email notification HDI received regarding the above mentioned project.

To accommodate HDI's participation in this project, I've attached a copy of HDI's standard monitoring agreement.

Please review...If agreed too, please sign and return a copy.

Nya:weh (thanks),

Todd E. Williams, P.Eng

Monitoring Program Coordinator

Haudenosaunee Development Institute (HDI)

Haudenosaunee Confederacy Chiefs Council (HCCC)
Haudenosaunee 1755 Treaty Territory

O: 519-445-4222

M: 519-761-1794

https://hdi.land/
https://www.haudenosauneeconfederacy.com/

https://www.loc.gov/resource/g3300.np000009/?r=0.369,0.207,0.25,0.114,0

---------- Forwarded message ---------
From: **Adam Dickieson** <ADickieson@centrewellington.ca>
Date: Wed, Jul 17, 2024 at 8:40 AM
Subject: RE: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045
To: Shannon Hill <shannonhill@hdi.land>, Raechelle Williams <raechellewilliams@hdi.land>
Cc: HDI Administration <administration@hdi.land>, Todd Williams <toddwilliams@hdi.land>, Sharann Martin <sharannmartin@hdi.land>, Tricia Radburn <Tricia.Radburn@rjburnside.com>, Andrew Dawson <Andrew.Dawson@rjburnside.com>

Shannon, Raechelle,

I am back in the office and getting caught up on my emails. Please send the agreement to me when it has been prepared.

Thank you,

Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0

519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Sent: Tuesday, July 9, 2024 12:16 PM
To: Shannon Hill <shannonhill@hdi.land>; Raechelle Williams <raechellewilliams@hdi.land>
Cc: HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>; Tricia Radburn <Tricia.Radburn@rjburnside.com>
Subject: RE: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

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Shannon,

Thank you for the update! Is it possible that you could cc me when the agreement is sent to Adam D? Given that Adam will be away until the 15th , I'd like to keep the ball rolling on this and can discuss the agreement with Adam's manager at the Township in his absence.

Regards,

Andrew

Andrew Dawson
Project Engineer

R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

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Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

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Finance Assistant

Haudenosaunee Development Institute

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058117 - CHER and Stage 1 AA

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- Botanical / Tree Inventory
- Aquatic Habitats survey
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Adam Dickieson Engineering Services Coordinator Township of Centre Wellington 1 MacDonald Square, Elora, ON N0B 1S0	Andrew Daws Consultant Pr R.J. Burnside 292 Speedval Guelph, ON N

Regards,

Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0

519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Shannon Hill <shannonhill@hdi.land>
Sent: Monday, July 1, 2024 5:27 PM
To: Raechelle Williams <raechellewilliams@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>
Cc: andrew.dawson@rjburnside.com; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>
Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

You don't often get email from shannonhill@hdi.land. Learn why this is important

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Afternoon,

Could you please send the following details to get the agreement in order?

Could you please send us the details below:

1. Project name and address
2. Proper company name and address
3. Contact information for the individual responsible for executing the agreement (Name, phone number and email)
4. Invoicing information (Name and email)

We'll also need the PIF number licensee's name and email (if known)

Once this information is received agreement will be generated and sent.

Thank you,

Shannon Hill

Finance Assistant

Haudenosaunee Development Institute

PO Box 714

Ohsweken, Ontario N0A 1M0

From: Raechelle Williams <raechellewilliams@hdi.land>
Sent: Wednesday, June 26, 2024 4:30 PM
To: adickieson@centrewellington.ca <adickieson@centrewellington.ca>
Cc: andrew.dawson@rjburnside.com <andrew.dawson@rjburnside.com>; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Shannon Hill <shannonhill@hdi.land>
Subject: Fwd: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Sge:no Adam,

Nya:weh for reaching out regarding this study to review the four existing bridges in the Township of Centre Wellington. We would like to participate in this project and be involved with any infield and report reviewing for the natural environment assessment and archaeology assessments. Once the evaluation is completed, we wish to have a construction monitor be involved on any bridges requiring any rehabilitation or reconstruction.

I will have one of my colleagues prepare a 2024 Monitoring Agreement and send it to you. Once this is completed and signed by both parties, please forward the scheduled work to Todd Williams, archeaology@hdi.land and myself.

Nya:weh,

Raechelle Williams

HDI Environmental Supervisor

Haudenosaunee Development Institute

P.O. Box 714

Ohsweken, ON

N0A 1M0

Ph: 519-445-4222

(Direct): 519-802-9402



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---------- Forwarded message ---------
From: **Tracey General** <traceyghdi@gmail.com>
Date: Wed, Jun 12, 2024 at 12:59 PM
Subject: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045
To: Brian Doolittle <ganowa@me.com>, Aaron Detlor <aarondetlor@gmail.com>, Todd Williams <toddwilliams@hdi.land>, Raechelle Williams <raechellewilliams@hdi.land>, Sharann Martin <sharannmartin@hdi.land>

Good Afternoon:

RE: STUDY OF FOUR BRIDGES IN THE TOWNSHIP OF CENTRE WELLINGTON
PROJECT NO.: 300058117

Please see attachment.

Thank you!
Tracey

Haudenosaunee Development Institute

July 04, 2024

Township of Centre of Wellington (THE TOWNSHIP)
1 MacDonald Square
Elora, Ontario
N0B 1S0

Subject: HDI Project Monitoring Agreement for Bridge and Transportation Network Study (4 Bridges, See Schedule C), Various locations

This monitoring agreement (this "Agreement") is entered into by THE TOWNSHIP and Haudenosaunee Development Institute ("HDI"). The purpose of this Agreement is for THE TOWNSHIP, to meet engagement obligations, including capacity funding for project review, assessment, analysis and monitoring for the Project in accordance with the Rates set out at Schedule A attached hereto.

Note: This Agreement by itself does not constitute consultation, engagement, and/or consent for the subject Project.

This Agreement allows HDI to provide timely and meaningful comment with respect to upholding commitments and responsibilities arising from Haudenosaunee instruments including but not limited to our Opening Address referred to in Kanien'kéha (Mohawk) as the Ohén:ton Karihwatéhkwen. It is understood and acknowledged that all work on the Project will be undertaken in accordance with applicable industry standard requirements, protocols, thresholds and practices. The terms contained in this Agreement are binding only to this Agreement.

Subject to the below terms and conditions, THE TOWNSHIP and HDI (collective, the "Parties") hereby agree that THE TOWNSHIP will provide capacity funding, at the sole expense of THE TOWNSHIP for the services on the terms set forth herein.

In addition, the Parties agree that the Monitors will be reimbursed for mileage and meals in accordance with the Canada Treasury Board Guidelines. Amounts invoiced by HDI in accordance with Schedule A shall be payable to the **Haudenosaunee Development Institute** at the following:

Bank #: 001
Transit # 37522
Bank Account #: 1100-241
Email address for remittance – shannonhill@hdi.land

Six Nations of the Grand River Territory • P.O. Box 714 • Ohsweken, Ontario N0A 1M0
Telephone • 519.445.4222 *Facsimile* • 519.445.2389 • info@hdi.land

1. The Monitors selected by HDI shall have appropriate qualifications for the work required including training in monitoring, as set forth in **Schedule A**. Upon request by THE TOWNSHIP, HDI or the applicable Monitors shall provide written evidence of such Monitor's qualifications to THE TOWNSHIP. **Schedule B** is provided by HDI to THE TOWNSHIP and serves as the geographic and legal rights that that Haudenosaunee Confederacy Chiefs Council (HCCC) hold over the territory that THE TOWNSHIP operates within.

2. The amount billed by HDI in respect of the Monitoring work shall not exceed the amounts indicated in **Schedule A**, attached hereto, with the exception of section 20 of this Agreement.

3. Any issues arising from this Agreement that requires the approval of both Parties, shall be brought to an Issues Management Committee (the "Committee"). The Committee shall be struck within 5 business days or less, and consensus will be sought. The members of the Committee are as follows and can be delegated to other members of their respective organization:

   Todd Williams, P.Eng,
   toddwilliams@hdi.land

   Adam Dickieson
   519-546-9691
   adickieson@centrewellington.ca

4. The Parties agree that the Monitors are not employees, contractors, or sub-contractors of THE TOWNSHIP or their consultant(s) and that the Monitors will be responsible for their own personal protective equipment, such as hard hats, safety boots and safety vests unless specific or otherwise unique personal protective equipment is required, in which case will be provided or reimbursed by THE TOWNSHIP.

5. All Monitors shall comply with the personal protective equipment requirements on the Project site. Monitors shall follow the reasonable instructions of THE TOWNSHIP and their consultant(s) conducting the work concerning safety practices and the Monitors will attend "tailgate" safety meetings if requested.

6. Any costs associated with required special or additional training of HDI Monitors shall be borne by THE TOWNSHIP at the hourly rates specified in the Agreement.

7. If its use is deemed necessary by both parties, THE TOWNSHIP agrees to reimburse the Monitor for their use of the 407ETR, all inclusive fees, within 60 days of receipt of invoice including a copy of the bill.

8. THE TOWNSHIP shall provide payment for the cost of overnight accommodation for the Monitors participating in monitoring at locations that would otherwise require more than 90

minutes of travel time at both the beginning and end of the workday, as determined using the HDI office as place of departure.

9. THE TOWNSHIP will pay the Monitor a minimum for four (4) hours, plus travel time and mileage when fieldwork has been cancelled either while travelling to site or upon arrival.

10. THE TOWNSHIP or the Project Consultant will coordinate site meeting locations and times directly with HDI's field supervisors. The contact information for the HDI field supervisors is as follows:

Archaeology
archaeology@hdi.land

Environmental
Raechelle Williams
(519) 802-9402
raechellewilliams@hdi.land

11. THE TOWNSHIP will provide payment by cheque or bank transfer within thirty (30) days upon receipt of an undisputed invoice. Invoices will explain in reasonable detail each Monitors time, fees, mileage and meal expenses and the nature and date of work performed.

    All invoices should be addressed directly to Township of Centre of Wellington, the Project name and purchase order if required should be noted in the text of each invoice.

    Fees, invoices, and/or disbursements remaining unpaid after thirty (30) days the invoice is delivered will earn interest at two (2%) percent per month or 26.82% per annum.

    Invoices to be submitted to the following:
    Adam Dickieson
    adickieson@centrewellington.ca
    Purchase Order#:

    And copied to any Licensed Archaeologist involved in the Project at:
    Jamie Lemon
    jlemon@phcgroup.ca

12. THE TOWNSHIP is not responsible for any direct or indirect damage or harm caused by HDI and vice versa.

13. This Agreement shall remain in place for the duration of the Project Development.

14. **This Agreement may be terminated by HDI upon thirty (30) days written notice to the other party. Electronic communications constitute written notice.**

Todd Williams, P.Eng,
toddwilliams@hdi.land

Adam Dickieson
adickieson@centrewellington.ca

15. HDI pays Workplace Safety and insurance Board ("WSIB") contributions in respect of the Monitors and will, at its own expense, maintain for the term of this agreement a comprehensive general liability ("CGL") policy or policies with a limit of at least $5 million and shall provide THE TOWNSHIP with evidence of such insurance within 30 days of the signing of this agreement.

16. The Parties agree that this Agreement and any amendments thereto, if any, constitute the entire agreement between the Parties as to the matters governed hereby and supersede and replaces all prior arrangements, agreements, or understandings with respect to such matters.

17. Each Party represents and warrants to the other that its undersigned signatories are authorized to execute this agreement on behalf of the respective Party.

18. Both parties will comply with the Occupational Health and Safety Act, R.S.O 1990, C. 0.1, the Ontario Human Rights Code, R.S.O. 1990, c. H.19, and maintain a safe, harassment-free work environment. Nothing in this Agreement subjugates HDI to this legislation.

19. If, in the event that Indigenous artifacts are discovered, THE TOWNSHIP agrees to work with HDI to facilitate site visits to allow for the assessment of the heritage value by HDI, and in accordance with the applicable legislation, guidelines and standards that govern provincially licensed archaeologists. THE TOWNSHIP acknowledges that at times, additional delegates may need to be brought to the site for their relevant expertise from the regions where HDI currently conducts their day-to-day business operations, provided such delegates are approved in advance by THE TOWNSHIP

    THE TOWNSHIP further acknowledges that it is their preference that all work ceases on an affected area within a site until HDI are able to conduct its heritage value assessment.

20. If HDI is of the view, that designated HDI staff are unable to complete a comprehensive technical review of Project materials. THE TOWNSHIP agrees to pay costs approved in advance in writing by THE TOWNSHIP incurred by HDI to retain an external expert in the appropriate field to be chosen at HDI's sole discretion. The Parties agree that a review by an external expert will only commence following mutual acceptance by both Parties of the external expert selected and an estimate of work and budget provided by the expert. The

Issues Management Committee will determine this funding request and will be accepted if reasonable in order to fulfill THE TOWNSHIP's legal obligations.

21. HDI and THE TOWNSHIP agree to keep all information pertaining to or arising from this Agreement confidential at all times after the date of this Agreement, and not directly or indirectly reveal, disclose or use for its own or any other purposes any information received or obtained as a result of entering into or performing, or supplied by or on behalf of THE TOWNSHIP in the negotiations leading to or during the term of this Agreement.

22. HDI acknowledges that THE TOWNSHIP may be an institution to which the Freedom of Information and Protection of Privacy Act (Ontario) (hereinafter, "FIPPA") applies and may have to disclose information relating to this Agreement in the event of an access request made under FIPPA, with the exception of the protection of Indigenous knowledge as laid out in s. 15.1 of the same Act.

23. This Agreement may be executed in counterparts (in either original or electronic form), each of which will be deemed to be an original and all of which when taken together will constitute the same agreement.

Haudenosaunee Development Institute

Signed on date: _____, 20____

The foregoing accurately reflects the terms of the arrangement which we hereby agree to enter into, and the undersigned agrees to be legally bound hereby.

Accepted at Elora, ON this 8th day of August, 2024

By: _____

Adam McNabb, Township of Centre of Wellington

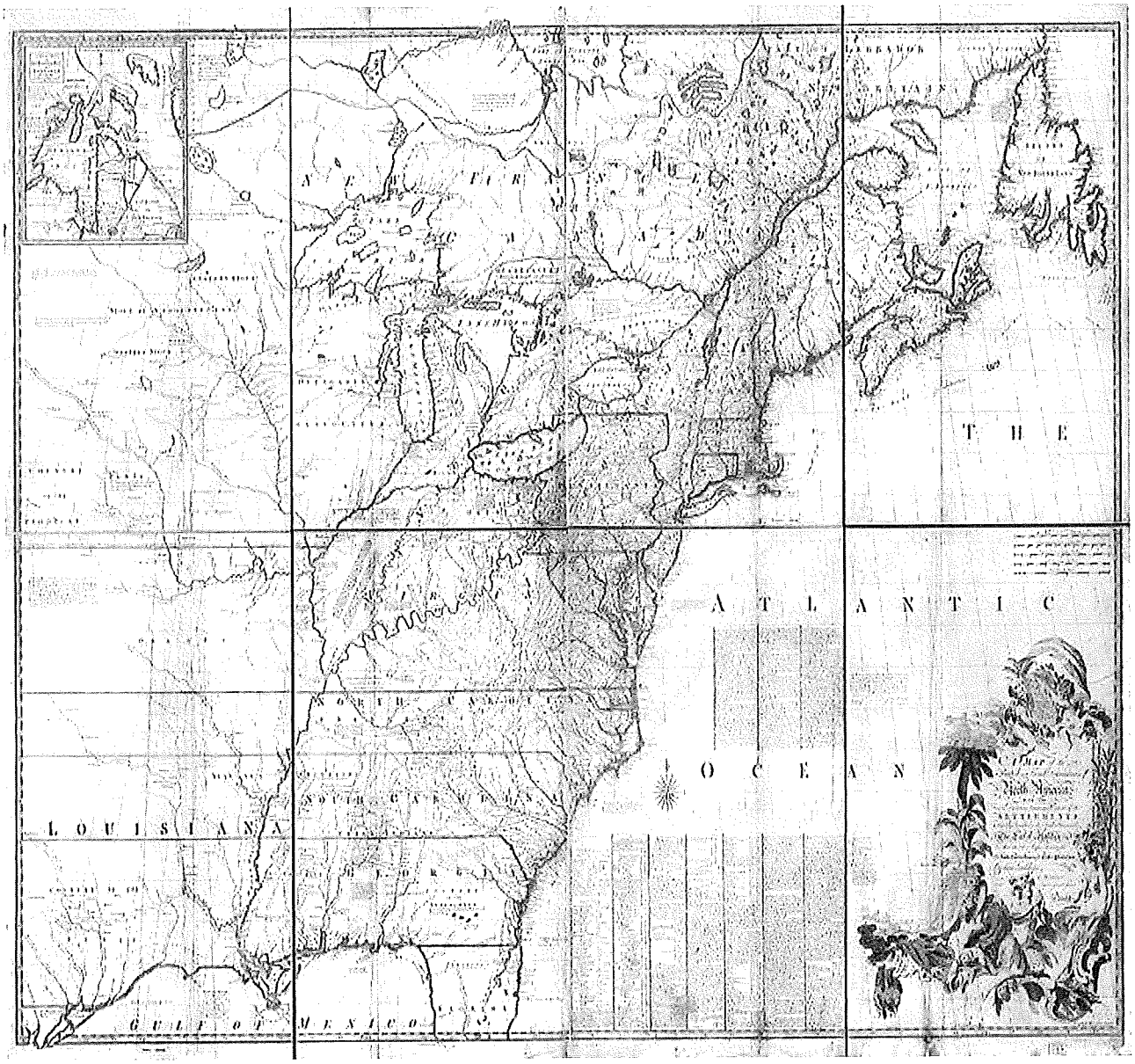
Schedule A – HDI MONITOR RATES

TITLE	QUALIFICATIONS	RATE/HOUR	TRAVEL ALLOWANCE
Archaeology Supervisor	Archaeology School & HCCC Archaeology Monitor Certificate	$230.00	0.59/km
Archaeology Monitors	HCCC Archaeology Monitor Training Certificate	$200.00	0.59/km
Environmental Supervisor	Post Secondary CAN-CISEC Certified	$230.00	0.59/km
Environmental Monitors	Post Secondary, Environmental or related field	$200.00	0.59/km
Construction Monitor	HCCC Construction Monitor Certificate	$200.00	0.59/km
Technical Level I	Cumulative Impact Coordinator	$300.00	0.59/km
Technical Level II	Cumulative Impact Analyst	$400.00	0.59/km
Technical Level III	Cumulative Impact Expert	$600.00	0.59/km
Licensed Archaeologist	License Holder	$350.00	0.59/km
Manager of Archaeology and Regulatory Approvals	License Holder	$225.00	0.59/km
Monitor Manager and Supervisor		$195.00	0.59/km
Cultural Practitioners and Advisors		$200.00	0.59/km
Meal Allowance, per day, if applicable			$123.40

One (1) Monitor per discipline for the duration of the project at the rates outlined above, unless the Consultant to Monitor ratio exceeds 4:1

HDI Supervisory hours, as required for the duration of the project.

SCHEDULE B – Mitchell Map (1755)



Schedule C – Project Locations

Bridge 2-WG = Third Line, approximately 330 m north of Eramosa-Garafraxa Townline (https://maps.app.goo.gl/h3JsWbNqG87vK8Xp8)

Bridge 3-E = Sixth Line, approximately 1.9 km north of Wellington Road 22 (https://maps.app.goo.gl/WKgbhkFX54BoNJhS9)

Bridge 5-E = Fourth Line, approximately 1.5 km north of Wellington Road 22 (https://maps.app.goo.gl/6TfHwJGcC8BMhpgV8)

Bridge 7-E = Third Line, approximately 1.5 km north of Wellington Road 22 (https://maps.app.goo.gl/FUBE7fj7WQKZPT6g9)

Six Nations of the Grand River Territory • P.O. Box 714 • Ohsweken, Ontario N0A 1M0
Telephone • 519.445.4222 *Facsimile* • 519.445.2389 • info@hdi.land

Crystal Ferguson

From: Andrew Dawson
Sent: Monday, August 12, 2024 5:06 PM
To: Raechelle Williams
Cc: Owen Greene; Shannon Hill; Archaeology Department; Adam Dickieson; Todd Williams
Subject: RE: HDI Monitoring Agreement for the Study of Four Bridges in Township of Centre Wellington

Raechelle,
Now that the agreement has been finalized and signed, we are looking to get our team out to complete the field work in the next week to allow us to continue moving forward with this project.
Our team will conduct their preliminary reviews of the sites in the morning and then meet your staff in the afternoon to tour each site with you. This will allow the time spent on site with your team to allow for meaningful consultation of discussions related to their findings and any additional insights that your field representative has to offer.

Details related to the ecological field assessments are provided below:

Start Date:	August 20, 2024
End Date:	August 20, 2024
Start Time	1:00 p.m.
End Time	5:00 p.m.
Consultant Company:	R.J. Burnside & Associates Ltd.
Field Director Contact:	Kevin Butt	Mobile #: 1 519-820-9395
Project Manager Contact:	Tricia Radburn	Mobile #: 1 226-820-2676
Assessment(s):	- Background natural heritage review - Ecological Land Classification - Tree inventory - Wildlife/SAR habitats - Aquatic habitat / characterization
Required PPE	steel-toed work boots, sunscreen/hat/water as required
Size of Field Crew	3 technicians
Duration of Lunch break	N/A
Meeting Location Address	Start at Bridge 2-WG, located on Third Line, approximately 330 m north of Eramosa-Garafraxa Townline (Google Maps_2WG) - Additional site locations: Bridge 3-E = Sixth Line, approximately 1.9 km north of Wellington Road 22 (Google Maps_3E) Bridge 5-E = Fourth Line, approximately 1.5 km north of Wellington Road 22 (Google Maps_5E) Bridge 7-E = Third Line, approximately 1.5 km north of Wellington Road 22 (Google Maps_7E)
Parking Instructions:	Parking will be conducted safely on side of road at each bridge site
Relevant Report(s) for this work:	No report reviews required prior to attending site. Natural Heritage Report will be drafted following the site reviews and forwarded to HDI for review upon the completion of the draft

Please confirm receipt of this email and let me know if you need any additional information or have any comments/concerns.

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Thursday, August 08, 2024 11:43 AM
To: Todd Williams <toddwilliams@hdi.land>
Cc: Andrew Dawson <Andrew.Dawson@rjburnside.com>; Owen Greene <owengreene@hdi.land>; Shannon Hill <shannonhill@hdi.land>; Archaeology Department <archaeology@hdi.land>; Raechelle Williams <raechellewilliams@hdi.land>
Subject: RE: HDI Monitoring Agreement for the Study of Four Bridges in Township of Centre Wellington

Todd,

Please find attached a Township of Centre Wellington signed copy of the HDI Monitoring agreement.

The Township consultant (R.J. Burnside) will be communicating with HDI shortly regarding an upcoming environmental field study that is to be scheduled as part of this Four Bridge Study.

Regards,
Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Todd Williams <toddwilliams@hdi.land>
Sent: Wednesday, August 7, 2024 3:06 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Cc: Andrew.Dawson@rjburnside.com; Owen Greene <owengreene@hdi.land>; Shannon Hill <shannonhill@hdi.land>; Archaeology Department <archaeology@hdi.land>; Raechelle Williams <raechellewilliams@hdi.land>
Subject: Re: HDI Monitoring Agreement for the Study of Four Bridges in Township of Centre Wellington

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Afternoon Adam,

See attached updated agreement with the requested changes.

Please review and send back a signed copy.

Thanks Todd

On Wed, Jul 31, 2024 at 4:30 PM Adam Dickieson <ADickieson@centrewellington.ca> wrote:

> Todd,
>
> The Township is prepared to enter into the attached monitoring agreement with HDI for the Bridge and Transportation Network Study (4
>
> Bridges.
>
> I would like to request the following two revisions in bold to the attached draft agreement ahead of signing:
>
> - #11. *And copied to any Licensed Archaeologist involved in the Project at:*
>
> **Jamie Lemon**
>
> **jlemon@phcgroup.ca**
>
> - Please revise the Township signing authority to
>
> **Adam McNabb, Township of Centre Wellington**
>
> Let me know if the are any additional details required at this time.
>
> Regards,
>
> Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0

519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Todd Williams <toddwilliams@hdi.land>
Sent: Wednesday, July 17, 2024 1:02 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Cc: Andrew.Dawson@rjburnside.com; Owen Greene <owengreene@hdi.land>; Shannon Hill <shannonhill@hdi.land>; Archaeology Department <archaeology@hdi.land>; Raechelle Williams <raechellewilliams@hdi.land>
Subject: HDI Monitoring Agreement for the Study of Four Bridges in Township of Centre Wellington

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Sge:no(hi) Adam,

I'm emailing in regards to the email notification HDI received regarding the above mentioned project.

To accommodate HDI's participation in this project, I've attached a copy of HDI's standard monitoring agreement.

Please review...If agreed too, please sign and return a copy.

Nya:weh (thanks),

Todd E. Williams, P.Eng

Monitoring Program Coordinator

Haudenosaunee Development Institute (HDI)

Haudenosaunee Confederacy Chiefs Council (HCCC)
Haudenosaunee 1755 Treaty Territory

O: 519-445-4222

M: 519-761-1794

https://hdi.land/
https://www.haudenosauneeconfederacy.com/

https://www.loc.gov/resource/g3300.np000009/?r=0.369,0.207,0.25,0.114,0

---------- Forwarded message ---------
From: **Adam Dickieson** <ADickieson@centrewellington.ca>
Date: Wed, Jul 17, 2024 at 8:40 AM
Subject: RE: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045
To: Shannon Hill <shannonhill@hdi.land>, Raechelle Williams <raechellewilliams@hdi.land>
Cc: HDI Administration <administration@hdi.land>, Todd Williams <toddwilliams@hdi.land>, Sharann Martin <sharannmartin@hdi.land>, Tricia Radburn <Tricia.Radburn@rjburnside.com>, Andrew Dawson <Andrew.Dawson@rjburnside.com>

Shannon, Raechelle,

I am back in the office and getting caught up on my emails. Please send the agreement to me when it has been prepared.

Thank you,

Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0

519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Sent: Tuesday, July 9, 2024 12:16 PM
To: Shannon Hill <shannonhill@hdi.land>; Raechelle Williams <raechellewilliams@hdi.land>
Cc: HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>; Tricia Radburn <Tricia.Radburn@rjburnside.com>
Subject: RE: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Shannon,

Thank you for the update! Is it possible that you could cc me when the agreement is sent to Adam D? Given that Adam will be away until the 15th , I'd like to keep the ball rolling on this and can discuss the agreement with Adam's manager at the Township in his absence.

Regards,

Andrew

Andrew Dawson
Project Engineer

R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Shannon Hill <shannonhill@hdi.land>
Sent: Tuesday, July 09, 2024 10:48 AM
To: Andrew Dawson <Andrew.Dawson@rjburnside.com>; Raechelle Williams <raechellewilliams@hdi.land>
Cc: HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>; Tricia Radburn <Tricia.Radburn@rjburnside.com>
Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

The agreement is ready to be sent out to Adam Dickieson, it will be sent later today

Thank you,

Shannon Hill

Finance Assistant

Haudenosaunee Development Institute

PO Box 714

Ohsweken, Ontario N0A 1M0

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Sent: Tuesday, July 9, 2024 10:23 AM
To: Raechelle Williams <raechellewilliams@hdi.land>
Cc: Shannon Hill <shannonhill@hdi.land>; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>; Tricia Radburn <Tricia.Radburn@rjburnside.com>
Subject: RE: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Raechelle,

Adam Dickieson from the Township is currently out of office, so I will respond on his behalf.

R.J. Burnside's staff will be conducting the environmental field studies listed below. I have cc'd Tricia Radburn on this email, who will be coordinating those studies. It would be ideal for us to have the studies completed within the next couple of weeks, but we do not have a definitive date set yet, as we wanted to confirm HDI's level of involvement and finalize any agreements before scheduling.

As such, I believe the next step will be the review of HDI's agreement for these works with the Township once it is received. Once an agreement is made, we can coordinate scheduling the work between your team and Tricia.

We look forward to hearing from Todd and Sharran as well regarding the archaeological items!

Regards,

Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Raechelle Williams <raechellewilliams@hdi.land>
Sent: Friday, July 05, 2024 3:34 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Cc: Shannon Hill <shannonhill@hdi.land>; Andrew Dawson <Andrew.Dawson@rjburnside.com>; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>
Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Sge:no Adam,

To answer your question regarding the natural environment studies, yes HDI will have a monitor be present for the studies below and will also like to receive the draft environmental impact study report for review.

- ELC
- Botanical/Tree Inventory
- Aquatic Habitats survey
- Terrestrial Habitats survey

Can you forward the consultant who is performing these surveys scheduled and we can arrange to have a monitor participate with them in the field.

As for the archaeology portion of this project, I will leave this response with my colleagues Todd Williams and Sharann Martin.

Regards,

Raechelle Williams

HDI Environmental Supervisor

Haudenosaunee Development Institute

P.O. Box 714

Ohsweken, ON

N0A 1M0

Ph: 519-445-4222

(Direct): 519-802-9402

The content of this email is confidential and intended for the recipient specified in message only. It is strictly forbidden to share any part of this message with any third party, without a written consent of the sender. If you received this message by mistake, please reply to this message and follow with its deletion, so that we can ensure such a mistake does not occur in the future.

On Thu, Jul 4, 2024 at 11:18 AM Adam Dickieson <ADickieson@centrewellington.ca> wrote:

> Shannon and Raechelle,

Nya:weh / Thank-you for your interest in the Township's project. We are looking forward to working with your community and hearing further information related your community's interest in the proposed activities.

In regards to Shannon's request for information, please see responses below:

1. **Project name and address:**

   Bridge and Transportation Network Study for Four Bridges

   Locations:

   Bridge 2-WG = Third Line, approximately 330 m north of Eramosa-Garafraxa Townline (https://maps.app.goo.gl/h3JsWbNqG87vK8Xp8)

   Bridge 3-E = Sixth Line, approximately 1.9 km north of Wellington Road 22 (https://maps.app.goo.gl/WKgbhkFX54BoNJhS9)

   Bridge 5-E = Fourth Line, approximately 1.5 km north of Wellington Road 22 (https://maps.app.goo.gl/6TfHwJGcC8BMhpgV8)

   Bridge 7-E = Third Line, approximately 1.5 km north of Wellington Road 22 (https://maps.app.goo.gl/FUBE7fj7WQKZPT6g9)

2. **Proper company name and address**: Township of Centre Wellington, 1 MacDonald Square, Elora, ON N0B 1S0
3. **Contact information for the individual responsible for executing the agreement (Name, phone number and email):** Adam Dickieson, adickieson@centrewellington.ca
4. **Invoicing information (Name and email):** Adam Dickieson, adickieson@centrewellington.ca

To help us understand your desired level of involvement, I am providing a brief overview of the project status and anticipated impacts below for your consideration and ask that you outline which specific aspects of the project you have interest in, and whether that interest is field monitoring and/or document review:

The four bridge structures are watercourse crossings of the Speed River and its tributaries, which are part of the Grand Rivier watershed. The existing structures are narrow, single lane structures that were constructed between 1919 and 1923. Three of the four structures have been closed to traffic and the fourth has been load restricted to 15 tonnes due to the deteriorated state and concerns regarding load carrying capacity. The multiple closures of structures within this study area has resulted in disruptions to transportation connectivity and the Township is looking to confirm their preferred approach for this system of structures. The study will examine the effects of opening several combinations of structures, including no structures or all structures.

The potential impacts to the natural environment will be dependent on the selective alternative at each site. From a preliminary perspective, we are looking at considering several options at each site, including:

- Do Nothing (deteriorated structures remain in place and closed to traffic)
- Permanent Removal of Structure
- Rehabilitation of Structure (likely to be deemed unfeasible due to the state of the structures)
- Replacement of Structure

Based on these alternatives we can foresee that potential impacts to the natural environment could possibly include:

- Disturbance (excavation / re-grading) of the study area (for bridge replacement alternative)
- Temporary in-water works, including temporary isolation of the structure and localized unwatering of the watercourse to allow works to be completed in the dry.
- Vegetation removals (if required) for widening of structure or roadway, regrading, construction access, etc.

We are in the process of undergoing desktop and field studies of the natural, heritage, built and economic environments to determine areas of interest and possible impacts.

A Cultural Heritage Evaluation and a Stage 1 Archaeological Assessment (AA) study have been completed on all four structures to date. Only Bridge 3E was found to have cultural heritage value/interest. A Heritage Impact Assessment will be scheduled for Bridge 3E, tentatively in August, to provide further context of impacts to heritage features and recommendations for conservation of these interests. The Stage 1 AA found that all bridges had low archaeological potential and indicated that no further investigations are required for the sites. The draft reports of these studies are provided at the link below for your reference. **Can you please confirm if you intend to review these draft reports and, if so, could you please provide comments by July 19, 2024**.

058117 - CHER and Stage 1 AA

From a Municipal Class Environmental Assessment perspective, the applicable schedule of these projects will be further reviewed and determined based on results of background studies. At current, it is anticipated that Bridges 2-WG, 5-E and 7-E will be exempt from the Environmental Assessment Act as per Project Description 31a of the MCEA Document as the studies completed indicated no heritage value or interest. Pending the results of the Heritage Impact Assessment (HIA), the Township may look to conserve heritage attributes of Bridge 3-E in accordance with the HIA and therefore that project may also be considered exempt through the Archaeological Screening Process (ASP). In order to complete the ASP and confirm the appropriate project schedule, **can HDI confirm the following**:

- Is there Aboriginal knowledge of archaeological sites on or within 500 metres of Bridge 3-E?
- Is there Aboriginal knowledge or historically documented evidence of past Aboriginal use on or within 500 meters of Bridge 3-E?
- Is there aboriginal knowledge of marine archaeological sites on or within 500 metres of Bridge 3-E?

We are scheduling field work for the natural environment studies in the coming weeks; however, we would like to confirm your preferred level of involvement in these field studies with you prior to them being undertaken. **Can you please confirm whether your request is to have a field monitor present for the studies below, or just to receive the draft environmental impacts study report for review?**

- Ecological Land Classification
- Botanical / Tree Inventory
- Aquatic Habitats survey
- Terrestrial Habitats survey

We hope that the above information allows you to confirm your desired level of involvement in the project and better outline the scope and terms of an agreement associated with the project. Should you have any questions or like further clarification on any aspects of this study, please do not hesitate to contact a member of the project team below. If you feel it would be beneficial, we could set up a meeting for further discussions regarding the project and agreement.

Adam Dickieson Engineering Services Coordinator Township of Centre Wellington 1 MacDonald Square, Elora, ON N0B 1S0 519-846-9691 x 355 adickieson@centrewellington.ca	Andrew Dawson, P. Eng. Consultant Project Manager R.J. Burnside & Associates Ltd. 292 Speedvale Ave W. #20, Guelph, ON N1H 1C4 705-797-4310 andrew.dawson@rjburnside.com

Regards,

Adam.



Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0

519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Shannon Hill <shannonhill@hdi.land>
Sent: Monday, July 1, 2024 5:27 PM
To: Raechelle Williams <raechellewilliams@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>
Cc: andrew.dawson@rjburnside.com; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>
Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

You don't often get email from shannonhill@hdi.land. Learn why this is important

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Afternoon,

Could you please send the following details to get the agreement in order?

Could you please send us the details below:

1. Project name and address
2. Proper company name and address
3. Contact information for the individual responsible for executing the agreement (Name, phone number and email)
4. Invoicing information (Name and email)

We'll also need the PIF number licensee's name and email (if known)

Once this information is received agreement will be generated and sent.

Thank you,

Shannon Hill

Finance Assistant

Haudenosaunee Development Institute

PO Box 714

Ohsweken, Ontario N0A 1M0

From: Raechelle Williams <raechellewilliams@hdi.land>
Sent: Wednesday, June 26, 2024 4:30 PM
To: adickieson@centrewellington.ca <adickieson@centrewellington.ca>
Cc: andrew.dawson@rjburnside.com <andrew.dawson@rjburnside.com>; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Shannon Hill <shannonhill@hdi.land>
Subject: Fwd: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Sge:no Adam,

Nya:weh for reaching out regarding this study to review the four existing bridges in the Township of Centre Wellington. We would like to participate in this project and be involved with any infield and report reviewing for the natural environment assessment and archaeology assessments. Once the evaluation is completed, we wish to have a construction monitor be involved on any bridges requiring any rehabilitation or reconstruction.

I will have one of my colleagues prepare a 2024 Monitoring Agreement and send it to you. Once this is completed and signed by both parties, please forward the scheduled work to Todd Williams, archeaology@hdi.land and myself.

Nya:weh,

Raechelle Williams

HDI Environmental Supervisor

Haudenosaunee Development Institute

P.O. Box 714

Ohsweken, ON

N0A 1M0

Ph: 519-445-4222

(Direct): 519-802-9402



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---------- Forwarded message ---------
From: **Tracey General** <traceyghdi@gmail.com>
Date: Wed, Jun 12, 2024 at 12:59 PM
Subject: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045
To: Brian Doolittle <ganowa@me.com>, Aaron Detlor <aarondetlor@gmail.com>, Todd Williams <toddwilliams@hdi.land>, Raechelle Williams <raechellewilliams@hdi.land>, Sharann Martin <sharannmartin@hdi.land>

Good Afternoon:

RE: STUDY OF FOUR BRIDGES IN THE TOWNSHIP OF CENTRE WELLINGTON
PROJECT NO.: 300058117

Please see attachment.

Thank you!
Tracey

Crystal Ferguson

From: Andrew Dawson
Sent: Tuesday, September 03, 2024 1:07 PM
To: Raechelle Williams
Cc: Owen Greene; Shannon Hill; Adam Dickieson; Todd Williams; Environmental Dept; Matt Turner; Tricia Radburn; Kevin Butt; Mark Saunders
Subject: RE: HDI Monitoring Agreement for the Study of Four Bridges in Township of Centre Wellington
Attachments: 058117 Meeting Minutes_Ecological Field Work_2024-08-22.pdf

Raechelle,
Thank you to your team for their participation in the ecological field studies conducted on August 20th.
It is my understanding that everything went well on site and that your team was in acceptance of our team's findings.

Please see attached for the minutes for the meeting / site visit for your review / comment.
Please let me know if you or your team feel that there are any errors or omissions within the meeting minutes.

As noted in the minutes, we will circulate our report once it has been drafted.

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Raechelle Williams <raechellewilliams@hdi.land>
Sent: Wednesday, August 14, 2024 12:47 PM
To: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Cc: Owen Greene <owengreene@hdi.land>; Shannon Hill <shannonhill@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>; Todd Williams <toddwilliams@hdi.land>; Environmental Dept <environmental@hdi.land>; Matt Turner <matijturner@gmail.com>
Subject: Re: HDI Monitoring Agreement for the Study of Four Bridges in Township of Centre Wellington

Sge:no Andrew,

I will have my senior monitor Matt Turner (226 966 4492) and my junior monitor Abby Hill to meet with your team Tuesday August 20th 2024 at 1pm.

Nya:weh,

Raechelle Williams
HDI Environmental Supervisor
Haudenosaunee Development Institute
P.O. Box 714
Ohsweken, ON
N0A 1M0
Ph: 519-445-4222
(Direct): 226-387-7364

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On Mon, Aug 12, 2024 at 5:06 PM Andrew Dawson <Andrew.Dawson@rjburnside.com> wrote:

Raechelle,

Now that the agreement has been finalized and signed, we are looking to get our team out to complete the field work in the next week to allow us to continue moving forward with this project.

Our team will conduct their preliminary reviews of the sites in the morning and then meet your staff in the afternoon to tour each site with you. This will allow the time spent on site with your team to allow for meaningful consultation of discussions related to their findings and any additional insights that your field representative has to offer.

Details related to the ecological field assessments are provided below:

Start Date:	August 20, 2024
End Date:	August 20, 2024
Start Time	1:00 p.m.
End Time	5:00 p.m.
Consultant Company:	R.J. Burnside & Associates Ltd.
Field Director Contact:	Kevin Butt	Mobile #: 1 519-820-9395
Project Manager Contact:	Tricia Radburn	Mobile #: 1 226-820-2676
Assessment(s):	• Background natural heritage review • Ecological Land Classification • Tree inventory • Wildlife/SAR habitats • Aquatic habitat / characterization
Required PPE	steel-toed work boots, sunscreen/hat/water as required
Size of Field Crew	3 technicians
Duration of Lunch break	N/A
Meeting Location Address	Start at Bridge 2-WG, located on Third Line, approximately 330 m north of Eramosa-Garafraxa Townline (Google Maps_2WG) • Additional site locations: Bridge 3-E = Sixth Line, approximately 1.9 km north of Wellington Road 22 (Google Maps_3E) Bridge 5-E = Fourth Line, approximately 1.5 km north of Wellington Road 22 (Google Maps_5E)

	Bridge 7-E = Third Line, approximately 1.5 km north of Wellington Road 22 (Google Maps_7E)
Parking Instructions:	Parking will be conducted safely on side of road at each bridge site
Relevant Report(s) for this work:	No report reviews required prior to attending site. Natural Heritage Report will be drafted following the site reviews and forwarded to HDI for review upon the completion of the draft

Please confirm receipt of this email and let me know if you need any additional information or have any comments/concerns.

Regards,

Andrew

Andrew Dawson
Project Engineer

R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Thursday, August 08, 2024 11:43 AM
To: Todd Williams <toddwilliams@hdi.land>
Cc: Andrew Dawson <Andrew.Dawson@rjburnside.com>; Owen Greene <owengreene@hdi.land>; Shannon Hill <shannonhill@hdi.land>; Archaeology Department <archaeology@hdi.land>; Raechelle Williams <raechellewilliams@hdi.land>
Subject: RE: HDI Monitoring Agreement for the Study of Four Bridges in Township of Centre Wellington

Todd,

Please find attached a Township of Centre Wellington signed copy of the HDI Monitoring agreement.

The Township consultant (R.J. Burnside) will be communicating with HDI shortly regarding an upcoming environmental field study that is to be scheduled as part of this Four Bridge Study.

Regards,

Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0

519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Todd Williams <toddwilliams@hdi.land>
Sent: Wednesday, August 7, 2024 3:06 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Cc: Andrew.Dawson@rjburnside.com; Owen Greene <owengreene@hdi.land>; Shannon Hill <shannonhill@hdi.land>; Archaeology Department <archaeology@hdi.land>; Raechelle Williams <raechellewilliams@hdi.land>
Subject: Re: HDI Monitoring Agreement for the Study of Four Bridges in Township of Centre Wellington

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Afternoon Adam,

See attached updated agreement with the requested changes.

Please review and send back a signed copy.

Thanks Todd

On Wed, Jul 31, 2024 at 4:30 PM Adam Dickieson <ADickieson@centrewellington.ca> wrote:

Todd,

The Township is prepared to enter into the attached monitoring agreement with HDI for the Bridge and Transportation Network Study (4

Bridges.

I would like to request the following two revisions in bold to the attached draft agreement ahead of signing:

- #11. *And copied to any Licensed Archaeologist involved in the Project at:*

  Jamie Lemon

  jlemon@phcgroup.ca

- Please revise the Township signing authority to

  Adam McNabb, Township of Centre Wellington

Let me know if the are any additional details required at this time.

Regards,

Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0

519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Todd Williams <toddwilliams@hdi.land>
Sent: Wednesday, July 17, 2024 1:02 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Cc: Andrew.Dawson@rjburnside.com; Owen Greene <owengreene@hdi.land>; Shannon Hill <shannonhill@hdi.land>; Archaeology Department <archaeology@hdi.land>; Raechelle Williams <raechellewilliams@hdi.land>
Subject: HDI Monitoring Agreement for the Study of Four Bridges in Township of Centre Wellington

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Sge:no(hi) Adam,

I'm emailing in regards to the email notification HDI received regarding the above mentioned project.

To accommodate HDI's participation in this project, I've attached a copy of HDI's standard monitoring agreement.

Please review...If agreed too, please sign and return a copy.

Nya:weh (thanks),

Todd E. Williams, P.Eng

Monitoring Program Coordinator

Haudenosaunee Development Institute (HDI)

Haudenosaunee Confederacy Chiefs Council (HCCC)
Haudenosaunee 1755 Treaty Territory

O: 519-445-4222

M: 519-761-1794

https://hdi.land/
https://www.haudenosauneeconfederacy.com/

https://www.loc.gov/resource/g3300.np000009/?r=0.369,0.207,0.25,0.114,0

---------- Forwarded message ---------
From: **Adam Dickieson** <ADickieson@centrewellington.ca>
Date: Wed, Jul 17, 2024 at 8:40 AM
Subject: RE: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045
To: Shannon Hill <shannonhill@hdi.land>, Raechelle Williams <raechellewilliams@hdi.land>
Cc: HDI Administration <administration@hdi.land>, Todd Williams <toddwilliams@hdi.land>, Sharann Martin <sharannmartin@hdi.land>, Tricia Radburn <Tricia.Radburn@rjburnside.com>, Andrew Dawson <Andrew.Dawson@rjburnside.com>

Shannon, Raechelle,

I am back in the office and getting caught up on my emails. Please send the agreement to me when it has been prepared.

Thank you,

Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0

519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Sent: Tuesday, July 9, 2024 12:16 PM
To: Shannon Hill <shannonhill@hdi.land>; Raechelle Williams <raechellewilliams@hdi.land>
Cc: HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>; Tricia Radburn <Tricia.Radburn@rjburnside.com>
Subject: RE: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Shannon,

Thank you for the update! Is it possible that you could cc me when the agreement is sent to Adam D? Given that Adam will be away until the 15th , I'd like to keep the ball rolling on this and can discuss the agreement with Adam's manager at the Township in his absence.

Regards,

Andrew

Andrew Dawson
Project Engineer

R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Shannon Hill <shannonhill@hdi.land>
Sent: Tuesday, July 09, 2024 10:48 AM
To: Andrew Dawson <Andrew.Dawson@rjburnside.com>; Raechelle Williams <raechellewilliams@hdi.land>
Cc: HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>; Tricia Radburn <Tricia.Radburn@rjburnside.com>
Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

The agreement is ready to be sent out to Adam Dickieson, it will be sent later today

Thank you,

Shannon Hill

Finance Assistant

Haudenosaunee Development Institute

PO Box 714

Ohsweken, Ontario N0A 1M0

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Sent: Tuesday, July 9, 2024 10:23 AM
To: Raechelle Williams <raechellewilliams@hdi.land>
Cc: Shannon Hill <shannonhill@hdi.land>; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>; Tricia Radburn <Tricia.Radburn@rjburnside.com>
Subject: RE: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Raechelle,

Adam Dickieson from the Township is currently out of office, so I will respond on his behalf.

R.J. Burnside's staff will be conducting the environmental field studies listed below. I have cc'd Tricia Radburn on this email, who will be coordinating those studies. It would be ideal for us to have the studies completed within the next couple of weeks, but we do not have a definitive date set yet, as we wanted to confirm HDI's level of involvement and finalize any agreements before scheduling.

As such, I believe the next step will be the review of HDI's agreement for these works with the Township once it is received. Once an agreement is made, we can coordinate scheduling the work between your team and Tricia.

We look forward to hearing from Todd and Sharran as well regarding the archaeological items!

Regards,

Andrew

Andrew Dawson
Project Engineer

R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Raechelle Williams <raechellewilliams@hdi.land>
Sent: Friday, July 05, 2024 3:34 PM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Cc: Shannon Hill <shannonhill@hdi.land>; Andrew Dawson <Andrew.Dawson@rjburnside.com>; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>
Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Sge:no Adam,

To answer your question regarding the natural environment studies, yes HDI will have a monitor be present for the studies below and will also like to receive the draft environmental impact study report for review.

- ELC
- Botanical/Tree Inventory
- Aquatic Habitats survey
- Terrestrial Habitats survey

Can you forward the consultant who is performing these surveys scheduled and we can arrange to have a monitor participate with them in the field.

As for the archaeology portion of this project, I will leave this response with my colleagues Todd Williams and Sharann Martin.

Regards,

Raechelle Williams

HDI Environmental Supervisor

Haudenosaunee Development Institute

P.O. Box 714

Ohsweken, ON

N0A 1M0

Ph: 519-445-4222

(Direct): 519-802-9402



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On Thu, Jul 4, 2024 at 11:18 AM Adam Dickieson <ADickieson@centrewellington.ca> wrote:

> Shannon and Raechelle,

Nya:weh / Thank-you for your interest in the Township's project. We are looking forward to working with your community and hearing further information related your community's interest in the proposed activities.

In regards to Shannon's request for information, please see responses below:

1. **Project name and address:**

   Bridge and Transportation Network Study for Four Bridges

   Locations:

   Bridge 2-WG = Third Line, approximately 330 m north of Eramosa-Garafraxa Townline (https://maps.app.goo.gl/h3JsWbNqG87vK8Xp8)

   Bridge 3-E = Sixth Line, approximately 1.9 km north of Wellington Road 22 (https://maps.app.goo.gl/WKgbhkFX54BoNJhS9)

   Bridge 5-E = Fourth Line, approximately 1.5 km north of Wellington Road 22 (https://maps.app.goo.gl/6TfHwJGcC8BMhpgV8)

   Bridge 7-E = Third Line, approximately 1.5 km north of Wellington Road 22 (https://maps.app.goo.gl/FUBE7fj7WQKZPT6g9)

2. **Proper company name and address**: Township of Centre Wellington, 1 MacDonald Square, Elora, ON N0B 1S0
3. **Contact information for the individual responsible for executing the agreement (Name, phone number and email):** Adam Dickieson, adickieson@centrewellington.ca
4. **Invoicing information (Name and email):** Adam Dickieson, adickieson@centrewellington.ca

To help us understand your desired level of involvement, I am providing a brief overview of the project status and anticipated impacts below for your consideration and ask that you outline which specific aspects of the project you have interest in, and whether that interest is field monitoring and/or document review:

The four bridge structures are watercourse crossings of the Speed River and its tributaries, which are part of the Grand Rivier watershed. The existing structures are narrow, single lane structures that were constructed between 1919 and 1923. Three of the four structures have been closed to traffic and the fourth has been load restricted to 15 tonnes due to the deteriorated state and concerns regarding load carrying capacity. The multiple closures of structures within this study area has resulted in disruptions to transportation connectivity and the Township is looking to confirm their preferred approach for this system of structures. The study will examine the effects of opening several combinations of structures, including no structures or all structures.

The potential impacts to the natural environment will be dependent on the selective alternative at each site. From a preliminary perspective, we are looking at considering several options at each site, including:

- Do Nothing (deteriorated structures remain in place and closed to traffic)
- Permanent Removal of Structure
- Rehabilitation of Structure (likely to be deemed unfeasible due to the state of the structures)
- Replacement of Structure

Based on these alternatives we can foresee that potential impacts to the natural environment could possibly include:

- Disturbance (excavation / re-grading) of the study area (for bridge replacement alternative)
- Temporary in-water works, including temporary isolation of the structure and localized unwatering of the watercourse to allow works to be completed in the dry.
- Vegetation removals (if required) for widening of structure or roadway, regrading, construction access, etc.

We are in the process of undergoing desktop and field studies of the natural, heritage, built and economic environments to determine areas of interest and possible impacts.

A Cultural Heritage Evaluation and a Stage 1 Archaeological Assessment (AA) study have been completed on all four structures to date. Only Bridge 3E was found to have cultural heritage value/interest. A Heritage Impact Assessment will be scheduled for Bridge 3E, tentatively in August, to provide further context of impacts to heritage features and recommendations for conservation of these interests. The Stage 1 AA found that all bridges had low archaeological potential and indicated that no further investigations are required for the sites. The draft reports of these studies are provided at the link below for your reference. **Can you please confirm if you intend to review these draft reports and, if so, could you please provide comments by July 19, 2024**.


058117 - CHER and Stage 1 AA

From a Municipal Class Environmental Assessment perspective, the applicable schedule of these projects will be further reviewed and determined based on results of background studies. At current, it is anticipated that Bridges 2-WG, 5-E and 7-E will be exempt from the Environmental Assessment Act as per Project Description 31a of the MCEA Document as the studies completed indicated no heritage value or interest. Pending the results of the Heritage Impact Assessment (HIA), the Township may look to conserve heritage attributes of Bridge 3-E in accordance with the HIA and therefore that project may also be considered exempt through the Archaeological Screening Process (ASP). In order to complete the ASP and confirm the appropriate project schedule, **can HDI confirm the following**:

- Is there Aboriginal knowledge of archaeological sites on or within 500 metres of Bridge 3-E?
- Is there Aboriginal knowledge or historically documented evidence of past Aboriginal use on or within 500 meters of Bridge 3-E?
- Is there aboriginal knowledge of marine archaeological sites on or within 500 metres of Bridge 3-E?

We are scheduling field work for the natural environment studies in the coming weeks; however, we would like to confirm your preferred level of involvement in these field studies with you prior to them being undertaken. **Can you please confirm whether your request is to have a field monitor present for the studies below, or just to receive the draft environmental impacts study report for review?**

- Ecological Land Classification
- Botanical / Tree Inventory
- Aquatic Habitats survey
- Terrestrial Habitats survey

We hope that the above information allows you to confirm your desired level of involvement in the project and better outline the scope and terms of an agreement associated with the project. Should you have any questions or like further clarification on any aspects of this study, please do not hesitate to contact a member of the project team below. If you feel it would be beneficial, we could set up a meeting for further discussions regarding the project and agreement.

Adam Dickieson Engineering Services Coordinator Township of Centre Wellington 1 MacDonald Square, Elora, ON N0B 1S0 519-846-9691 x 355 adickieson@centrewellington.ca	Andrew Dawson, P. Eng. Consultant Project Manager R.J. Burnside & Associates Ltd. 292 Speedvale Ave W. #20, Guelph, ON N1H 1C4 705-797-4310 andrew.dawson@rjburnside.com

Regards,

Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0

519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Shannon Hill <shannonhill@hdi.land>
Sent: Monday, July 1, 2024 5:27 PM
To: Raechelle Williams <raechellewilliams@hdi.land>; Adam Dickieson <ADickieson@centrewellington.ca>
Cc: andrew.dawson@rjburnside.com; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>
Subject: Re: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

You don't often get email from shannonhill@hdi.land. Learn why this is important

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Afternoon,

Could you please send the following details to get the agreement in order?

Could you please send us the details below:

1. Project name and address
2. Proper company name and address
3. Contact information for the individual responsible for executing the agreement (Name, phone number and email)
4. Invoicing information (Name and email)

We'll also need the PIF number licensee's name and email (if known)

Once this information is received agreement will be generated and sent.

Thank you,

Shannon Hill

Finance Assistant

Haudenosaunee Development Institute

PO Box 714

Ohsweken, Ontario N0A 1M0

From: Raechelle Williams <raechellewilliams@hdi.land>
Sent: Wednesday, June 26, 2024 4:30 PM
To: adickieson@centrewellington.ca <adickieson@centrewellington.ca>
Cc: andrew.dawson@rjburnside.com <andrew.dawson@rjburnside.com>; HDI Administration <administration@hdi.land>; Todd Williams <toddwilliams@hdi.land>; Sharann Martin <sharannmartin@hdi.land>; Shannon Hill <shannonhill@hdi.land>
Subject: Fwd: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045

Sge:no Adam,

Nya:weh for reaching out regarding this study to review the four existing bridges in the Township of Centre Wellington. We would like to participate in this project and be involved with any infield and report reviewing for the natural environment assessment and archaeology assessments. Once the evaluation is completed, we wish to have a construction monitor be involved on any bridges requiring any rehabilitation or reconstruction.

I will have one of my colleagues prepare a 2024 Monitoring Agreement and send it to you. Once this is completed and signed by both parties, please forward the scheduled work to Todd Williams, archeaology@hdi.land and myself.

Nya:weh,

Raechelle Williams

HDI Environmental Supervisor

Haudenosaunee Development Institute

P.O. Box 714

Ohsweken, ON

N0A 1M0

Ph: 519-445-4222

(Direct): 519-802-9402



The content of this email is confidential and intended for the recipient specified in message only. It is strictly forbidden to share any part of this message with any third party, without a written consent of the sender. If you received this message by mistake, please reply to this message and follow with its deletion, so that we can ensure such a mistake does not occur in the future.

---------- Forwarded message ---------
From: **Tracey General** <traceyghdi@gmail.com>
Date: Wed, Jun 12, 2024 at 12:59 PM
Subject: TOWNSHIP OF CENTRE WELLINGTON OUR FILE NO 030-200-045
To: Brian Doolittle <ganowa@me.com>, Aaron Detlor <aarondetlor@gmail.com>, Todd Williams <toddwilliams@hdi.land>, Raechelle Williams <raechellewilliams@hdi.land>, Sharann Martin <sharannmartin@hdi.land>

Good Afternoon:

RE: STUDY OF FOUR BRIDGES IN THE TOWNSHIP OF CENTRE WELLINGTON
PROJECT NO.: 300058117

Please see attachment.

Thank you!
Tracey

R.J. Burnside & Associates Limited 292 Speedvale Avenue West Unit 20 Guelph ON N1H 1C4 CANADA
telephone (519) 823-4995 **fax** (519) 941-8120 **web** www.rjburnside.com

BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

Minutes of Meeting

Meeting Date: August 20, 2024 **Project No.:** 300058117.0000

Project Name : Centre Wellington EA for 4 Bridges

Meeting Subject: Indigenous Nations site walk

Meeting Location: Bridges 2-WG, 3-E, 5-E, 7-E

Date Prepared: August 22, 2024

Those in attendance were:

Billey	Haudenosaunee Development Institute
Matt Turner	Haudenosaunee Development Institute
Leanna	Six Nations of the Grand River
Adam Dickieson	Township Centre Wellington
Mark Saunders	R.J. Burnside & Associates Limited
Kevin Butt	R.J. Burnside & Associates Limited

The following items were discussed		**Action by**
1.	**Scope of Project**	
1.1	Environmental Assessment of 4 bridges, 3 that are currently closed due to condition. The EA process will review feedback and comments from a number of interests and studies by technical experts including natural environment and traffic will be used to generate a preferred alternative (e.g. reconstruct bridges). Action to implement the preferred alternative is dependent on many components including budget and Township Council approval.	
1.2	Burnside reviewed and characterized the terrestrial and aquatic communities for incorporation into a Natural Environment Report, as a component of the EA.	
1.3	All sites were reviewed with the field monitoring representatives of HDI and Six Nations. Burnside ecologists explained the studies that	

	The following items were discussed	Action by
	were being completed: aquatic habitat characterization (including groundwater upwellings and aquatic species) and inventory of the vegetation communities as well as review for Significant Wildlife Habitat. Representatives had no comments or concerns nor did they identify any plants / habitats / species of interest that were not previously identified by our team.	
1.4	Burnside / Township to circulate the DRAFT Natural Environment Report to all parties present of HDI and SNGREC once it has been prepared.	Burnside / Township

The preceding are the minutes of the meeting as observed by the undersigned. Should there be a need for revision, please advise Burnside within seven days of issuance. In the absence of notification to the contrary, these minutes will be deemed to be an accurate record of the meeting.

Minutes prepared by:

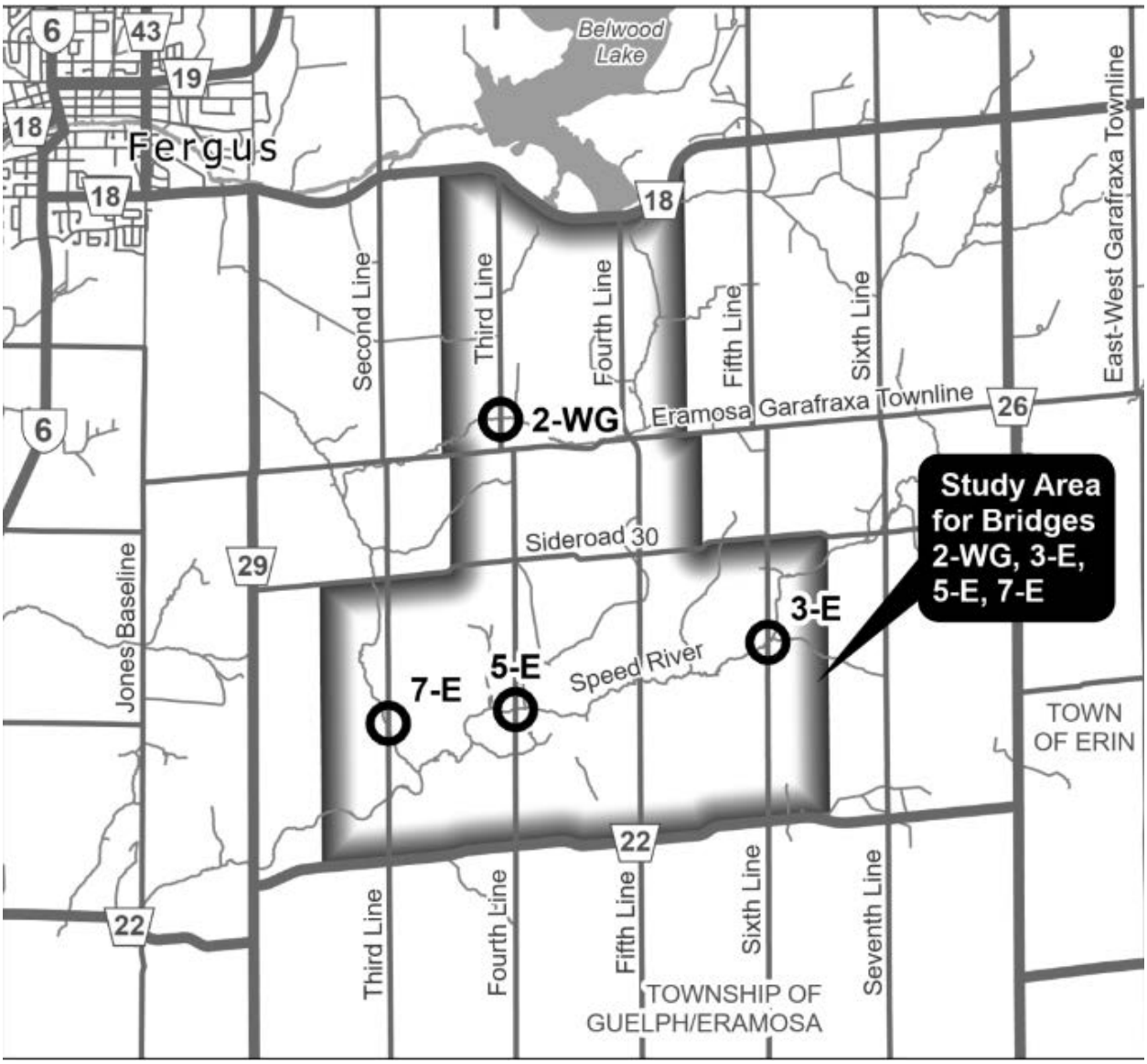
R.J. Burnside & Associates Limited

Kevin Butt
ISA Certified Arborist and Terrestrial Ecologist
Vice President, Ecology
KB:js

Enclosure(s) Location map of 4 bridges

Other than by the addressee, copying or distribution of this document, in whole or in part, is not permitted without the express written consent of R.J. Burnside & Associates Limited.

Location map of 4 bridges



Mishaal Rizwan

From: Mishaal Rizwan
Sent: Tuesday, October 29, 2024 10:12 AM
To: janicewilliams@hdi.land
Cc: info@hdi.land; communications@hdi.land; jocko@sixnationsns.com; info@hdi.land; 1749resource@gmail.com; Andrew Dawson; Adam Dickieson (Centre Wellington)
Subject: Centre Wellington 5 Bridges EA - Stage 1 & 2 Archaeological Assessment

Sge:no,

I am following up on behalf of the Township of Centre Wellington in regards to the Stage 1 & 2 Archaeological Assessment for Bridges 28-P, 32-P and 33-P, which was undertaken as a follow up to the commitments made within the recently completed Municipal Class Environmental Assessment of Bridges 1-P, 28-P, 30-P, 32-P and 33-P. ***The Stage 1 & 2 assessments have now been completed and have identified that the study areas of the three sites require no further archaeological assessment.***

The Stage 1 & 2 assessment report is available for download in the link below:
056693 - DRAFT Stage 1 and 2 Archaeological Assessment_28-P 32-P 33-P
Note: The file share link above will expire on February 18, 2024. Please download files from the above link prior to this date.

As identified in the Stage 1 & 2 report and the MCEA Project File Report, a Stage 1 Archaeological Assessment was conducted at the three sites (28-P, 32-P and 33-P) where the proposed works are to result in ground disturbance due to bridge replacement. The Stage 1 inspection was completed on March 15, 2024 and identified that the 32-P study area had recent extensive disturbance that required no further archaeological assessment, and that there was marginal archaeological potential at the 28-P and 33-P study areas. As such, a Stage 2 Archaeological Assessment was scheduled for the Bridge 28-P and 33-P study areas and agreements were entered between the Township and Indigenous Communities (HDI, SNGREC, MCFN) to allow field representatives the option to monitor the Stage 2 works. The Stage 2 field work was completed at both sites on July 24th, 2024 with field monitoring conducted by a representative of the Mississauga's of the Credits First Nation. The Stage 2 archaeological assessment did not result in the identification of archaeological materials at either site. As such no further archaeological assessment is recommended for these study areas.

The Township of Centre Wellington would like to provide your community with the opportunity to review the report and provide comment prior to the report being finalized and filed with the Ministry of Citizenship and Multiculturalism. ***Please provide comments on the report prior to November 29, 2024.***

If you could ***please confirm by November 4th, 2024 whether or not you intend to provide comments*** *on the attached report that would be greatly appreciated.*

Nya:weh,

BURNSIDE
Mishaal Rizwan
Environmental Planner

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Unit 20, Guelph, Ontario, N1H 1C4
Office: 800-265-9662 Direct Line: 226-343-7014
www.rjburnside.com

Tricia Radburn

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Thursday, June 20, 2024 3:30 PM
To: LRCS@sixnations.ca
Cc: Andrew Dawson; Crystal Ferguson; Tricia Radburn; dlaforme@sixnations.ca
Subject: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24
Attachments: 058117_Upcoming Study_LRCS.pdf

Peter,

As discussed on the phone this afternoon, please find attached a copy of the letter sent via Canada Post last week that provides the details of an upcoming Township of Centre Wellington study. It is understood that Six Nations Lands and Resources office is interested in being provided all project related environmental impact studies and preferred alternatives as soon as they are available. Our team will make best efforts to share these documents in email correspondence as soon as they have been prepared.

Re: Upcoming Study to Review Four Bridges in Centre Wellington (Former West Garafraxa and Eramosa Townships)

The Township of Centre Wellington is scoping for a Municipal Class Environmental Assessment (MCEA) to evaluate options for four (4) bridges which are either currently closed to vehicular traffic or have a load restriction due to their poor condition. The Bridge and Transportation will consider the role of these bridges in the Township's road network and their value in connecting points across the community when determining the preferred alternative.
A summary of the project is as follows:

Project Lead:	• Township of Centre Wellington
Project consultant:	• R.J. Burnside & Associates Limited
Approval Process:	• Municipal Class EA
Project Location:	• Four bridges in the former West Garafraxa and Eramosa Townships (refer to attached letter for a map)
Duty to Consult:	• The province has delegated the responsibility for consultation to the Township of Centre Wellington
Project Purpose:	• To assess whether one or more of the four bridges should be reopened or remain closed.
Studies to be completed:	• Traffic study to review traffic patterns, volumes and flow. • Archaeological screening and additional archaeological studies, if required. • Cultural Heritage Screening and additional heritage studies, if required. • Ecological study using existing records and field observations. • Geotechnical study to assess soil conditions and stability, if required.
Potential impacts to Treaty/Aboriginal Rights:	• To be determined, based on information received from your community.

We are notifying you of the upcoming project (see attached letter) in hopes that you can assist our project team in determining if your community may hold interest in this project. Your comments are welcome and will be taken into consideration throughout this study.
As new information is made available the Bridge & Transportation Network Study for Four Bridges | Connect CW Township web site will be updated as well as regular notifications.
If you have an interest in this project, please contact one of the Project Team members below. The team is happy to provide additional information, provide opportunities for your community to participate in studies or review project reports, or meet with team members to answer questions and resolve concerns.

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0
519-846-9691 x 355
adickieson@centrewellington.ca

Andrew Dawson, P. Eng.
Consultant Project Manager
R.J. Burnside & Associates Ltd.
292 Speedvale Ave W. #20, Guelph, ON N1H 1C4
705-797-4310
andrew.dawson@rjburnside.com

Information will be collected in accordance with the *Municipal Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record.

Sincerely,
Adam Dickieson

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Mishaal Rizwan

From: Andrew Dawson
Sent: Wednesday, December 04, 2024 2:30 PM
To: Peter Graham
Cc: Dawn LaForme; Tanya Hill-Montour; Mishaal Rizwan; Adam Dickieson (Centre Wellington)
Subject: RE: Centre Wellington - 4 Bridges Transportation Network Study, Natural Heritage Report

Follow Up Flag: Follow up
Flag Status: Flagged

Peter,
We just hosted the second Public Open House on Monday evening, where we presented the preliminary preferred alternative. An online version of the information presented at the public open house is available on the Township's ConnectCW webpage, should you wish to review it:
https://www.connectcw.ca/bridge-transportation-network-study-four-bridges

The preliminary preferred alternative involves the replacement of Bridges 2-WG, 5-E and 7-E.
Bridge 3-E, will remain as is and used by pedestrian traffic until it is deemed unsuitable to carry pedestrian loading.

If you would like any further information, please let us know.

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Peter Graham <LRCS@sixnations.ca>
Sent: Wednesday, December 04, 2024 2:21 PM
To: Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Cc: Dawn LaForme <dlaforme@sixnations.ca>; Tanya Hill-Montour <tanyahill-montour@sixnations.ca>; Andrew Dawson <Andrew.Dawson@rjburnside.com>; Andrew Dawson <Andrew.Dawson@rjburnside.com>
Subject: RE: Centre Wellington - 4 Bridges Transportation Network Study, Natural Heritage Report

Good afternoon Mishaal,

I appreciated seeing the future commitments section. Are you able to share recommended alternatives at this point, so we'll know which bridges are likely to be replaced?

Thank you, Peter

From: Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Sent: December 4, 2024 10:48 AM
To: Peter Graham <LRCS@sixnations.ca>
Cc: Dawn LaForme <dlaforme@sixnations.ca>; Tanya Hill-Montour <tanyahill-montour@sixnations.ca>; Andrew Dawson

<Andrew.Dawson@rjburnside.com>; Andrew Dawson <Andrew.Dawson@rjburnside.com>
Subject: [External] Centre Wellington - 4 Bridges Transportation Network Study, Natural Heritage Report

Good afternoon,

Please find the Natural Heritage Report for the 4 Bridges Transportation Network Study saved at the following link: Centre Wellington Bridge and Transportation Network Study - Natural Heritage Report

If you are interested in reviewing the Report, please provide comments by January 10th, 2025.

Please let me know if you have any questions or if you require any additional information.

Thank you

BURNSIDE
Mishaal Rizwan
Environmental Planner

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Unit 20, Guelph, Ontario, N1H 1C4
Office: 800-265-9662 Direct Line: 226-343-7014
www.rjburnside.com

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Thank you.

****

Crystal Ferguson

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Thursday, June 20, 2024 3:30 PM
To: LRCS@sixnations.ca
Cc: Andrew Dawson; Crystal Ferguson; Tricia Radburn; dlaforme@sixnations.ca
Subject: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24
Attachments: 058117_Upcoming Study_LRCS.pdf

Categories: Brown

Peter,

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Potential impacts to Treaty/Aboriginal Rights:	• To be determined, based on information received from your community.

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Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0
519-846-9691 x 355
adickieson@centrewellington.ca

Andrew Dawson, P. Eng.
Consultant Project Manager
R.J. Burnside & Associates Ltd.
292 Speedvale Ave W. #20, Guelph, ON N1H 1C4
705-797-4310
andrew.dawson@rjburnside.com

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Sincerely,
Adam Dickieson

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Crystal Ferguson

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Thursday, June 20, 2024 3:30 PM
To: LRCS@sixnations.ca
Cc: Andrew Dawson; Crystal Ferguson; Tricia Radburn; dlaforme@sixnations.ca
Subject: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24
Attachments: 058117_Upcoming Study_LRCS.pdf

Categories: Brown

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Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0
519-846-9691 x 355
adickieson@centrewellington.ca

Andrew Dawson, P. Eng.
Consultant Project Manager
R.J. Burnside & Associates Ltd.
292 Speedvale Ave W. #20, Guelph, ON N1H 1C4
705-797-4310
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Sincerely,
Adam Dickieson

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Crystal Ferguson

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Tuesday, July 16, 2024 1:02 PM
To: Dawn LaForme
Cc: Tanya Hill-Montour; Tierra Henhawk; Jamie Lemon; Andrew Dawson; Matt Brooks
Subject: RE: Centre Wellington Bridges EA (RFP #09-23) - Stage 2 AA
Attachments: SNGR_TCW Agreement_Arch_Stage2_Signed.pdf

Dawn,

Please find attached the Archaeological Monitoring agreement signed by the Township for the proposed July 24, 2024 dated. Let Jamie or I know if there are any additional details you require.

Regards,
Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Dawn LaForme <dlaforme@sixnations.ca>
Sent: Tuesday, July 2, 2024 8:51 AM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Cc: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>; Tierra Henhawk <acmaa@sixnations.ca>; Jamie Lemon <jlemon@phcgroup.ca>; Andrew Dawson <Andrew.Dawson@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>
Subject: RE: Centre Wellington Bridges EA (RFP #09-23) - Stage 2 AA

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Adam,
Attached please find the 2024 Archaeology Monitor Agreement to be filled in, signed and send back at your earliest convenience for processing.

Thank you kindly,
Dawn LaForme, Secretary/Receptionist, Six Nations Lands & Resources, (519) 753-0665

From: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Sent: Monday, July 1, 2024 5:38 PM
To: Dawn LaForme <dlaforme@sixnations.ca>
Cc: Tierra Henhawk <acmaa@sixnations.ca>
Subject: FW: Centre Wellington Bridges EA (RFP #09-23) - Stage 2 AA

Nia':wen ko:wa (thankyou)
Tanya Hill-Montour
Six Nations of the Grand River Archaeological Supervisor
226.388.0665

From: Jamie Lemon <jlemon@phcgroup.ca>
Sent: Friday, June 28, 2024 12:21 PM
To: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>; Peter Graham <LRCS@sixnations.ca>; Adam LaForme <Adam.LaForme@mncfn.ca>; archaeology@hdi.land; Owen Greene <owengreene@hdi.land>; Todd Williams <toddwilliams@hdi.land>
Cc: Andrew Dawson <Andrew.Dawson@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>
Subject: [External] Centre Wellington Bridges EA (RFP #09-23) - Stage 2 AA

Good afternoon,

PHC has been retained by RJ Burnside & Associates Ltd. to complete Stage 2 test pit survey for two bridges in the Township of Centre Wellington. The end client is the Township. These bridges, identified as 28-P and 33-P, are illustrated on the attached map. Note – of the bridges circled on the attached map, only 28-P and 33-P are part of the Stage 2 scope.

At the direction of the Township, we would like to notify you of the upcoming Stage 2 fieldwork, to give you an opportunity to provide an archaeological monitor for the duration of the work (1 day). In order to allow time for agreements with the Township to be finalized, we anticipate the fieldwork being undertaken in mid to late July.

Should you elect to provide an archaeological monitor for the fieldwork, and/or be provided with the draft archaeological assessment report for review, please provide your monitoring agreement to Adam Dickieson from the Township of Centre Wellington (cc'd).

Please do not hesitate to reach out if there are any questions. @Owen Greene and @Todd Williams, I have not included Sharann, per her notice of role change on her signature line, but please let me know if I am to continue including her on correspondence.

Thank you,

Jamie

Jamie Lemon, MA
Senior Archaeologist/Project Manager
jlemon@phcgroup.ca
226-230-0607

PHC is pleased to support a 4-day work week. Our core hours are Monday to Thursday, 8am – 5pm.


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Excellence program
Member
wsib
ONTARIO
2024

Six Nations of the Grand River Elected Council
Archaeological Monitoring Agreement

The purpose of this agreement is to ensure that Six Nations of the Grand River Elected Council ("**SNGREC**") will be remunerated for the reasonable costs for **ONE Archaeological Monitor ("Monitor")** in connection with archaeological work required at the location of Bridge Site 32-P and 33-P at 7112 Noah Road, Centre Wellington and at Bridge Site 28-P 7187 Sideroad 11, Centre Wellington scheduled for July 24, 2024 (weather dependent). The developer/proponent is the Township of Centre Wellington.

The Monitor mandate will be to monitor and work directly with the archaeological firm Parslow Heritage Consultancy Inc. to ensure that SNGREC's perspectives and priorities are considered, and to provide any applicable feedback to SNGREC to enable SNGREC to provide timely and meaningful comment on the Project as part of its due diligence as outlined in the Ministry of Citizenship and Multiculturalism (MCM) standards and guidelines, and the Aboriginal Engagement Process.

The Township of Centre Wellington and SNGREC (together, the "Parties") agree that the Township of Centre Wellington will provide funding for one Monitor, on the following terms and conditions:

1. The Monitor will be selected by SNGREC and will have appropriate qualifications for the required work, for example, training in archaeology and a working knowledge of field work techniques.
2. The Monitor will be responsible for his/her own personal safety equipment, such as safety boots, safety glasses, safety vest, hard hat, etc. The Monitor will attend all applicable on-site orientation/tailgate safety meetings presented by the field director/supervisor, presenting safety issues on archaeological site/s, in conjunction with Parslow Heritage Consultancy Inc..
3. Parslow Heritage Consultancy Inc.'s field director will coordinate site meeting locations and times directly with SNGREC's point of contact person, Tanya Hill-Montour, Archaeology Supervisor. She may be contacted at cell number 226-388-0665 or her work email address tanyahill-montour@sixnations.ca.
4. The Township of Centre Wellington will reimburse SNGREC for the Monitor reasonable expenses incurred in connection with the monitoring work in the **amount of $125.00 per hour** for one monitor. This amount will cover all costs associated with this project such as: wage, mileage, 3-hour show up time and all applicable employment fees i.e. CPP etc., and hotel/meal (if applicable), the administrative fee, and a fee for reviewing and commenting on the Archaeological Assessments being sent to the Ministry of Citizenship and Multiculturalism.
5. The Township of Centre Wellington will provide payment to SNGREC by cheque or bank transfer within 60 days of receipt of invoice. The invoice will be addressed to the following mailing address: 1 MacDonald Square, Elora ON, N0B 1S0 and the Project will be noted in the text of the invoice. The purchase order, etc. will be provided for the text of the invoice and then will be submitted electronically to one email address: adickieson@centrewellington.ca

The foregoing accurately reflects the terms of the agreement that the Parties hereby agree to enter into and the undersigned agree to be legally bound hereby.

Formally offered by SNGREC on _____
(Date)

By: Lonny Bomberry _____
(Signature)

Title: Director, Lands and Resources
Six Nations of the Grand River Elected Council

Accepted by The Township of Centre Wellington on July 8, 2024
(Date)

By: Adam McNabb _____
(Print Name) (Signature)

Title: Managing Director of Corporate Services & Treasurer

This agreement will expire on December 31, 2024

Voice Mail (30 seconds)

LandResources <+15197530665>

Thu 7/25/2024 10:46 AM

To:Adam Dickieson <ADickieson@centrewellington.ca>

1 attachments (90 KB)

audio.mp3;

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Adam, this is Peter from Six Nations of the Grand River. Just responding to your voicemail confirming that we did receive an e-mail with the notice for the PICC on the 24th. Just so Senator Wellingtons aware, we literally never attend the PI's for any project or proponents. Thank you. Bye.

You received a voice mail from LandResources.

Thank you for using Transcription! If you don't see a transcript above, it's because the audio quality was not clear enough to transcribe.

Set Up Voice Mail

Crystal Ferguson

From: Peter Graham <LRCS@sixnations.ca>
Sent: Tuesday, August 06, 2024 1:20 PM
To: Andrew Dawson; Dawn LaForme; Tanya Hill-Montour
Cc: Crystal Ferguson; Tricia Radburn; Adam Dickieson; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E; Matt Brooks; Mishaal Rizwan
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

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Please feel free to give me a call if you have any questions!

Regards,
Andrew

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Consultant Project Manager
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705-797-4310
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Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

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Cc: Crystal Ferguson; Tricia Radburn; Adam Dickieson; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E; Matt Brooks; Mishaal Rizwan
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Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Tanya,
The field work for these ecological studies has been scheduled for Tuesday August 20th. Since we have not received any confirmation of interest from Six Nations, we will be proceeding with the field work on August 20th and will provide you with the reports once the draft is completed. For your information, HDI will have field monitors to review this field work on August 20th.

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For the CHER, bridge 3E has been found to have built cultural heritage and a Heritage Impact Assessment (HIA) is currently being undertaken. We will share the results of the HIA once complete.
Can you please review the draft reports and confirm whether you have any comments on the information included and confirm whether you have any knowledge of archaeological sites or historically documented evidence of past aboriginal use of the sites that have not been identified within the reports? We request that you please provide your comments or confirmation of acceptance by **August 15, 2024**.

Please feel free to give me a call if you have any questions!

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Thursday, June 20, 2024 3:30 PM
To: LRCS@sixnations.ca
Cc: Andrew Dawson <Andrew.Dawson@rjburnside.com>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; dlaforme@sixnations.ca
Subject: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Peter,

As discussed on the phone this afternoon, please find attached a copy of the letter sent via Canada Post last week that provides the details of an upcoming Township of Centre Wellington study. It is understood that Six Nations Lands and Resources office is interested in being provided all project related environmental impact studies and preferred alternatives as soon as they are available. Our team will make best efforts to share these documents in email correspondence as soon as they have been prepared.

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Project Location:	• Four bridges in the former West Garafraxa and Eramosa Townships (refer to attached letter for a map)
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If you have an interest in this project, please contact one of the Project Team members below. The team is happy to provide additional information, provide opportunities for your community to participate in studies or review project reports, or meet with team members to answer questions and resolve concerns.

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Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Crystal Ferguson

From: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Sent: Sunday, August 18, 2024 7:58 PM
To: Andrew Dawson
Cc: Crystal Ferguson; Tricia Radburn; Adam Dickieson; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E; Matt Brooks; Mishaal Rizwan; Peter Graham; Dawn LaForme
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Hi Andrew

My apologies, I will send a representative Tuesday.

Dawn please coordinate a standard agreement

Nia':wen ko:wa (thankyou)
Tanya Hill-Montour
Six Nations of the Grand River Archaeological Supervisor
226.388.0665

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Sent: Thursday, August 15, 2024 12:36 PM
To: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Cc: Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>; Peter Graham <LRCS@sixnations.ca>; Dawn LaForme <dlaforme@sixnations.ca>
Subject: [External] RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

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Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

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Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Crystal Ferguson

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Monday, August 19, 2024 4:12 PM
To: Dawn LaForme; Tanya Hill-Montour
Cc: Crystal Ferguson; Tricia Radburn; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E; Matt Brooks; Mishaal Rizwan; Andrew Dawson
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24
Attachments: SNGREC - Field Study Monitor - Aug'24.pdf; Details for the Study of Four Bridges in Township of Centre Wellington

Dawn, Tanya,

Find attached a signed field study monitoring agreement for tomorrow's Background natural heritage review, Ecological Land Classification, Tree inventory, Wildlife/SAR habitats and Aquatic habitat / characterization field study.

Please correspond directly with Tricia Radburn (R.J. Burnside) regarding tomorrow afternoon's study. (Email containing site study details attached).

Regards,
Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Adam Dickieson
Sent: Monday, August 19, 2024 10:09 AM
To: Dawn LaForme <dlaforme@sixnations.ca>; Andrew Dawson <Andrew.Dawson@rjburnside.com>
Cc: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Dawn,

Thank you for sending the agreement along. I will look after the agreement prepared/signed with the Township and correspond back to you through this email chain.

Six Nations of the Grand River Elected Council
Field Study Monitoring Agreement
[Background natural heritage review, Ecological Land Classification, Tree inventory, Wildlife/SAR habitats and Aquatic habitat / characterization]

The purpose of this agreement is to ensure that Six Nations of the Grand River Elected Council ("**SNGREC**") will be remunerated for the reasonable costs for **ONE Field Study Monitor ("Monitor")** in connection with field study work required at the location of 4 Bridge sites situated in South/East Centre Wellington scheduled for August 20, 2024 (weather dependent). The developer/proponent is The Township of Centre Wellington.

The Monitor mandate will be to monitor and work directly with the Township Consulting firm R.J. Burnsides and Associates Limited to ensure that SNGREC's perspectives and priorities are considered, and to provide any applicable feedback to SNGREC to enable SNGREC to provide timely and meaningful comment on the Project as part of its due diligence as outlined in the Ministry of Citizenship and Multiculturalism (MCM) standards and guidelines, and the Aboriginal Engagement Process.

The Township of Centre Wellington and SNGREC (together, the "Parties") agree that The Township of Centre Wellington will provide funding for one Monitor, on the following terms and conditions:

1. The Monitor will be selected by SNGREC and will have appropriate qualifications for the required work, for example, training in ecological studies and a working knowledge of field work techniques.
2. The Monitor will be responsible for his/her own personal safety equipment, such as safety boots, safety glasses, safety vest, hard hat, etc. The Monitor will attend all applicable on-site orientation/tailgate safety meetings presented by the field director/supervisor, presenting safety issues on archaeological site/s, in conjunction with R.J. Burnsides and Associates Limited.
3. R.J. Burnsides and Associates Limited's field director will coordinate site meeting locations and times directly with SNGREC's point of contact person, Tanya Hill-Montour, Archaeology Supervisor. She may be contacted at cell number 226-388-0665 or her work email address tanyahill-montour@sixnations.ca.
4. The Township of Centre Wellington will reimburse SNGREC for the Monitor reasonable expenses incurred in connection with the monitoring work in the **amount of $125.00 per hour** for one monitor. This amount will cover all costs associated with this project such as: wage, mileage, 3-hour show up time and all applicable employment fees i.e. CPP etc., and hotel/meal (if applicable), the administrative fee, and a fee for reviewing and commenting on the Archaeological Assessments being sent to the Ministry of Citizenship and Multiculturalism.
5. The Township of Centre Wellington will provide payment to SNGREC by cheque or bank transfer within 60 days of receipt of invoice. The invoice will be addressed to the following mailing address: 1 MacDonald Square, Elora ON, N0B 1S0 and the Project will be noted in the text of the invoice. The purchase order, etc. will be provided for the text of the invoice and then will be submitted electronically to one email address: adickieson@centrewellington.ca

The foregoing accurately reflects the terms of the agreement that the Parties hereby agree to enter into and the undersigned agree to be legally bound hereby.

Formally offered by SNGREC on _____
(Date)

By: Lonny Bomberry _____
(Signature)

Title: Director, Lands and Resources
Six Nations of the Grand River Elected Council

Accepted by The Township of Centre Wellington on August 19, 2024
(Date)

By: Adam McNabb _____
(Print Name) (Signature)

Title: Managing Director of Corporate Services & Treasurer

This agreement will expire on December 31, 2024

Regards,
Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Dawn LaForme <dlaforme@sixnations.ca>
Sent: Monday, August 19, 2024 9:50 AM
To: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Cc: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
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CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Andrew,
Attached please find the 2024 Archaeology Monitor Agreement to be filled in, signed and send back at your earliest convenience for processing.

Thank you kindly,
Dawn LaForme, Secretary/Receptionist, Six Nations Lands & Resources, (519) 753-0665

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Subject: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Peter,

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Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
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Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Crystal Ferguson

From: Dawn LaForme <dlaforme@sixnations.ca>
Sent: Monday, August 19, 2024 9:50 AM
To: Andrew Dawson
Cc: Tanya Hill-Montour; Crystal Ferguson; Tricia Radburn; Adam Dickieson; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E; Matt Brooks; Mishaal Rizwan
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24
Attachments: 2024 Arch Monitor Agreement for One Monitor.docx

Good morning Andrew,
Attached please find the 2024 Archaeology Monitor Agreement to be filled in, signed and send back at your earliest convenience for processing.

Thank you kindly,
Dawn LaForme, Secretary/Receptionist, Six Nations Lands & Resources, (519) 753-0665

From: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Sent: August 18, 2024 7:58 PM
To: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Cc: Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>; Peter Graham <LRCS@sixnations.ca>; Dawn LaForme <dlaforme@sixnations.ca>
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Six Nations of the Grand River Archaeological Supervisor
226.388.0665

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To: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Cc: Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>; Peter Graham <LRCS@sixnations.ca>; Dawn LaForme <dlaforme@sixnations.ca>
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Project Engineer
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To: Peter Graham <LRCS@sixnations.ca>; Dawn LaForme <dlaforme@sixnations.ca>; Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
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Best, Peter

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Can you please review the draft reports and confirm whether you have any comments on the information included and confirm whether you have any knowledge of archaeological sites or historically documented evidence of past aboriginal use of the sites that have not been identified within the reports? We request that you please provide your comments or confirmation of acceptance by **August 15, 2024**.

Please feel free to give me a call if you have any questions!

Regards,
Andrew

Andrew Dawson
Project Engineer
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Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Adam Dickieson <ADickieson@centrewellington.ca>
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To: LRCS@sixnations.ca
Cc: Andrew Dawson <Andrew.Dawson@rjburnside.com>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; dlaforme@sixnations.ca
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Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

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From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Monday, August 19, 2024 10:09 AM
To: Dawn LaForme; Andrew Dawson
Cc: Tanya Hill-Montour; Crystal Ferguson; Tricia Radburn; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E; Matt Brooks; Mishaal Rizwan
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Dawn,

Thank you for sending the agreement along. I will look after the agreement prepared/signed with the Township and correspond back to you through this email chain.

Regards,
Adam.

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Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Six Nations of the Grand River Elected Council
Archaeological Monitoring Agreement

The purpose of this agreement is to ensure that Six Nations of the Grand River Elected Council ("**SNGREC**") will be remunerated for the reasonable costs for **ONE Archaeological Monitor ("Monitor")** in connection with archaeological work required at the location of _____ scheduled for _____, 2024 (weather dependent). The developer/proponent is _____.

The Monitor mandate will be to monitor and work directly with the archaeological firm _____ to ensure that SNGREC's perspectives and priorities are considered, and to provide any applicable feedback to SNGREC to enable SNGREC to provide timely and meaningful comment on the Project as part of its due diligence as outlined in the Ministry of Citizenship and Multiculturalism (MCM) standards and guidelines, and the Aboriginal Engagement Process.

_____ and SNGREC (together, the "Parties") agree that _____ will provide funding for one Monitor, on the following terms and conditions:

1. The Monitor will be selected by SNGREC and will have appropriate qualifications for the required work, for example, training in archaeology and a working knowledge of field work techniques.
2. The Monitor will be responsible for his/her own personal safety equipment, such as safety boots, safety glasses, safety vest, hard hat, etc. The Monitor will attend all applicable on-site orientation/tailgate safety meetings presented by the field director/supervisor, presenting safety issues on archaeological site/s, in conjunction with _____.
3. _____'s field director will coordinate site meeting locations and times directly with SNGREC's point of contact person, Tanya Hill-Montour, Archaeology Supervisor. She may be contacted at cell number 226-388-0665 or her work email address tanyahill-montour@sixnations.ca.
4. _____ will reimburse SNGREC for the Monitor reasonable expenses incurred in connection with the monitoring work in the **amount of $125.00 per hour** for one monitor. This amount will cover all costs associated with this project such as: wage, mileage, 3-hour show up time and all applicable employment fees i.e. CPP etc., and hotel/meal (if applicable), the administrative fee, and a fee for reviewing and commenting on the Archaeological Assessments being sent to the Ministry of Citizenship and Multiculturalism.
5. _____ will provide payment to SNGREC by cheque or bank transfer within 60 days of receipt of invoice. The invoice will be addressed to the following mailing address: _____ and the Project will be noted in the text of the invoice. The purchase order, etc. will be provided for the text of the invoice and then will be submitted electronically to one email address: _____

The foregoing accurately reflects the terms of the agreement that the Parties hereby agree to enter into and the undersigned agree to be legally bound hereby.

Formally offered by SNGREC on _____
(Date)

By: Lonny Bomberry _____
(Signature)

Title: Director, Lands and Resources
Six Nations of the Grand River Elected Council

Accepted by _____ on _____
(Date)

By: _____ _____
(Print Name) (Signature)

Title: _____

This agreement will expire on December 31, 2024

Crystal Ferguson

From: Dawn LaForme <dlaforme@sixnations.ca>
Sent: Thursday, August 22, 2024 11:25 AM
To: Adam Dickieson
Cc: Tanya Hill-Montour; Crystal Ferguson; Tricia Radburn; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E; Matt Brooks; Mishaal Rizwan; Andrew Dawson
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24
Attachments: 4 Bridge Sites (Centre Wellington) - August 2024.pdf

Good morning Adam, attached please find a signed copy of the monitor agreement for your files.

Thank you kindly,
Dawn LaForme, Secretary/Receptionist, Six Nations Lands & Resources, (519) 753-0665

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: August 19, 2024 4:12 PM
To: Dawn LaForme <dlaforme@sixnations.ca>; Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Cc: Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>; Andrew Dawson <Andrew.Dawson@rjburnside.com>
Subject: [External] RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Dawn, Tanya,

Find attached a signed field study monitoring agreement for tomorrow's Background natural heritage review, Ecological Land Classification, Tree inventory, Wildlife/SAR habitats and Aquatic habitat / characterization field study.

Please correspond directly with Tricia Radburn (R.J. Burnside) regarding tomorrow afternoon's study. (Email containing site study details attached).

Regards,
Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Adam Dickieson
Sent: Monday, August 19, 2024 10:09 AM
To: Dawn LaForme <dlaforme@sixnations.ca>; Andrew Dawson <Andrew.Dawson@rjburnside.com>
Cc: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Dawn,

Thank you for sending the agreement along. I will look after the agreement prepared/signed with the Township and correspond back to you through this email chain.

Regards,
Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Dawn LaForme <dlaforme@sixnations.ca>
Sent: Monday, August 19, 2024 9:50 AM
To: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Cc: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Andrew,
Attached please find the 2024 Archaeology Monitor Agreement to be filled in, signed and send back at your earliest convenience for processing.

Thank you kindly,
Dawn LaForme, Secretary/Receptionist, Six Nations Lands & Resources, (519) 753-0665

From: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Sent: August 18, 2024 7:58 PM
To: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Cc: Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>; Peter Graham <LRCS@sixnations.ca>; Dawn LaForme <dlaforme@sixnations.ca>
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Hi Andrew

My apologies, I will send a representative Tuesday.

Dawn please coordinate a standard agreement

Nia':wen ko:wa (thankyou)
Tanya Hill-Montour
Six Nations of the Grand River Archaeological Supervisor
226.388.0665

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Sent: Thursday, August 15, 2024 12:36 PM
To: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Cc: Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>; Peter Graham <LRCS@sixnations.ca>; Dawn LaForme <dlaforme@sixnations.ca>
Subject: [External] RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Tanya,
The field work for these ecological studies has been scheduled for Tuesday August 20th. Since we have not received any confirmation of interest from Six Nations, we will be proceeding with the field work on August 20th and will provide you with the reports once the draft is completed. For your information, HDI will have field monitors to review this field work on August 20th.

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Andrew Dawson
Sent: Friday, August 09, 2024 12:10 PM
To: Peter Graham <LRCS@sixnations.ca>; Dawn LaForme <dlaforme@sixnations.ca>; Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Cc: Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal

Rizwan <Mishaal.Rizwan@rjburnside.com>
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Tanya,
I am following up on the email chain below to confirm if your team has interest in overseeing the environmental field work? We are looking to schedule this work on the week of August 19th, so if you could please confirm whether you have interest or not by end of day today, it would be greatly appreciated. Otherwise, we will continue with the original request from Peter of providing the reports once complete.

Regards,
Andrew

From: Peter Graham <LRCS@sixnations.ca>
Sent: Tuesday, August 06, 2024 1:20 PM
To: Andrew Dawson <Andrew.Dawson@rjburnside.com>; Dawn LaForme <dlaforme@sixnations.ca>; Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Cc: Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Good afternoon Andrew,

Thank you for letting me know. Tanya also oversees environmental monitoring, so she'll be in touch about that if there's interest.

Best, Peter

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Sent: Tuesday, August 6, 2024 9:48 AM
To: Peter Graham <LRCS@sixnations.ca>; Dawn LaForme <dlaforme@sixnations.ca>; Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Cc: Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Subject: [External] RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Good Morning Peter,

Hope you have been keeping well and enjoyed your long weekend!
I just wanted to follow up on this study and provide a few updates, confirm your level of interest in field work, and provide some draft background study reports. I have included Tanya on this email as some of this is archaeology related and it is my understanding she is the contact for such correspondence.

Environmental Studies
I understand that, during the June 20, 2024 phone discussions, you had identified that your level of interest in this project involves receiving and reviewing the Environmental Impact Study (EIS) and preferred alternatives as early as they become available. Our team is looking at scheduling the field work to collect background data for the EIS in the next two weeks so I wanted to touch base with you to confirm whether you are looking to have any field monitoring staff present during these studies? Please let me know as soon as possible (by **August 9** at latest) if so.

Otherwise, we will provide you with the EIS report and preliminary preferred alternatives, as requested, as soon as those reports are available.

CHER and Archaeological
The draft Cultural Heritage Evaluation Report and Stage 1 Archaeological Assessment are available for download at the link below for your records/review:
058117 - CHER and Stage 1 AA
As identified in the attached reports, all sites were found to have low archaeological potential due to previous disturbances of the original bridge construction and no further archaeological investigations have been recommended.
For the CHER, bridge 3E has been found to have built cultural heritage and a Heritage Impact Assessment (HIA) is currently being undertaken. We will share the results of the HIA once complete.
Can you please review the draft reports and confirm whether you have any comments on the information included and confirm whether you have any knowledge of archaeological sites or historically documented evidence of past aboriginal use of the sites that have not been identified within the reports? We request that you please provide your comments or confirmation of acceptance by **August 15, 2024**.

Please feel free to give me a call if you have any questions!

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Thursday, June 20, 2024 3:30 PM
To: LRCS@sixnations.ca
Cc: Andrew Dawson <Andrew.Dawson@rjburnside.com>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; dlaforme@sixnations.ca
Subject: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Peter,

As discussed on the phone this afternoon, please find attached a copy of the letter sent via Canada Post last week that provides the details of an upcoming Township of Centre Wellington study. It is understood that Six Nations Lands and Resources office is interested in being provided all project related environmental impact studies and preferred alternatives as soon as they are available. Our team will make best efforts to share these documents in email correspondence as soon as they have been prepared.

Re: Upcoming Study to Review Four Bridges in Centre Wellington (Former West Garafraxa and Eramosa Townships)
The Township of Centre Wellington is scoping for a Municipal Class Environmental Assessment (MCEA) to evaluate options for four (4) bridges which are either currently closed to vehicular traffic or have a load restriction due to their poor condition. The Bridge and Transportation will consider the role of these bridges in the Township's road network and their value in connecting points across the community when determining the preferred alternative.
A summary of the project is as follows:

Project Lead:	• Township of Centre Wellington
Project consultant:	• R.J. Burnside & Associates Limited
Approval Process:	• Municipal Class EA

Project Location:	• Four bridges in the former West Garafraxa and Eramosa Townships (refer to attached letter for a map)
Duty to Consult:	• The province has delegated the responsibility for consultation to the Township of Centre Wellington
Project Purpose:	• To assess whether one or more of the four bridges should be reopened or remain closed.
Studies to be completed:	• Traffic study to review traffic patterns, volumes and flow. • Archaeological screening and additional archaeological studies, if required. • Cultural Heritage Screening and additional heritage studies, if required. • Ecological study using existing records and field observations. • Geotechnical study to assess soil conditions and stability, if required.
Potential impacts to Treaty/Aboriginal Rights:	• To be determined, based on information received from your community.

We are notifying you of the upcoming project (see attached letter) in hopes that you can assist our project team in determining if your community may hold interest in this project. Your comments are welcome and will be taken into consideration throughout this study.
As new information is made available the Bridge & Transportation Network Study for Four Bridges | Connect CW Township web site will be updated as well as regular notifications.
If you have an interest in this project, please contact one of the Project Team members below. The team is happy to provide additional information, provide opportunities for your community to participate in studies or review project reports, or meet with team members to answer questions and resolve concerns.

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0
519-846-9691 x 355
adickieson@centrewellington.ca

Andrew Dawson, P. Eng.
Consultant Project Manager
R.J. Burnside & Associates Ltd.
292 Speedvale Ave W. #20, Guelph, ON N1H 1C4
705-797-4310
andrew.dawson@rjburnside.com

Information will be collected in accordance with the *Municipal Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record.

Sincerely,
Adam Dickieson

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Six Nations of the Grand River Elected Council
Field Study Monitoring Agreement
[Background natural heritage review, Ecological Land Classification, Tree inventory, Wildlife/SAR habitats and Aquatic habitat / characterization]

The purpose of this agreement is to ensure that Six Nations of the Grand River Elected Council ("**SNGREC**") will be remunerated for the reasonable costs for **ONE Field Study Monitor ("Monitor")** in connection with field study work required at the location of 4 Bridge sites situated in South/East Centre Wellington scheduled for August 20, 2024 (weather dependent). The developer/proponent is The Township of Centre Wellington.

The Monitor mandate will be to monitor and work directly with the Township Consulting firm R.J. Burnsides and Associates Limited to ensure that SNGREC's perspectives and priorities are considered, and to provide any applicable feedback to SNGREC to enable SNGREC to provide timely and meaningful comment on the Project as part of its due diligence as outlined in the Ministry of Citizenship and Multiculturalism (MCM) standards and guidelines, and the Aboriginal Engagement Process.

The Township of Centre Wellington and SNGREC (together, the "Parties") agree that The Township of Centre Wellington will provide funding for one Monitor, on the following terms and conditions:

1. The Monitor will be selected by SNGREC and will have appropriate qualifications for the required work, for example, training in ecological studies and a working knowledge of field work techniques.
2. The Monitor will be responsible for his/her own personal safety equipment, such as safety boots, safety glasses, safety vest, hard hat, etc. The Monitor will attend all applicable on-site orientation/tailgate safety meetings presented by the field director/supervisor, presenting safety issues on archaeological site/s, in conjunction with R.J. Burnsides and Associates Limited.
3. R.J. Burnsides and Associates Limited's field director will coordinate site meeting locations and times directly with SNGREC's point of contact person, Tanya Hill-Montour, Archaeology Supervisor. She may be contacted at cell number 226-388-0665 or her work email address tanyahill-montour@sixnations.ca.
4. The Township of Centre Wellington will reimburse SNGREC for the Monitor reasonable expenses incurred in connection with the monitoring work in the **amount of $125.00 per hour** for one monitor. This amount will cover all costs associated with this project such as: wage, mileage, 3-hour show up time and all applicable employment fees i.e. CPP etc., and hotel/meal (if applicable), the administrative fee, and a fee for reviewing and commenting on the Archaeological Assessments being sent to the Ministry of Citizenship and Multiculturalism.
5. The Township of Centre Wellington will provide payment to SNGREC by cheque or bank transfer within 60 days of receipt of invoice. The invoice will be addressed to the following mailing address: 1 MacDonald Square, Elora ON, N0B 1S0 and the Project will be noted in the text of the invoice. The purchase order, etc. will be provided for the text of the invoice and then will be submitted electronically to one email address: adickieson@centrewellington.ca

The foregoing accurately reflects the terms of the agreement that the Parties hereby agree to enter into and the undersigned agree to be legally bound hereby.

Formally offered by SNGREC on August 20, 2024
(Date)

By: Lonny Bomberry _____
(Signature)

Title: Director, Lands and Resources
Six Nations of the Grand River Elected Council

Accepted by The Township of Centre Wellington on August 19, 2024
(Date)

By: Adam McNabb _____
(Print Name) (Signature)

Title: Managing Director of Corporate Services & Treasurer

This agreement will expire on December 31, 2024

Crystal Ferguson

From: Andrew Dawson
Sent: Tuesday, August 27, 2024 10:14 PM
To: Peter Graham; Dawn LaForme; Tanya Hill-Montour
Cc: Crystal Ferguson; Tricia Radburn; Adam Dickieson; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E; Matt Brooks; Mishaal Rizwan
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Peter,

I am following up on the email below to confirm whether SNGREC will be reviewing or providing comments on the Cultural Heritage Report and the Stage 1 Archaeological Report. I am looking to confirm whether you have any knowledge of archaeological sites or historically documented evidence of past aboriginal use of the sites that have not been identified within the reports.

If you could please get back to me as soon as possible on whether you intend to review and comment on this and what your anticipated timelines for providing comments would be, it would be much appreciated.

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Peter Graham <LRCS@sixnations.ca>
Sent: Tuesday, August 06, 2024 1:20 PM
To: Andrew Dawson <Andrew.Dawson@rjburnside.com>; Dawn LaForme <dlaforme@sixnations.ca>; Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Cc: Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Good afternoon Andrew,

Thank you for letting me know. Tanya also oversees environmental monitoring, so she'll be in touch about that if there's interest.

Best, Peter

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Sent: Tuesday, August 6, 2024 9:48 AM
To: Peter Graham <LRCS@sixnations.ca>; Dawn LaForme <dlaforme@sixnations.ca>; Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Cc: Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal

Rizwan <Mishaal.Rizwan@rjburnside.com>
Subject: [External] RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

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Environmental Studies
I understand that, during the June 20, 2024 phone discussions, you had identified that your level of interest in this project involves receiving and reviewing the Environmental Impact Study (EIS) and preferred alternatives as early as they become available. Our team is looking at scheduling the field work to collect background data for the EIS in the next two weeks so I wanted to touch base with you to confirm whether you are looking to have any field monitoring staff present during these studies? Please let me know as soon as possible (by **August 9** at latest) if so. Otherwise, we will provide you with the EIS report and preliminary preferred alternatives, as requested, as soon as those reports are available.

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Can you please review the draft reports and confirm whether you have any comments on the information included and confirm whether you have any knowledge of archaeological sites or historically documented evidence of past aboriginal use of the sites that have not been identified within the reports? We request that you please provide your comments or confirmation of acceptance by **August 15, 2024**.

Please feel free to give me a call if you have any questions!

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Thursday, June 20, 2024 3:30 PM
To: LRCS@sixnations.ca
Cc: Andrew Dawson <Andrew.Dawson@rjburnside.com>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; dlaforme@sixnations.ca
Subject: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Peter,

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as soon as they are available. Our team will make best efforts to share these documents in email correspondence as soon as they have been prepared.

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A summary of the project is as follows:

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Project consultant:	• R.J. Burnside & Associates Limited
Approval Process:	• Municipal Class EA
Project Location:	• Four bridges in the former West Garafraxa and Eramosa Townships (refer to attached letter for a map)
Duty to Consult:	• The province has delegated the responsibility for consultation to the Township of Centre Wellington
Project Purpose:	• To assess whether one or more of the four bridges should be reopened or remain closed.
Studies to be completed:	• Traffic study to review traffic patterns, volumes and flow. • Archaeological screening and additional archaeological studies, if required. • Cultural Heritage Screening and additional heritage studies, if required. • Ecological study using existing records and field observations. • Geotechnical study to assess soil conditions and stability, if required.
Potential impacts to Treaty/Aboriginal Rights:	• To be determined, based on information received from your community.

We are notifying you of the upcoming project (see attached letter) in hopes that you can assist our project team in determining if your community may hold interest in this project. Your comments are welcome and will be taken into consideration throughout this study.
As new information is made available the Bridge & Transportation Network Study for Four Bridges | Connect CW Township web site will be updated as well as regular notifications.
If you have an interest in this project, please contact one of the Project Team members below. The team is happy to provide additional information, provide opportunities for your community to participate in studies or review project reports, or meet with team members to answer questions and resolve concerns.

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0
519-846-9691 x 355
adickieson@centrewellington.ca

Andrew Dawson, P. Eng.
Consultant Project Manager
R.J. Burnside & Associates Ltd.
292 Speedvale Ave W. #20, Guelph, ON N1H 1C4
705-797-4310
andrew.dawson@rjburnside.com

Information will be collected in accordance with the *Municipal Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record.

Sincerely,
Adam Dickieson

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Crystal Ferguson

From: Andrew Dawson
Sent: Tuesday, September 03, 2024 1:10 PM
To: Dawn LaForme; Tanya Hill-Montour; Peter Graham
Cc: Tricia Radburn; Adam Dickieson; Matt Brooks; Kevin Butt; Mark Saunders
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24
Attachments: 058117 Meeting Minutes_Ecological Field Work_2024-08-22.pdf

Dawn / Tanya / Peter,
Thank you to your team for their participation in the ecological field studies conducted on August 20th.
It is my understanding that everything went well on site and that your team was in acceptance of our team's findings.

Please see attached for the minutes for the meeting / site visit for your review and comment.
Please let me know if you or your team feel that there are any errors or omissions within the meeting minutes.

As noted in the minutes, we will circulate our report once it has been drafted.

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Dawn LaForme <dlaforme@sixnations.ca>
Sent: Thursday, August 22, 2024 11:25 AM
To: Adam Dickieson <ADickieson@centrewellington.ca>
Cc: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>; Andrew Dawson <Andrew.Dawson@rjburnside.com>
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Good morning Adam, attached please find a signed copy of the monitor agreement for your files.

Thank you kindly,
Dawn LaForme, Secretary/Receptionist, Six Nations Lands & Resources, (519) 753-0665

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: August 19, 2024 4:12 PM
To: Dawn LaForme <dlaforme@sixnations.ca>; Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Cc: Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>; Andrew Dawson <Andrew.Dawson@rjburnside.com>
Subject: [External] RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Dawn, Tanya,

Find attached a signed field study monitoring agreement for tomorrow's Background natural heritage review, Ecological Land Classification, Tree inventory, Wildlife/SAR habitats and Aquatic habitat / characterization field study.

Please correspond directly with Tricia Radburn (R.J. Burnside) regarding tomorrow afternoon's study. (Email containing site study details attached).

Regards,
Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Adam Dickieson
Sent: Monday, August 19, 2024 10:09 AM
To: Dawn LaForme <dlaforme@sixnations.ca>; Andrew Dawson <Andrew.Dawson@rjburnside.com>
Cc: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Dawn,

Thank you for sending the agreement along. I will look after the agreement prepared/signed with the Township and correspond back to you through this email chain.

Regards,
Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

From: Dawn LaForme <dlaforme@sixnations.ca>
Sent: Monday, August 19, 2024 9:50 AM
To: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Cc: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Andrew,
Attached please find the 2024 Archaeology Monitor Agreement to be filled in, signed and send back at your earliest convenience for processing.

Thank you kindly,
Dawn LaForme, Secretary/Receptionist, Six Nations Lands & Resources, (519) 753-0665

From: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Sent: August 18, 2024 7:58 PM
To: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Cc: Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>; Peter Graham <LRCS@sixnations.ca>; Dawn LaForme <dlaforme@sixnations.ca>
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Hi Andrew

My apologies, I will send a representative Tuesday.

Dawn please coordinate a standard agreement

Nia':wen ko:wa (thankyou)
Tanya Hill-Montour
Six Nations of the Grand River Archaeological Supervisor
226.388.0665

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Sent: Thursday, August 15, 2024 12:36 PM
To: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Cc: Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>; Peter Graham <LRCS@sixnations.ca>; Dawn LaForme

<dlaforme@sixnations.ca>
Subject: [External] RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Tanya,
The field work for these ecological studies has been scheduled for Tuesday August 20th. Since we have not received any confirmation of interest from Six Nations, we will be proceeding with the field work on August 20th and will provide you with the reports once the draft is completed. For your information, HDI will have field monitors to review this field work on August 20th.

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Andrew Dawson
Sent: Friday, August 09, 2024 12:10 PM
To: Peter Graham <LRCS@sixnations.ca>; Dawn LaForme <dlaforme@sixnations.ca>; Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Cc: Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Tanya,
I am following up on the email chain below to confirm if your team has interest in overseeing the environmental field work? We are looking to schedule this work on the week of August 19th, so if you could please confirm whether you have interest or not by end of day today, it would be greatly appreciated. Otherwise, we will continue with the original request from Peter of providing the reports once complete.

Regards,
Andrew

From: Peter Graham <LRCS@sixnations.ca>
Sent: Tuesday, August 06, 2024 1:20 PM
To: Andrew Dawson <Andrew.Dawson@rjburnside.com>; Dawn LaForme <dlaforme@sixnations.ca>; Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Cc: Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Subject: RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Good afternoon Andrew,

Thank you for letting me know. Tanya also oversees environmental monitoring, so she'll be in touch about that if there's interest.

Best, Peter

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
Sent: Tuesday, August 6, 2024 9:48 AM
To: Peter Graham <LRCS@sixnations.ca>; Dawn LaForme <dlaforme@sixnations.ca>; Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Cc: Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>; 058117 Centre Wellington EA for Bridges 2-WG, 3-E, 5-E, 7-E <058117CentreWellingtonEAforBridges@rjburnside.com>; Matt Brooks <Matt.Brooks@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Subject: [External] RE: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Good Morning Peter,

Hope you have been keeping well and enjoyed your long weekend!
I just wanted to follow up on this study and provide a few updates, confirm your level of interest in field work, and provide some draft background study reports. I have included Tanya on this email as some of this is archaeology related and it is my understanding she is the contact for such correspondence.

Environmental Studies
I understand that, during the June 20, 2024 phone discussions, you had identified that your level of interest in this project involves receiving and reviewing the Environmental Impact Study (EIS) and preferred alternatives as early as they become available. Our team is looking at scheduling the field work to collect background data for the EIS in the next two weeks so I wanted to touch base with you to confirm whether you are looking to have any field monitoring staff present during these studies? Please let me know as soon as possible (by **August 9** at latest) if so. Otherwise, we will provide you with the EIS report and preliminary preferred alternatives, as requested, as soon as those reports are available.

CHER and Archaeological
The draft Cultural Heritage Evaluation Report and Stage 1 Archaeological Assessment are available for download at the link below for your records/review:
058117 - CHER and Stage 1 AA
As identified in the attached reports, all sites were found to have low archaeological potential due to previous disturbances of the original bridge construction and no further archaeological investigations have been recommended.
For the CHER, bridge 3E has been found to have built cultural heritage and a Heritage Impact Assessment (HIA) is currently being undertaken. We will share the results of the HIA once complete.
Can you please review the draft reports and confirm whether you have any comments on the information included and confirm whether you have any knowledge of archaeological sites or historically documented evidence of past aboriginal use of the sites that have not been identified within the reports? We request that you please provide your comments or confirmation of acceptance by **August 15, 2024**.

Please feel free to give me a call if you have any questions!

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Thursday, June 20, 2024 3:30 PM
To: LRCS@sixnations.ca
Cc: Andrew Dawson <Andrew.Dawson@rjburnside.com>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia

Radburn <Tricia.Radburn@rjburnside.com>; dlaforme@sixnations.ca
Subject: 300058117 Centre Wellington - Bridge and Transportation Network Study For 4 Bridges RFP 04-24

Peter,

As discussed on the phone this afternoon, please find attached a copy of the letter sent via Canada Post last week that provides the details of an upcoming Township of Centre Wellington study. It is understood that Six Nations Lands and Resources office is interested in being provided all project related environmental impact studies and preferred alternatives as soon as they are available. Our team will make best efforts to share these documents in email correspondence as soon as they have been prepared.

Re: Upcoming Study to Review Four Bridges in Centre Wellington (Former West Garafraxa and Eramosa Townships)

The Township of Centre Wellington is scoping for a Municipal Class Environmental Assessment (MCEA) to evaluate options for four (4) bridges which are either currently closed to vehicular traffic or have a load restriction due to their poor condition. The Bridge and Transportation will consider the role of these bridges in the Township's road network and their value in connecting points across the community when determining the preferred alternative.
A summary of the project is as follows:

Project Lead:	• Township of Centre Wellington
Project consultant:	• R.J. Burnside & Associates Limited
Approval Process:	• Municipal Class EA
Project Location:	• Four bridges in the former West Garafraxa and Eramosa Townships (refer to attached letter for a map)
Duty to Consult:	• The province has delegated the responsibility for consultation to the Township of Centre Wellington
Project Purpose:	• To assess whether one or more of the four bridges should be reopened or remain closed.
Studies to be completed:	• Traffic study to review traffic patterns, volumes and flow. • Archaeological screening and additional archaeological studies, if required. • Cultural Heritage Screening and additional heritage studies, if required. • Ecological study using existing records and field observations. • Geotechnical study to assess soil conditions and stability, if required.
Potential impacts to Treaty/Aboriginal Rights:	• To be determined, based on information received from your community.

We are notifying you of the upcoming project (see attached letter) in hopes that you can assist our project team in determining if your community may hold interest in this project. Your comments are welcome and will be taken into consideration throughout this study.
As new information is made available the Bridge & Transportation Network Study for Four Bridges | Connect CW Township web site will be updated as well as regular notifications.
If you have an interest in this project, please contact one of the Project Team members below. The team is happy to provide additional information, provide opportunities for your community to participate in studies or review project reports, or meet with team members to answer questions and resolve concerns.

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0
519-846-9691 x 355
adickieson@centrewellington.ca

Andrew Dawson, P. Eng.
Consultant Project Manager
R.J. Burnside & Associates Ltd.
292 Speedvale Ave W. #20, Guelph, ON N1H 1C4
705-797-4310
andrew.dawson@rjburnside.com

Information will be collected in accordance with the *Municipal Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record.

Sincerely,
Adam Dickieson

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Mishaal Rizwan

From: Mishaal Rizwan
Sent: Tuesday, October 29, 2024 10:12 AM
To: LRCS@sixnations.ca
Cc: dlaforme@sixnations.ca; sngr.chief@sixnations.ca; lonnybomberry@sixnations.ca; Andrew Dawson; Adam Dickieson (Centre Wellington)
Subject: Centre Wellington 5 Bridges EA - Stage 1 & 2 Archaeological Assessment

Sge:no,

I am following up on behalf of the Township of Centre Wellington in regards to the Stage 1 & 2 Archaeological Assessment for Bridges 28-P, 32-P and 33-P, which was undertaken as a follow up to the commitments made within the recently completed Municipal Class Environmental Assessment of Bridges 1-P, 28-P, 30-P, 32-P and 33-P. ***The Stage 1 & 2 assessments have now been completed and have identified that the study areas of the three sites require no further archaeological assessment.***

The Stage 1 & 2 assessment report is available for download in the link below:
056693 - DRAFT Stage 1 and 2 Archaeological Assessment_28-P 32-P 33-P
Note: The file share link above will expire on February 18, 2024. Please download files from the above link prior to this date.

As identified in the Stage 1 & 2 report and the MCEA Project File Report, a Stage 1 Archaeological Assessment was conducted at the three sites (28-P, 32-P and 33-P) where the proposed works are to result in ground disturbance due to bridge replacement. The Stage 1 inspection was completed on March 15, 2024 and identified that the 32-P study area had recent extensive disturbance that required no further archaeological assessment, and that there was marginal archaeological potential at the 28-P and 33-P study areas. As such, a Stage 2 Archaeological Assessment was scheduled for the Bridge 28-P and 33-P study areas and agreements were entered between the Township and Indigenous Communities (HDI, SNGREC, MCFN) to allow field representatives the option to monitor the Stage 2 works. The Stage 2 field work was completed at both sites on July 24th, 2024 with field monitoring conducted by a representative of the Mississauga's of the Credits First Nation. The Stage 2 archaeological assessment did not result in the identification of archaeological materials at either site. As such no further archaeological assessment is recommended for these study areas.

The Township of Centre Wellington would like to provide your community with the opportunity to review the report and provide comment prior to the report being finalized and filed with the Ministry of Citizenship and Multiculturalism. ***Please provide comments on the report prior to November 29, 2024.***

If you could ***please confirm by November 4th, 2024 whether or not you intend to provide comments*** *on the attached report that would be greatly appreciated.*

Nya:weh,

BURNSIDE
Mishaal Rizwan
Environmental Planner

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Unit 20, Guelph, Ontario, N1H 1C4
Office: 800-265-9662 Direct Line: 226-343-7014
www.rjburnside.com

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix B.6

Agency Consultation Records

Crystal Ferguson

From: Crystal Ferguson
Sent: Wednesday, May 15, 2024 4:52 PM
To: Del Villar Cuicas, Joan (MECP)
Cc: Tricia Radburn; Mishaal Rizwan; Andrew Dawson
Subject: Township Centre Wellington - 4 Bridges EA-like Process -Indigenous Communities
Attachments: bridges_map_march_2023.pdf

Good Afternoon Joan,

We have begun working on a bridge project in the Township of Centre Wellington to look at the options for 4 bridges: 2-WG, 7-E, 5-E and 3-E. This project may be exempt from Environmental Assessment and is pending screening of Cultural Heritage value and Archaeological resources. The Township has elected to engage with the Indigenous Communities.

A copy of the approximate study area is attached.

I would like to ask if you could please provide direction on the list of Indigenous communities which may have an interest and should be engaged?

Thank you kindly,

Crystal Ferguson

From: Del Villar Cuicas, Joan (MECP) <Joan.DelVillarCuicas@ontario.ca>
Sent: Tuesday, May 21, 2024 7:50 AM
To: Crystal Ferguson
Subject: RE: Township Centre Wellington - 4 Bridges EA-like Process -Indigenous Communities

Good morning Crystal,

Thank you for your email.

Based on the location and geography, it is reasonable to believe both communities may have an interest in the project.

- **Mississaugas of the Credit**
- **Six Nations of the Grand River (both elected and Haudenosaunee Confederacy Chiefs Council/Haudenosaunee Development Institute)**
    - both the elected council and HCCC claim to represent the Six Nations Community. The HCCC is the traditional council and the SNGR elected was established by Canada pursuant to the *Indian Act*, 1924.

Nothing in this advice should prevent the proponent from reaching out to Indigenous communities with whom they have an established relationship or with whom they are seeking to develop a relationship to get their input/ideas associated with the projects.

This advice was based on the information provided at the time of review. While this project may not trigger the duty to consult, other aspects of the overall work being carried out may. As new information becomes available through, but not limited to public consultation, expressed concern by communities, etc. about how this project may impact rights, the advice provided above may also require re-evaluation.

Regards,

Joan Del Villar Cuicas (she/her)
Regional Environmental Planner
Project Review Unit | Environmental Assessment Branch
Ontario Ministry of the Environment, Conservation and Parks
Joan.delvillarcuicas@ontario.ca|Phone: 365-889-1180

From: Crystal Ferguson <Crystal.Ferguson@rjburnside.com>
Sent: May 15, 2024 4:52 PM
To: Del Villar Cuicas, Joan (MECP) <Joan.DelVillarCuicas@ontario.ca>
Cc: Tricia Radburn <Tricia.Radburn@rjburnside.com>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>; Andrew Dawson <Andrew.Dawson@rjburnside.com>
Subject: Township Centre Wellington - 4 Bridges EA-like Process -Indigenous Communities

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good Afternoon Joan,

We have begun working on a bridge project in the Township of Centre Wellington to look at the options for 4 bridges: 2-WG, 7-E, 5-E and 3-E. This project may be exempt from Environmental Assessment and is pending screening of Cultural Heritage value and Archaeological resources. The Township has elected to engage with the Indigenous Communities.

A copy of the approximate study area is attached.

I would like to ask if you could please provide direction on the list of Indigenous communities which may have an interest and should be engaged?

Thank you kindly,

BURNSIDE
Crystal Ferguson
Environmental Coordinator

R.J. Burnside & Associates
128 Wellington Street West, Suite 301, Barrie, Ontario L4N 8J6
Office: +1 800-265-9662 Direct: +1 705-797-4352
www.rjburnside.com

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Thank you.

****

Mishaal Rizwan

From:	Mishaal Rizwan
Sent:	Thursday, October 17, 2024 4:14 PM
To:	EA Notices to WCRegion (MECP)
Cc:	Andrew Dawson; Adam Dickieson (Centre Wellington); Del Villar Cuicas, Joan (MECP)
Subject:	Township of Centre Wellington - Notice of Project Screening, Bridge and Transportation Network Study for Bridges 2-WG, 3-E, 5-E and 7-E
Attachments:	241017_CW 4 Bridges_Notice of Project Screening_058117.pdf; 058117_Centre Wellington 4 Bridges ProjectInfoForm.xlsx

Good afternoon,

Please find attached the Notice of Project Screening and Project Information Form for the Bridge and Transportation Network Study for Bridges 2-WG, 3-E, 5-E and 7-E.

Please let us know if you have any questions.

Best regards,

BURNSIDE
Mishaal Rizwan
Environmental Planner

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Unit 20, Guelph, Ontario, N1H 1C4
Office: 800-265-9662 Direct Line: 226-343-7014
www.rjburnside.com

Crystal Ferguson

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Monday, June 17, 2024 4:22 PM
To: abby.laforme@mncfn.ca
Cc: Andrew Dawson
Subject: Upcoming Study of Four Bridges in the Township of Centre Wellington - MNCFN
Attachments: Township of Centre Wellington_Upcoming Study.pdf

Abby,

As discussed on the phone earlier this afternoon, please find attached the four letters that were returned by Canada Post. Moving forward I will correspond with you via email as requested.

Please contact me or Andrew to provide additional information and to provide opportunities for your community to participate in any potential studies or review project reports or meet with team members to answer questions and resolve concerns.

Regards,
Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Centre Wellington

June 11, 2024

Via: Canada Post Registered Mail

Consultation Manager
Mississaugas of the Credit First Nation
4065 Hwy 6
Hagersville, ON
N0A 1H0

Dear Abby LaForme:

Re: Study of Four Bridges in the Township of Centre Wellington
Project No.: 300058117

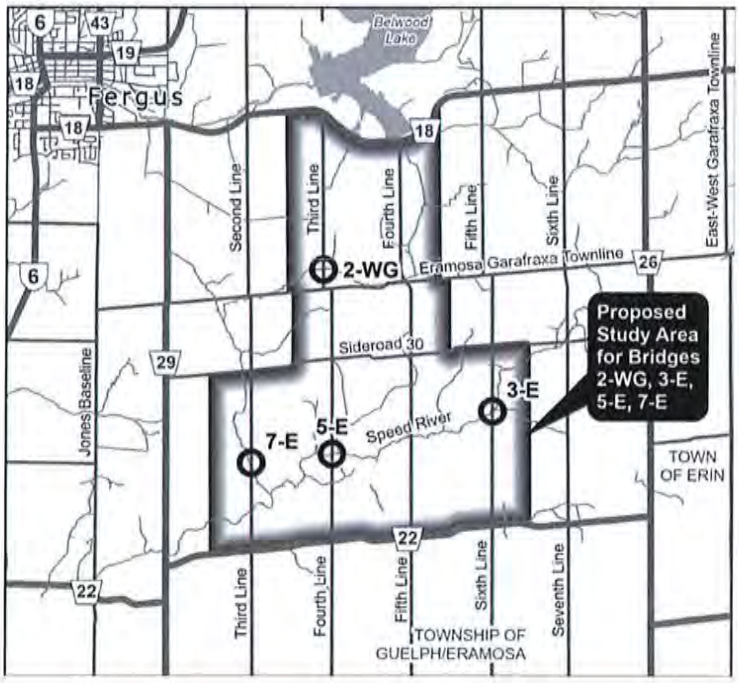
We are writing to inform you of an upcoming study to review **four existing bridges** in the Township of Centre Wellington. The bridges are located southwest of the community of Fergus, as shown in the area on the map below. Each bridge spans a tributary of the Speed River, which is part of the Grand River watershed.

The bridges, are currently in poor or deteriorating condition, as follows:

- Bridge 2-WG: Open with load restrictions
- Bridge 7-E: Temporarily closed due to poor condition
- Bridge 5-E: Temporarily closed due to poor condition
- Bridge 3-E: Temporarily closed due to poor condition

The Township has contracted R.J. Burnside & Associates Limited (Burnside) to evaluate whether each bridge should be:

- Closed permanently;
- Rehabilitated (within minor upgrades and modifications); or
- Reconstructed.



The study will be completed in accordance with **the Municipal Class Environmental Assessment (MCEA) process**. This includes an **Archaeological Assessment**, as required; **plant and wildlife habitat and species at risk** reviews; **cultural heritage** reviews as well as an assessment of any potential impacts to **Aboriginal or Treaty Rights**.

When evaluating whether each bridge should be closed, rehabilitated or reconstructed, the Township will consider archaeological resources, cultural heritage and the natural environment. The study will also assess the impact of closing one or more bridges on the community, how the community is connected, traffic patterns and response time for emergency services.

We recognize the importance of consultation with Mississaugas of the Credit First Nation as part of this study.

If you have an interest in this project, please contact one of the Project Team members below. The team is happy to provide additional information, provide opportunities for your community to participate in any potential studies or review project reports, or meet with team members to answer questions and resolve concerns.

Adam Dickieson Engineering Services Coordinator Township of Centre Wellington 1 MacDonald Square, Elora, ON N0B 1S0 519-846-9691 x 355 adickieson@centrewellington.ca	Andrew Dawson, P. Eng. Consultant Project Manager R.J. Burnside & Associates Ltd. 292 Speedvale Ave W. #20, Guelph, ON N1H 1C4 705-797-4310 andrew.dawson@rjburnside.com

Yours truly,

Township of Centre Wellington
Adam Dickieson
Engineering Services Coordinator

Centre Wellington

June 11, 2024

Via: Canada Post Registered Mail

Chief Claire Sault
Mississaugas of the Credit First Nation
4065 Hwy 6
Hagersville, ON
N0A 1H0

Dear Chief Claire Sault:

Re: Study of Four Bridges in the Township of Centre Wellington
Project No.: 300058117

We are writing to inform you of an upcoming study to review **four existing bridges** in the Township of Centre Wellington. The bridges are located southwest of the community of Fergus, as shown in the area on the map below. Each bridge spans a tributary of the Speed River, which is part of the Grand River watershed.

The bridges, are currently in poor or deteriorating condition, as follows:

- Bridge 2-WG: Open with load restrictions
- Bridge 7-E: Temporarily closed due to poor condition
- Bridge 5-E: Temporarily closed due to poor condition
- Bridge 3-E: Temporarily closed due to poor condition

The Township has contracted R.J. Burnside & Associates Limited (Burnside) to evaluate whether each bridge should be:

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- Rehabilitated (within minor upgrades and modifications); or
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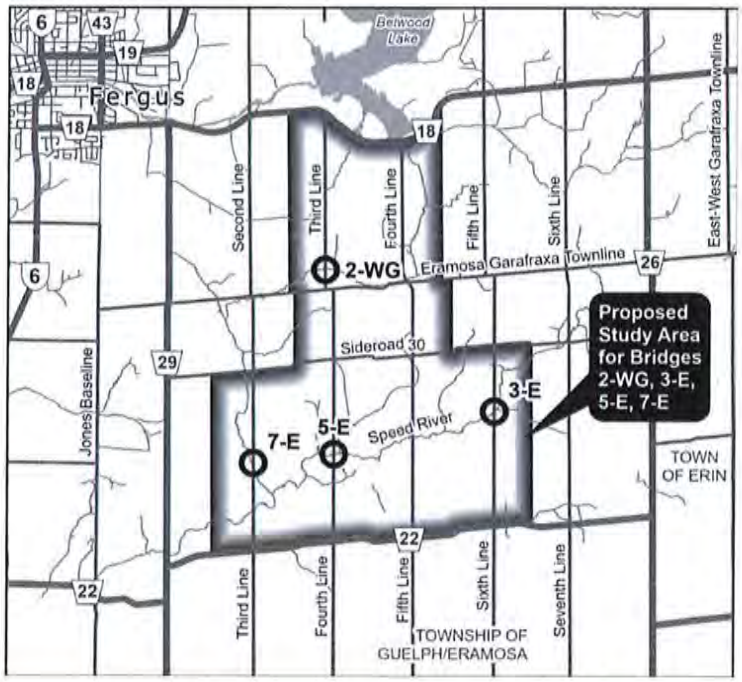

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We recognize the importance of consultation with Mississaugas of the Credit First Nation as part of this study.

If you have an interest in this project, please contact one of the Project Team members below. The team is happy to provide additional information, provide opportunities for your community to participate in any potential studies or review project reports, or meet with team members to answer questions and resolve concerns.

Adam Dickieson Engineering Services Coordinator Township of Centre Wellington 1 MacDonald Square, Elora, ON N0B 1S0 519-846-9691 x 355 adickieson@centrewellington.ca	Andrew Dawson, P. Eng. Consultant Project Manager R.J. Burnside & Associates Ltd. 292 Speedvale Ave W. #20, Guelph, ON N1H 1C4 705-797-4310 andrew.dawson@rjburnside.com

Yours truly,

Township of Centre Wellington
Adam Dickieson
Engineering Services Coordinator

Centre Wellington

June 11, 2024

Via: Canada Post Registered Mail

Archaeology/FLR Participation Contact
Mississaugas of the Credit First Nation
4065 Hwy 6
Hagersville, ON
N0A 1H0

Dear Adam LaForme:

Re: Study of Four Bridges in the Township of Centre Wellington
Project No.: 300058117

We are writing to inform you of an upcoming study to review **four existing bridges** in the Township of Centre Wellington. The bridges are located southwest of the community of Fergus, as shown in the area on the map below. Each bridge spans a tributary of the Speed River, which is part of the Grand River watershed.

The bridges, are currently in poor or deteriorating condition, as follows:

- Bridge 2-WG: Open with load restrictions
- Bridge 7-E: Temporarily closed due to poor condition
- Bridge 5-E: Temporarily closed due to poor condition
- Bridge 3-E: Temporarily closed due to poor condition

The Township has contracted R.J. Burnside & Associates Limited (Burnside) to evaluate whether each bridge should be:

- Closed permanently;
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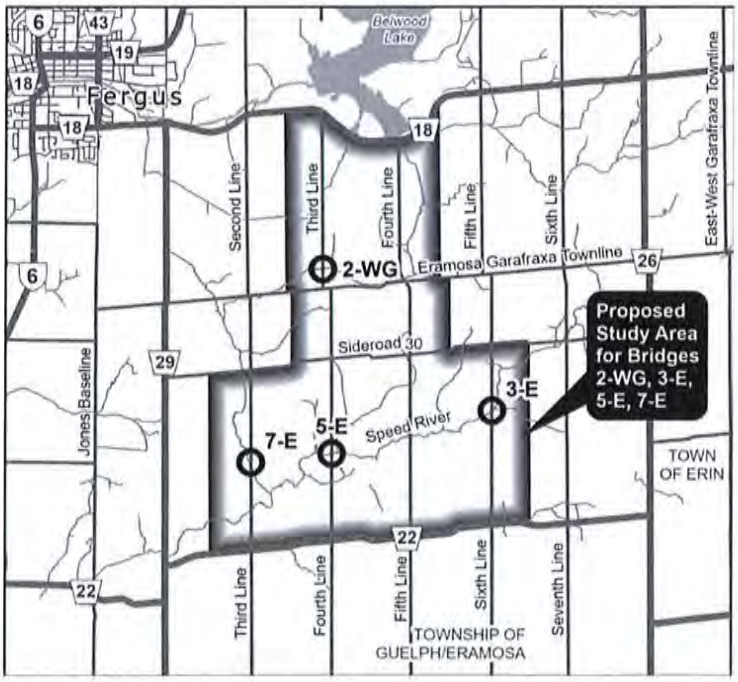

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Adam Dickieson
Engineering Services Coordinator

Centre Wellington

June 11, 2024

Via: Canada Post Registered Mail

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Mississaugas of the Credit First Nation
4065 Hwy 6
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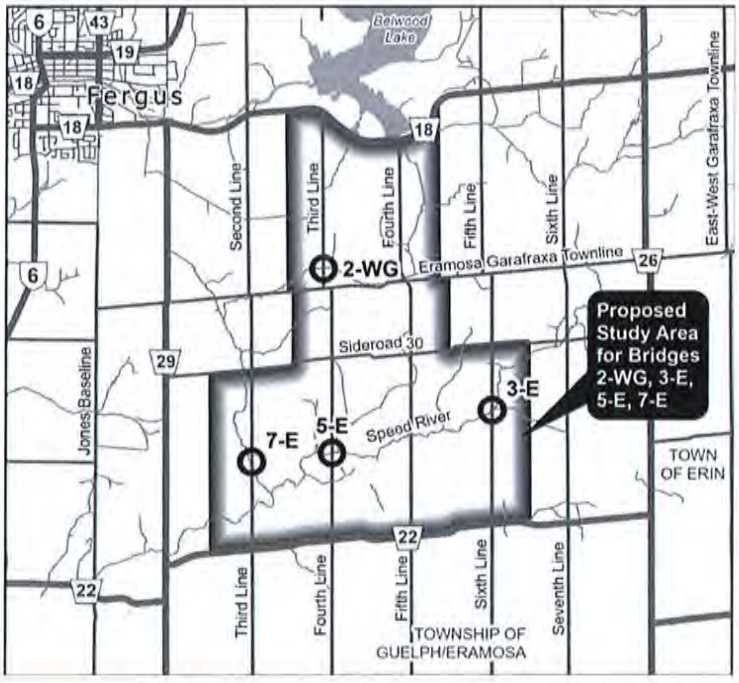

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Township of Centre Wellington
Adam Dickieson
Engineering Services Coordinator

Crystal Ferguson

From: Abby LaForme <Abby.LaForme@mncfn.ca>
Sent: Tuesday, June 18, 2024 10:16 AM
To: Adam Dickieson
Cc: Andrew Dawson; Mark LaForme; Craig King
Subject: RE: Upcoming Study of Four Bridges in the Township of Centre Wellington - MNCFN

Follow Up Flag: Follow up
Flag Status: Flagged

Good Morning Adam,

Thank you for the phone call and email notification regarding the upcoming study for the Four Bridges in the Township of Centre Wellington.

At this time the Mississaugas of the Credit First Nation (MCFN), Department of Consultation and Accommodation (DOCA) have a lack of compacity when it comes to any Environmental work.
Please forward the completed MCEA Report when available.

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Thank you again for the phone call yesterday, have a great day!

Abby (LaForme) Lee
Consultation Officer

Mississaugas of the Credit First Nation (MCFN)
Department of Consultation & Accommodation (DOCA)
4065 Highway 6, Hagersville, ON N0A 1H0
Ph: (905) 768 – 4260
Email: Abby.LaForme@mncfn.ca

Please Note- If a digital copy of your notification has been sent, please be environmentally conscious and do not send a physical, copy. Thank you!

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Sent: Monday, June 17, 2024 4:22 PM
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Subject: Upcoming Study of Four Bridges in the Township of Centre Wellington - MNCFN

Abby,

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Please contact me or Andrew to provide additional information and to provide opportunities for your community to participate in any potential studies or review project reports or meet with team members to answer questions and resolve concerns.

Regards,
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Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Crystal Ferguson

From: Andrew Dawson
Sent: Wednesday, August 07, 2024 9:58 PM
To: Abby LaForme; Adam LaForme
Cc: Mark LaForme; Craig King; Mishaal Rizwan; Crystal Ferguson; Tricia Radburn; Adam Dickieson
Subject: RE: Upcoming Study of Four Bridges in the Township of Centre Wellington - MNCFN

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Please feel free to give me a call if you have any questions

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Andrew Dawson
Project Engineer
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Office: +1 800-265-9662 Direct: +1 705-797-4310

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Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

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From: Adam LaForme <Adam.LaForme@mncfn.ca>
Sent: Thursday, August 08, 2024 9:47 AM
To: Andrew Dawson; Abby LaForme
Cc: Mark LaForme; Craig King; Mishaal Rizwan; Crystal Ferguson; Tricia Radburn; Adam Dickieson
Subject: RE: Upcoming Study of Four Bridges in the Township of Centre Wellington - MNCFN

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I will do what I can to expedite the process, we will review and respond with comments by August 29, 2024.

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Kind regards,

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Manager of Archaeology
Mississaugas of the Credit First Nation (MCFN)
Department of Consultation and Accommodation (DOCA)
4065 Highway 6 North, Hagersville, ON N0A 1H0
Cell 289-527-2763

From: Andrew Dawson <Andrew.Dawson@rjburnside.com>
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To: Abby LaForme <Abby.LaForme@mncfn.ca>; Adam LaForme <Adam.LaForme@mncfn.ca>
Cc: Mark LaForme <Mark.LaForme@mncfn.ca>; Craig King <Craig.King@mncfn.ca>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>
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Office: +1 800-265-9662 Direct: +1 705-797-4310

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Cc: Mark LaForme; Craig King; Mishaal Rizwan; Crystal Ferguson; Tricia Radburn; Adam Dickieson; Abby LaForme
Subject: RE: Upcoming Study of Four Bridges in the Township of Centre Wellington - MNCFN

Adam,
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Thanks so much!

Andrew

Andrew Dawson
Project Engineer
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Office: +1 800-265-9662 Direct: +1 705-797-4310

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519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Crystal Ferguson

From: Abby LaForme <Abby.LaForme@mncfn.ca>
Sent: Wednesday, August 14, 2024 10:01 AM
To: Andrew Dawson
Cc: Mark LaForme; Craig King; Mishaal Rizwan; Crystal Ferguson; Tricia Radburn; Adam Dickieson; Darin Wybenga; Adam LaForme
Subject: RE: Upcoming Study of Four Bridges in the Township of Centre Wellington - MNCFN

Good Morning Andrew,

Please see the comments provided by Darin Wybenga- MCFN DOCA, Heritage Interpreter;

Thank you for sending the **Cultural Heritage Evaluation Report, Municipal Class Environmental Assessment, Bridges 2-WG, 3-E, 5-E and &-E, Township of Centre Wellington, Ontario** dated June 18, 2024 and completed by Parslow Heritage Consultancy Inc. and R.J. Burnside & Associates Ltd.

1. I read the report and concur with its findings.
2. I did note an inconsistency on pg. 24 of the report when in answer to question 7: "The property has contextual value because it is important in defining, maintaining or supporting the character of an area" the paragraph in answer indicates that Bridge 3-E "is important to maintaining and supporting the character of the area and reflecting the once prominent use of the bowstring design in Wellington County."; yet in bold type it is stated the "Criteria not met".
3. Somewhere in the report it would be appropriate to indicate that "This Cultural Heritage Evaluation Report was written for projects located on the Treaty lands and Territory of the Mississaugas of the Credit First Nation and the traditional territory of the Haudenosaunee and the AttiwandaronK". Such a statement need not be included in the main body of the report, but could perhaps be included elsewhere to indicate recognition of First Nations' presence on the land prior to the arrival of the settlers.

Thank you

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Subject: RE: Upcoming Study of Four Bridges in the Township of Centre Wellington - MNCFN

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Please feel free to give me a call if you have any questions

Regards,
Andrew Dawson

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Abby LaForme <Abby.LaForme@mncfn.ca>
Sent: Tuesday, June 18, 2024 10:16 AM
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Cc: Andrew Dawson <Andrew.Dawson@rjburnside.com>; Mark LaForme <Mark.LaForme@mncfn.ca>; Craig King <Craig.King@mncfn.ca>
Subject: RE: Upcoming Study of Four Bridges in the Township of Centre Wellington - MNCFN

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Thank you again for the phone call yesterday, have a great day!

Abby (LaForme) Lee
Consultation Officer

Mississaugas of the Credit First Nation (MCFN)
Department of Consultation & Accommodation (DOCA)
4065 Highway 6, Hagersville, ON N0A 1H0
Ph: (905) 768 – 4260
Email: Abby.LaForme@mncfn.ca

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Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Crystal Ferguson

From: Adam LaForme <Adam.LaForme@mncfn.ca>
Sent: Thursday, August 29, 2024 12:53 PM
To: Andrew Dawson; Abby LaForme
Cc: Mark LaForme; Craig King; Mishaal Rizwan; Crystal Ferguson; Tricia Radburn; Adam Dickieson
Subject: RE: Upcoming Study of Four Bridges in the Township of Centre Wellington - MNCFN

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Mississaugas of the Credit First Nation (MCFN)
Department of Consultation and Accommodation (DOCA)
4065 Highway 6 North, Hagersville, ON N0A 1H0
Cell 289-527-2763

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Thank you again for the phone call yesterday, have a great day!

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Adam Dickieson | Engineering Services Coordinator

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519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Crystal Ferguson

From: Andrew Dawson
Sent: Thursday, August 29, 2024 11:31 AM
To: Adam LaForme; Abby LaForme
Cc: Mark LaForme; Craig King; Mishaal Rizwan; Crystal Ferguson; Tricia Radburn; Adam Dickieson
Subject: RE: Upcoming Study of Four Bridges in the Township of Centre Wellington - MNCFN

Hi Adam,
Hope you have been keeping well!
I am just following up to confirm whether we can expect to receive comments on the Stage 1 AA today?

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Adam LaForme <Adam.LaForme@mncfn.ca>
Sent: Thursday, August 08, 2024 9:47 AM
To: Andrew Dawson <Andrew.Dawson@rjburnside.com>; Abby LaForme <Abby.LaForme@mncfn.ca>
Cc: Mark LaForme <Mark.LaForme@mncfn.ca>; Craig King <Craig.King@mncfn.ca>; Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>; Crystal Ferguson <Crystal.Ferguson@rjburnside.com>; Tricia Radburn <Tricia.Radburn@rjburnside.com>; Adam Dickieson <ADickieson@centrewellington.ca>
Subject: RE: Upcoming Study of Four Bridges in the Township of Centre Wellington - MNCFN

Good Morning Andrew,

Thank you for sharing the Stage 1 Archaeological Assessment report for the Four Bridges project.

We have commitments to other proponents, municipalities, and partners, one week is not a sufficient amount of time to review.

I will do what I can to expedite the process, we will review and respond with comments by August 29, 2024.

If you have any questions or concerns, please let me know.

Kind regards,

Adam LaForme (he/him)
Manager of Archaeology
Mississaugas of the Credit First Nation (MCFN)
Department of Consultation and Accommodation (DOCA)
4065 Highway 6 North, Hagersville, ON N0A 1H0

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From: Andrew Dawson
Sent: Thursday, August 29, 2024 12:55 PM
To: Adam LaForme; Abby LaForme
Cc: Mark LaForme; Craig King; Mishaal Rizwan; Crystal Ferguson; Tricia Radburn; Adam Dickieson
Subject: RE: Upcoming Study of Four Bridges in the Township of Centre Wellington - MNCFN

Adam,
Thank you very much! Your time reviewing the document and response is greatly appreciated!
We will provide you with the overall Project File Report once it is complete, as per Abby's original request.
If there is any other information you would like prior to the final Project File Report, please let us know as soon as possible.

Regards,
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Mishaal Rizwan

From:	Mishaal Rizwan
Sent:	Tuesday, October 29, 2024 10:12 AM
To:	Mark LaForme
Cc:	claires@mncfn.ca; abby.laforme@mncfn.ca; adam.laforme@mncfn.ca; Andrew Dawson; Adam Dickieson (Centre Wellington)
Subject:	Centre Wellington 5 Bridges EA - Stage 1 & 2 Archaeological Assessment

Sge:no,

I am following up on behalf of the Township of Centre Wellington in regards to the Stage 1 & 2 Archaeological Assessment for Bridges 28-P, 32-P and 33-P, which was undertaken as a follow up to the commitments made within the recently completed Municipal Class Environmental Assessment of Bridges 1-P, 28-P, 30-P, 32-P and 33-P. ***The Stage 1 & 2 assessments have now been completed and have identified that the study areas of the three sites require no further archaeological assessment.***

The Stage 1 & 2 assessment report is available for download in the link below:
056693 - DRAFT Stage 1 and 2 Archaeological Assessment_28-P 32-P 33-P
Note: The file share link above will expire on February 18, 2024. Please download files from the above link prior to this date.

As identified in the Stage 1 & 2 report and the MCEA Project File Report, a Stage 1 Archaeological Assessment was conducted at the three sites (28-P, 32-P and 33-P) where the proposed works are to result in ground disturbance due to bridge replacement. The Stage 1 inspection was completed on March 15, 2024 and identified that the 32-P study area had recent extensive disturbance that required no further archaeological assessment, and that there was marginal archaeological potential at the 28-P and 33-P study areas. As such, a Stage 2 Archaeological Assessment was scheduled for the Bridge 28-P and 33-P study areas and agreements were entered between the Township and Indigenous Communities (HDI, SNGREC, MCFN) to allow field representatives the option to monitor the Stage 2 works. The Stage 2 field work was completed at both sites on July 24th, 2024 with field monitoring conducted by a representative of the Mississauga's of the Credits First Nation. The Stage 2 archaeological assessment did not result in the identification of archaeological materials at either site. As such no further archaeological assessment is recommended for these study areas.

The Township of Centre Wellington would like to provide your community with the opportunity to review the report and provide comment prior to the report being finalized and filed with the Ministry of Citizenship and Multiculturalism. ***Please provide comments on the report prior to November 29, 2024.***

If you could ***please confirm by November 4th, 2024 whether or not you intend to provide comments*** *on the attached report that would be greatly appreciated.*

Nya:weh,

BURNSIDE
Mishaal Rizwan
Environmental Planner

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Unit 20, Guelph, Ontario, N1H 1C4
Office: 800-265-9662 Direct Line: 226-343-7014
www.rjburnside.com

May 31, 2024

Emergency Response Review
Four Bridge Environmental Assessment for Bridges 2-WG, 3-E, 5-E and 7-E (EA)

On May 16, 2024 Adam Dickieson, Engineering Services Coordinator, Infrastructure Services (TCW) met with Tom Mulvey, Fire Chief and Johathan Karn, Deputy Fire Chief of Centre Wellington Fire Rescue to discuss impacts of emergency response to calls in the area of the four bridges in the EA study area of 2-WG, 3-E, 5-E and 7-E (see the study area map attached).

One item discussed was, how do local Centre Wellington emergency calls get dispatched? It was explained by Tom and Jonathan, that the Ontario Provincial Police (OPP) receives all 911 emergency calls. If a 911 call was determined to require Centre Wellington Fire Rescue services, they would be then dispatched by Guelph Fire.

Ambulance services are dispatched from Guelph-Wellington Paramedic Service. The ambulance responders use County of Wellington Mapping Data to determine the route and responders to be dispatched.

When Centre Wellington Fire Rescue are dispatched to any call in Centre Wellington, the response team lead refers to the Centre Wellington Road Closures mapping (https://experience.arcgis.com/experience/8ca652ff3dbb4849b802f0b149552e62/) ahead of leaving a station to an emergency callout. This mapping data is updated with any road closure information as it presented to the Township. The Infrastructure Services Department ensures that up to date road closure information is reflected on both the Centre Wellington Road Closures mapping and Municipal 511 mapping (https://www.municipal511.ca/) as soon as it is presented.

It was stated by Tom that Centre Wellington Fire Rescue determine most efficient routes at the time of a call based on road closures and bridge restrictions / closures. Dependent upon the location of the call, responders may have been able to travel faster, if Township bridges were not restricted or closed. This is to say that, if a closed of restricted structure was found to be detrimental to accessing a call or not, would have to be determined on case by case basis .

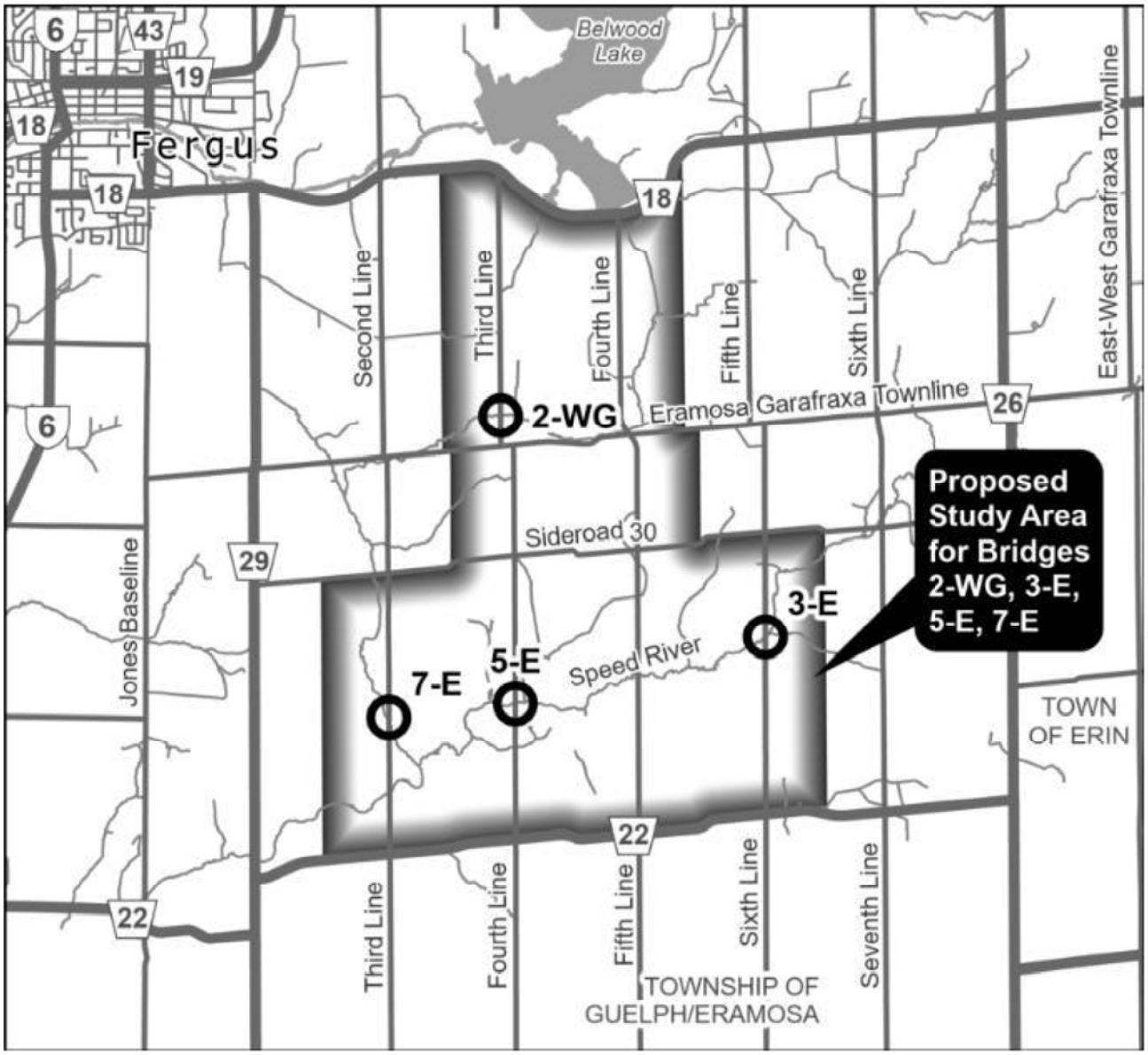
Other Points of Discussion

In the summer of 2024 Bridge 4-E, on the Fifth Line (former Eramosa Township) is planned for a full closure for bridge rehabilitation construction (refer to the 2024 Centre Wellington Structure Locations & Conditions map attached). The closure is scheduled between June 13 and October 31, 2024. Because the 4-E bridge temporary closure is within an area with multiple existing closures this maybe found to be a greater issue for Centre Wellington Fire Rescue response in the EA study area. If an emergency call is to occur south of the closed bridges, Wellington Road 22 will be used to access these properties. Tom was interested in determining if any

planned work or closures were scheduled on Wellington Road 22 this summer. Since the time of the meeting Adam spoke with Trevor Carney, Area Foreman, County of Wellington Roads Department. Trevor explained that there is no major works scheduled on Wellington Road 22 between Wellington Road 29 and Wellington Road 26 within the area of concern this year.

Also discussed were the plans to replace the superstructure at bridge 3-WG in the summer of 2025. Having this bridge site closed in 2025 will also compromise emergency response routes in the north/south direction of the EA study area.

Study Area Map
Four Bridge Environmental Assessment for Bridges 2-WG, 3-E, 5-E and 7-E (EA)



Tricia Radburn

From: Adam Dickieson <ADickieson@centrewellington.ca>
Sent: Monday, June 24, 2024 1:59 PM
To: Mariana Iglesias
Cc: Andrew Dawson; Tricia Radburn
Subject: Bridge & Transportation Network Study for Four Bridges in former Eramosa and West Garafraxa Township : Study Initiation - Heritage CW
Attachments: IS2024-26_FINAL.pdf

Mariana,

As discussed this afternoon, please note that Infrastructure Services is taking on another study to determine the next steps to identify and evaluate alternative solutions to address the deteriorated condition of four Centre Wellington bridges. The attached report was part of the June 10th, 2024 Council meeting agenda. This attached report provides additional details regarding the study area and the locations of the existing structures.

Next steps in the study that may interest the Heritage Centre Wellington include, completing a Cultural Heritage Evaluation Report (CHER) followed by preparing a Heritage Impact Assessment (HIA) study of those bridges found to have cultural heritage significance. These studies will be completed consecutively with the HIA anticipated to be completed this fall.

Also note that some of these bridges are found in the Arch, Truss & Beam – The Grand River Watershed Heritage Bridge Inventory, March 2013.

We will provide a project update to you and Heritage Centre Wellington with findings from the HIA this fall when it has been completed. Let me know if there is any additional information I can provide regarding this study at this time. This is a link to the https://www.connectcw.ca/bridge-transportation-network-study-four-bridges project page that will be updated as new information is prepared.

Regards,
Adam.

Adam Dickieson | Engineering Services Coordinator

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x355 centrewellington.ca

Office located at: 7444 Wellington Road #21, Elora, ON N0B 1S0

Crystal Ferguson

From: Mishaal Rizwan
Sent: Friday, July 12, 2024 5:03 PM
To: lwarner@grandriver.ca; theywood@grandriver.ca; dboyd@grandriver.ca
Cc: Andrew Dawson; adickieson@centrewellington.ca
Subject: Township of Centre Wellington Notice of Public Open House Bridge and Transportation Network Study for Four Bridges
Attachments: 058117_Notice of POH (1).pdf

Good afternoon,

On behalf of the Township of Centre Wellington, please find attached the Notice of Public Open House for the Bridge and Transportation Network Study for Four Bridges.

If you have any questions, please contact one of the project team members:

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0
519-846-9691 x 355
adickieson@centrewellington.ca

Andrew Dawson, P. Eng.
Consultant Project Manager
R.J. Burnside & Associates Ltd.
292 Speedvale Ave W. #20, Guelph, ON N1H 1C4
705-797-4310
andrew.dawson@rjburnside.com

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Thank you.

****

Crystal Ferguson

From: Mishaal Rizwan
Sent: Friday, July 12, 2024 5:03 PM
To: amy.villeneuve@ugdsb.on.ca; michael.glazier@wellingtoncdsb.ca
Cc: Andrew Dawson; adickieson@centrewellington.ca
Subject: Township of Centre Wellington Notice of Public Open House Bridge and Transportation Network Study for Four Bridges
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1 MacDonald Square, Elora, ON N0B 1S0
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Andrew Dawson, P. Eng.
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Thank you.

****

Crystal Ferguson

From: Mishaal Rizwan
Sent: Friday, July 12, 2024 5:03 PM
To: ahmad.nouman@hydroone.com; william.downes1@bell.ca; katelyn.creed@bell.ca
Cc: Andrew Dawson; adickieson@centrewellington.ca
Subject: Township of Centre Wellington Notice of Public Open House Bridge and Transportation Network Study for Four Bridges
Attachments: 058117_Notice of POH (1).pdf

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Township of Centre Wellington
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519-846-9691 x 355
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Thank you.

****

Mishaal Rizwan

From: Andrew Dawson
Sent: Wednesday, December 04, 2024 2:24 PM
To: Trevor Heywood
Cc: Mishaal Rizwan; adickieson@centrewellington.ca; Tricia Radburn
Subject: RE: Township of Centre Wellington, Notice for Public Open House 2 - Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E, & 7E)
Attachments: 4 Bridges POH2_Online Presentation_PDF.pdf; 4 Bridges POH2_Online Presentation_PDF with notes.pdf

Trevor,
The Public Open House #2 online presentation and information boards have been posted to the Townships' ConnectCW website, here:
https://www.connectcw.ca/bridge-transportation-network-study-four-bridges

I've also attached a version of the slides in PDF, with and without notes for your file.

Further, of interest to you may be the Natural Heritage Report which is available at the link here: Centre Wellington Bridge and Transportation Network Study - Natural Heritage Report

Regards,
Andrew

Andrew Dawson
Project Engineer
R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4310

From: Andrew Dawson
Sent: Monday, December 02, 2024 10:49 AM
To: 'Trevor Heywood' <theywood@grandriver.ca>; adickieson@centrewellington.ca
Cc: Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Subject: RE: Township of Centre Wellington, Notice for Public Open House 2 - Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E, & 7E)

Trevor,
A copy of the slides and a link to the online version of a narrated presentation will be sent along for your review once it is posted online (in the next day or two, following tonight's presentation).

Thanks,
Andrew

From: Trevor Heywood <theywood@grandriver.ca>
Sent: Monday, December 02, 2024 9:24 AM
To: adickieson@centrewellington.ca; Andrew Dawson <Andrew.Dawson@rjburnside.com>
Cc: Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Subject: Re: Township of Centre Wellington, Notice for Public Open House 2 - Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E, & 7E)

Good morning,

Just checking in again, hoping we could get a copy of the slides.

Thanks,
Trevor

Trevor Heywood

Resource Planner

Grand River Conservation Authority

From: Trevor Heywood <theywood@grandriver.ca>
Sent: Thursday, November 14, 2024 3:24 PM
To: adickieson@centrewellington.ca <ADickieson@centrewellington.ca>; Andrew Dawson <Andrew.Dawson@rjburnside.com>
Cc: Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Subject: Re: Township of Centre Wellington, Notice for Public Open House 2 - Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E, & 7E)

Hi Adam, Andrew,

GRCA will not attend, but we ask that copies of the slides are sent our way for review and comment.

Thanks,

Trevor Heywood B.Sc.(Env.)

Resource Planner

Grand River Conservation Authority

400 Clyde Road, PO Box 729

Cambridge, ON N1R 5W6

Phone: 519-621-2761 ext. 2292

Email: theywood@grandriver.ca

www.grandriver.ca | Connect with us on social media

From: Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Sent: Thursday, November 14, 2024 2:31 PM
To: kokane@centrewellington.ca <kokane@centrewellington.ca>; dwilson@centrewellington.ca

<dwilson@centrewellington.ca>; kmartin@centrewellington.ca <kmartin@centrewellington.ca>; jgaddye@centrewellington.ca <jgaddye@centrewellington.ca>; miglesias@centrewellington.ca <miglesias@centrewellington.ca>; bsalmon@centrewellington.ca <bsalmon@centrewellington.ca>; amcnabb@centrewellington.ca <amcnabb@centrewellington.ca>; pnewson@centrewellington.ca <pnewson@centrewellington.ca>; cbaker@centrewellington.ca <cbaker@centrewellington.ca>; tmulvey@centrewellington.ca <tmulvey@centrewellington.ca>; jkarn@centrewellington.ca <jkarn@centrewellington.ca>; cpellizzari@centrewellington.ca <cpellizzari@centrewellington.ca>; skoestner@centrewellington.ca <skoestner@centrewellington.ca>; huraniam@wellington.ca <huraniam@wellington.ca>; sherry.hoysa@guelph.ca <sherry.hoysa@guelph.ca>; Carly.McKeown@opp.ca <Carly.McKeown@opp.ca>; Trevor Heywood <theywood@grandriver.ca>; Dwight Boyd <dboyd@grandriver.ca>; amy.villeneuve@ugdsb.on.ca <amy.villeneuve@ugdsb.on.ca>; michael.glazier@wellingtoncdsb.ca <michael.glazier@wellingtoncdsb.ca>
Cc: Adam Dickieson (Centre Wellington) <adickieson@centrewellington.ca>; Andrew Dawson <Andrew.Dawson@rjburnside.com>
Subject: Township of Centre Wellington, Notice for Public Open House 2 - Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E, & 7E)

Good afternoon,

On behalf of the Township of Centre Wellington, please find attached the Notice for Public Open House #2 for the Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E, & 7E).

December 2, 2024, 6:00 pm – 8:00 pm
Centre Wellington Community Sportsplex – Gord Brown Hall
550 Belsyde Avenue East, Fergus

If you have any questions about the study, please contact one of the Project Team members below:

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0
519-846-9691 x 355
adickieson@centrewellington.ca

Andrew Dawson, P. Eng.
Consultant Project Manager
R.J. Burnside & Associates Ltd.
292 Speedvale Ave W. #20, Guelph, ON N1H 1C4
705-797-4310
andrew.dawson@rjburnside.com

Best regards,

BURNSIDE
Mishaal Rizwan
Environmental Planner

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Unit 20, Guelph, Ontario, N1H 1C4
Office: 800-265-9662 Direct Line: 226-343-7014
www.rjburnside.com

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Thank you.

Administration Centre: 400 Clyde Road, P.O. Box 729 Cambridge, ON N1R 5W6

Phone: 519-621-2761 Toll free: 1-866-900-4722 Fax: 519-621-4844 www.grandriver.ca

January 7, 2025

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square
Elora ON N0B 1S0
adickieson@centrewellington.ca

Andrew Dawson
Project Manager
R.J. Burnside & Associates
20-292 Speedvale Avenue West
Guelph ON N1H 1C4
andrew.dawson@rjburnside.com

Re: Study for Bridges 2-WG, 3-E, 5-E & 7-E ("Four Speed River Bridges")
3rd / 4th / 6th Line, Centre Wellington

Dear Adam Dickieson and Andrew Dawson,

Grand River Conservation Authority (GRCA) staff have reviewed the Public Information Centre 2 materials for the above-noted application, including the Natural Heritage Report (RJ Burnside and Associates, November 2024).

The GRCA has reviewed this application under Ontario Regulation 686/21, acting on behalf of the Province regarding natural hazards identified in Section 5.2 of the Provincial Planning Statement (PPS, 2024), as a public body under the Planning Act, as well as in accordance with Ontario Regulation 41/24 and GRCA's Board approved policies.

Information currently available at our office indicates that the project area contains the Speed River and its tributaries, as well as their associated floodplains and wetlands. We understand the preliminary preferred alternative is to replace Bridges 2-WG, 5-E and 7-E, as well as close Bridge 3-E to vehicular traffic and construct turnarounds. We offer the following comments as the Township finalizes the Class EA and moves to detailed design:

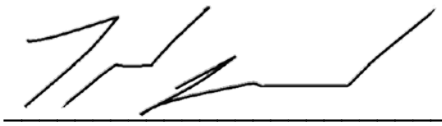
1. We request a hydraulic assessment for replacing Bridges 2-WG, 5-E and 7-E, and potentially for constructing the turnarounds for Bridge 3-E to verify compliance with GRCA policies 8.1.15-8.1.16. We encourage the Township to try matching the new bridge crossings' hydraulic capacity to existing conditions (e.g. opening size, vertical roadway profile) to avoid negative impacts to the floodplain and/or wetlands. This would also help scope the hydraulic assessment.

2. The Natural Heritage Report provides generic recommendations for impact avoidance and mitigation. We request that the report is referenced in / revised to a full environmental impact study during detailed design, in accordance with GRCA Policy 8.4.7. This is to support detailed design of the bridges, characterize potential impacts, and avoid / minimize / mitigate wetland impacts (in that hierarchical order).
    a. The Natural Heritage Report correctly notes that wetland limits are to be verified with GRCA staff. Please arrange this with GRCA staff during the 2025 growing season (May to September). The wetland boundary must be flagged by a qualified person prior to the site visit.

3. We request a fluvial geomorphology assessment to address GRCA Policy 8.9.2, which requires that "crossing structures avoid the Riverine Erosion Hazard in order to accommodate natural watercourse movement, wherever possible."

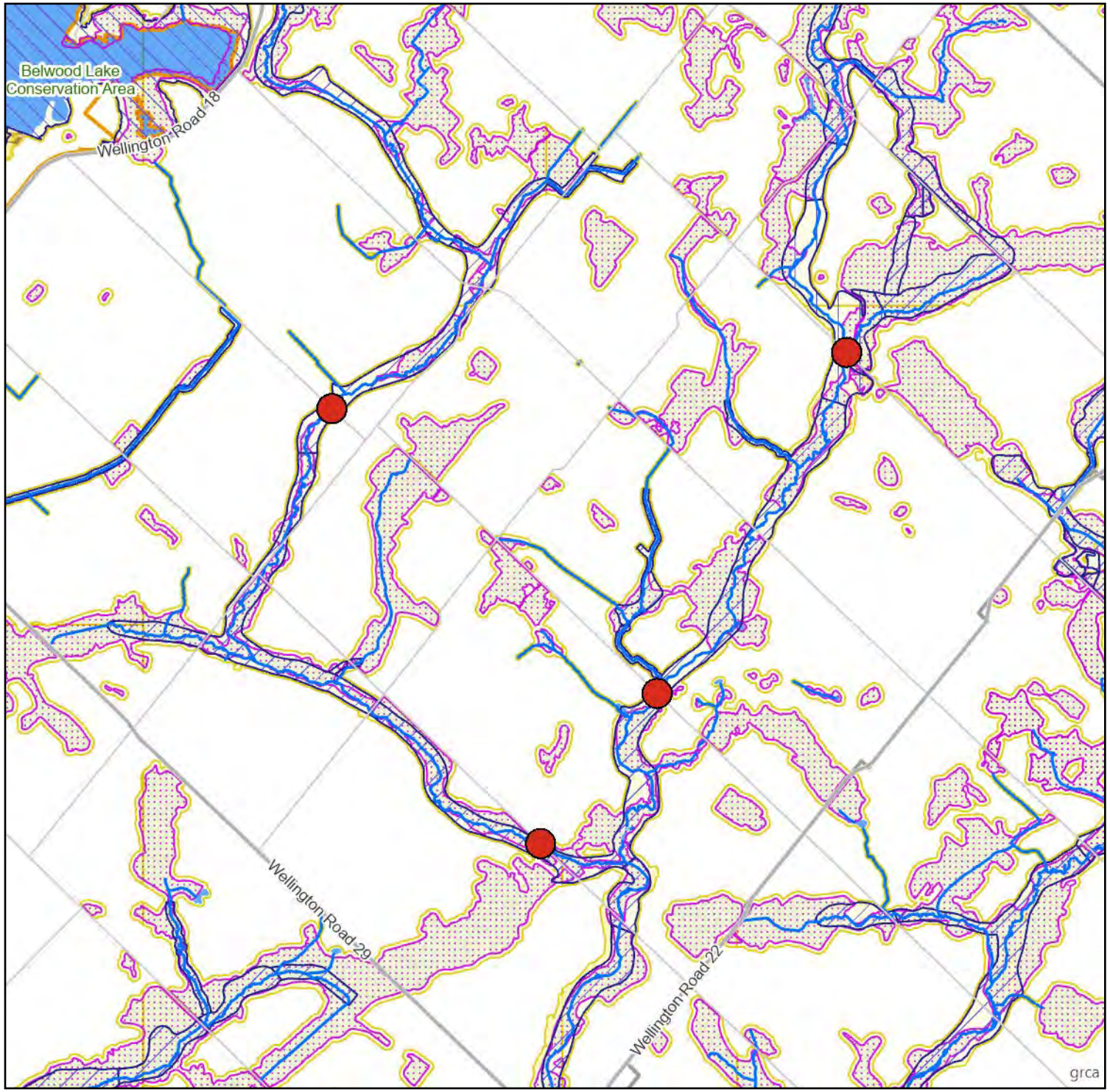
We trust this information is of assistance. If you have any questions or require additional information, please contact me at 519-621-2761 ext. 2292 or theywood@grandriver.ca.

Sincerely,



Trevor Heywood
Resource Planner
Grand River Conservation Authority

Encl. Resource Mapping



Grand River Conservation Authority

Date: Dec 02, 2024
Author: TH

Four Speed River Bridges, Centre Wellington

Overall

Legend

- Regulation Limit (GRCA)
- Floodplain (GRCA)
  - Engineered
  - Estimated
  - Approximate
- Floodplain - Special Policy Area (GRCA)
- Slope Erosion (GRCA)
  - Steep
  - Oversteep
  - Toe
- Slope Valley (GRCA)
  - Steep
  - Oversteep
- Regulated Watercourse (GRCA)
- Regulated Waterbody (GRCA)
- Wetland (GRCA)
- Lake Erie Flood (GRCA)
- Lake Erie Shoreline Reach (GRCA)
- Lake Erie Dynamic Beach (GRCA)
- Lake Erie Erosion (GRCA)
- Conservation Area Boundary (GRCA)

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Scale 1:40,178

NAD83 UTM zone 17 (EPSG:26917)

Map Centre (X,Y): 557361.69, 4839551.22 | Map Link

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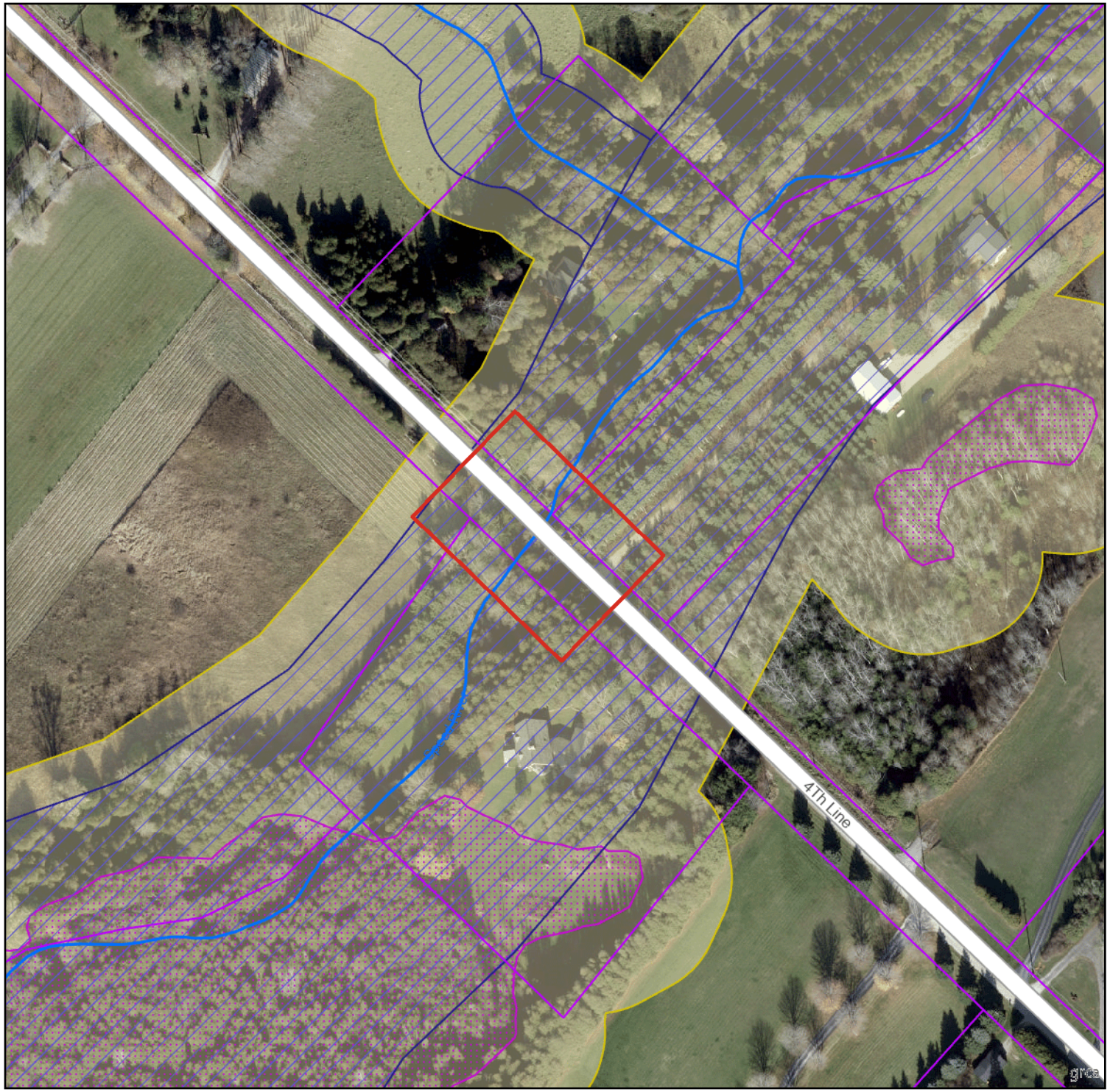

Grand River Conservation Authority

Date: Dec 02, 2024
Author: TH

Four Speed River Bridges, Centre Wellington

5-E

Legend

- Regulation Limit (GRCA)
- Floodplain (GRCA)
  - Engineered
  - Estimated
  - Approximate
- Floodplain - Special Policy Area (GRCA)
- Slope Erosion (GRCA)
  - Steep
  - Oversteep
  - Toe
- Slope Valley (GRCA)
  - Steep
  - Oversteep
- Regulated Watercourse (GRCA)
- Regulated Waterbody (GRCA)
- Wetland (GRCA)
- Lake Erie Flood (GRCA)
- Lake Erie Shoreline Reach (GRCA)
- Lake Erie Dynamic Beach (GRCA)
- Lake Erie Erosion (GRCA)
- Parcel (Wellington)
- Conservation Area Boundary (GRCA)

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Scale 1:1,875

NAD83 UTM zone 17 (EPSG:26917)

Map Centre (X,Y): 558100.92, 4838482.25 | Map Link

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Grand River Conservation Authority

Date: Dec 02, 2024
Author: TH

Four Speed River Bridges, Centre Wellington

3-E

Legend

- Regulation Limit (GRCA)
- Floodplain (GRCA)
  - Engineered
  - Estimated
  - Approximate
- Floodplain - Special Policy Area (GRCA)
- Slope Erosion (GRCA)
  - Steep
  - Oversteep
  - Toe
- Slope Valley (GRCA)
  - Steep
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- Lake Erie Erosion (GRCA)
- Parcel (Wellington)
- Conservation Area Boundary (GRCA)

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Scale 1:1,875

NAD83 UTM zone 17 (EPSG:26917)

Map Centre (X,Y): 559480.70, 4840956.01 | Map Link

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Grand River Conservation Authority

Date: Dec 02, 2024
Author: TH

Four Speed River Bridges, Centre Wellington

7-E

Legend

- Regulation Limit (GRCA)
- Floodplain (GRCA)
  - Engineered
  - Estimated
  - Approximate
- Floodplain - Special Policy Area (GRCA)
- Slope Erosion (GRCA)
  - Steep
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Scale 1:1,875

NAD83 UTM zone 17 (EPSG:26917)

Map Centre (X,Y): 557242.94, 4837399.50 | Map Link

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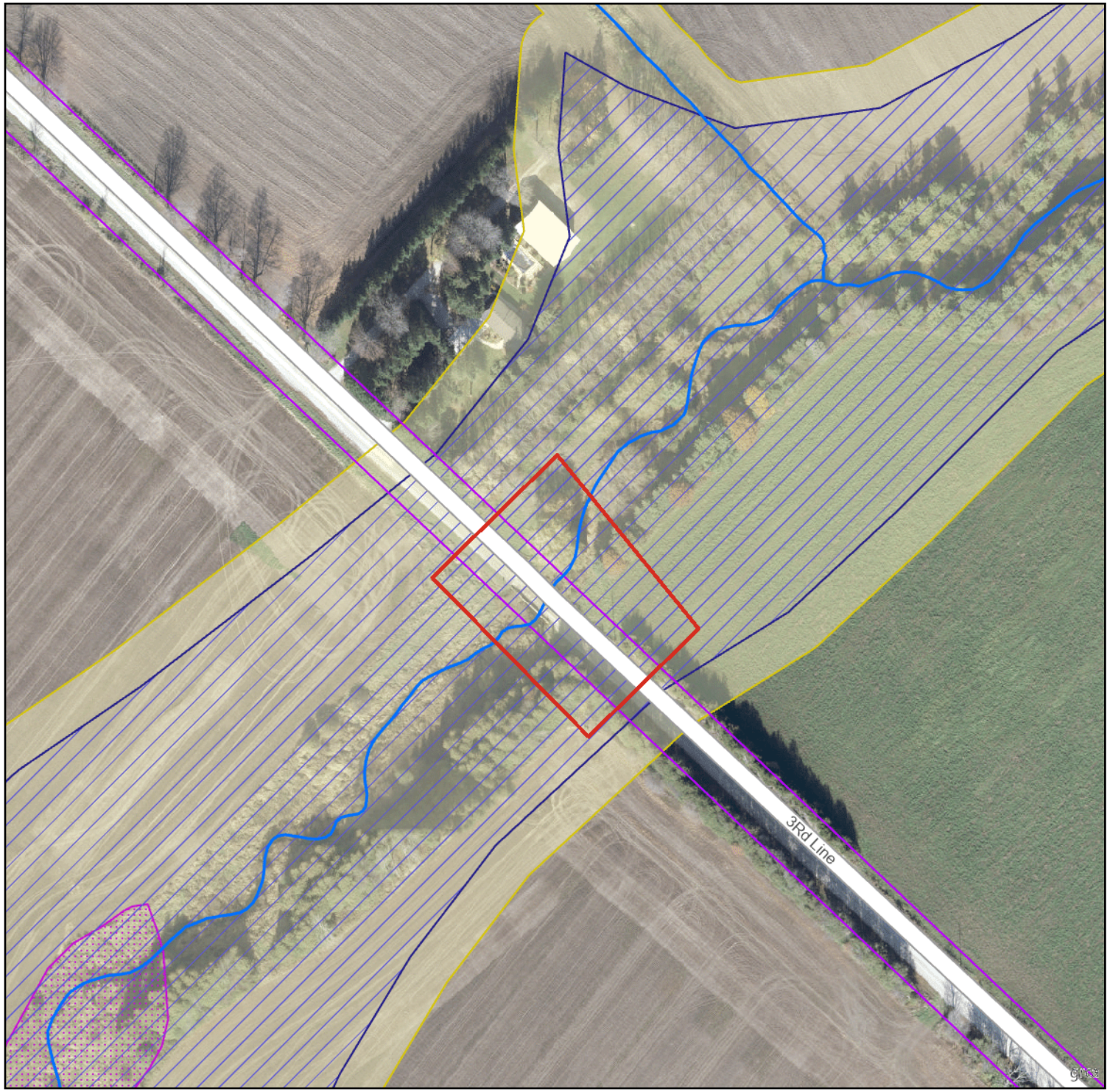

Grand River Conservation Authority

Date: Dec 02, 2024
Author: TH

Four Speed River Bridges, Centre Wellington

2-WG

Legend

- Regulation Limit (GRCA)
- Floodplain (GRCA)
  - Engineered
  - Estimated
  - Approximate
- Floodplain - Special Policy Area (GRCA)
- Slope Erosion (GRCA)
  - Steep
  - Oversteep
  - Toe
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  - Steep
  - Oversteep
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- Lake Erie Erosion (GRCA)
- Parcel (Wellington)
- Conservation Area Boundary (GRCA)

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Scale 1:1,875

NAD83 UTM zone 17 (EPSG:26917)

Map Centre (X,Y): 555750.30, 4840559.40 | Map Link

This map is not to be used for navigation | 2022 Ortho (CW)

Mishaal Rizwan

From:	Trevor Heywood <theywood@grandriver.ca>
Sent:	Tuesday, January 07, 2025 2:33 PM
To:	adickieson@centrewellington.ca; Andrew Dawson
Cc:	Mishaal Rizwan
Subject:	Re: Re: Township of Centre Wellington, Notice for Public Open House 2 - Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E, & 7E)
Attachments:	2025-01-07 Four Speed River Bridges GRCA comments.pdf
Follow Up Flag:	Follow up
Flag Status:	Flagged

Hi Andrew, Adam,

Please see GRCA's comments attached.

Thanks,

Trevor Heywood B.Sc.(Env.)
Resource Planner
Grand River Conservation Authority

400 Clyde Road, PO Box 729
Cambridge, ON N1R 5W6
Phone: 519-621-2761 ext. 2292
Email: theywood@grandriver.ca
www.grandriver.ca | Connect with us on social media

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Sent: Thursday, November 14, 2024 3:24 PM
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Cc: Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Subject: Re: Township of Centre Wellington, Notice for Public Open House 2 - Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E, & 7E)

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Trevor Heywood B.Sc.(Env.)
Resource Planner
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Cambridge, ON N1R 5W6
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Email: theywood@grandriver.ca
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From: Mishaal Rizwan <Mishaal.Rizwan@rjburnside.com>
Sent: Thursday, November 14, 2024 2:31 PM
To: kokane@centrewellington.ca <kokane@centrewellington.ca>; dwilson@centrewellington.ca <dwilson@centrewellington.ca>; kmartin@centrewellington.ca <kmartin@centrewellington.ca>; jgaddye@centrewellington.ca <jgaddye@centrewellington.ca>; miglesias@centrewellington.ca <miglesias@centrewellington.ca>; bsalmon@centrewellington.ca <bsalmon@centrewellington.ca>; amcnabb@centrewellington.ca <amcnabb@centrewellington.ca>; pnewson@centrewellington.ca <pnewson@centrewellington.ca>; cbaker@centrewellington.ca <cbaker@centrewellington.ca>; tmulvey@centrewellington.ca <tmulvey@centrewellington.ca>; jkarn@centrewellington.ca <jkarn@centrewellington.ca>; cpellizzari@centrewellington.ca <cpellizzari@centrewellington.ca>; skoestner@centrewellington.ca <skoestner@centrewellington.ca>; huraniam@wellington.ca <huraniam@wellington.ca>; sherry.hoysa@guelph.ca <sherry.hoysa@guelph.ca>; Carly.McKeown@opp.ca <Carly.McKeown@opp.ca>; Trevor Heywood <theywood@grandriver.ca>; Dwight Boyd <dboyd@grandriver.ca>; amy.villeneuve@ugdsb.on.ca <amy.villeneuve@ugdsb.on.ca>; michael.glazier@wellingtoncdsb.ca <michael.glazier@wellingtoncdsb.ca>
Cc: Adam Dickieson (Centre Wellington) <adickieson@centrewellington.ca>; Andrew Dawson <Andrew.Dawson@rjburnside.com>
Subject: Township of Centre Wellington, Notice for Public Open House 2 - Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E, & 7E)

Good afternoon,

On behalf of the Township of Centre Wellington, please find attached the Notice for Public Open House #2 for the Transportation Network Study for Four Bridges (Bridges 2-WG, 3-E, 5-E, & 7E).

December 2, 2024, 6:00 pm – 8:00 pm
Centre Wellington Community Sportsplex – Gord Brown Hall
550 Belsyde Avenue East, Fergus

If you have any questions about the study, please contact one of the Project Team members below:

Adam Dickieson
Engineering Services Coordinator
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0
519-846-9691 x 355
adickieson@centrewellington.ca

Andrew Dawson, P. Eng.
Consultant Project Manager
R.J. Burnside & Associates Ltd.
292 Speedvale Ave W. #20, Guelph, ON N1H 1C4
705-797-4310
andrew.dawson@rjburnside.com

Best regards,

BURNSIDE
Mishaal Rizwan
Environmental Planner

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Unit 20, Guelph, Ontario, N1H 1C4
Office: 800-265-9662 Direct Line: 226-343-7014
www.rjburnside.com

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Thank you.
****

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Appendix C

Evaluation of Alternatives Matrix

Evaluation Matrix C.1
Sensitivity Analysis for Evaluation Matrix C.2

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Appendix C.1

Evaluation Matrix

Bridge and Transportation Study of Bridges 2-WG, 3-E, 5-E & 7-E - Evaluation of Alternative Solutions

Highest Impact / Least Preferred ○ ◔ ◑ ◕ ● Least Impact / Most Preferred

	Criteria for Evaluating Alternatives	Alternative 1: Do Nothing	Alternative 2: All Bridges Closed	Alternative 3: All Bridges Open	Alternative 4: Bridges 2WG, 3E & 7E Open	Alternative 5: Bridges 2-WG, 5-E & 7-E Open	Alternative 6: Bridges 2-WG & 7-E Open
A	**Transportation**						
1	**Cross-Community Travel** (For local residents to/from surrounding hamlets / cities)	Total of 12.8 minutes improvements, with average of 2.1 minutes improvements (for vehicles under 15 tonnes only) for cross community trips considered (compared to all bridges closed)	Considered as base for comparisons. All noted improvements relative to all bridges closed.	Total of 39.7 minutes improvements, with average of 1.7 minutes improvements for cross community trips considered (compared to all bridges closed)	Total of 28.9 minutes improvements, with average of 1.6 minutes improvements for cross community trips considered (compared to all bridges closed)	Total of 32 minutes improvements, with average of 1.8 minutes improvements for cross community trips considered (compared to all bridges closed)	Total of 21.2 minutes improvements, with average of 1.8 minutes improvements for cross community trips considered (compared to all bridges closed)
	Rating	◔	○	●	◕	◕	◑
2	**Emergency Response Time**	Most impact to emergency response times. Delays up to 2.1 minutes. Only light emergency vehicles can pass over 2-WG.	Most impact to emergency response times. Delays up to 2.1 minutes.	Heavier emergency response vehicles can cross 2-WG. Average of 1.9 minutes quicker response times to 21 properties with 3-E open. Average of 1.8 minutes quicker response times to 28 properties with 5-E open. Average of 0.9 minutes quicker response times to 18 properties with 7-E open.	Heavier emergency response vehicles can cross 2-WG. Average of 1.9 minutes quicker response times to 21 properties with 3-E open. Average of 0.9 minutes quicker response times to 18 properties with 7-E open.	Heavier emergency response vehicles can cross 2-WG. Average of 1.8 minutes quicker response times to 28 properties with 5-E open. Average of 0.9 minutes quicker response times to 18 properties with 7-E open.	Heavier emergency response vehicles can cross 2-WG. Average of 0.9 minutes quicker response times to 18 properties with 7-E open.
	Rating	○	○	●	◑	◑	◔
3	**Slow Moving Vehicle Accommodation** (Farm Equipment or similar, avoiding use of Arterial Routes, where possible)	Bridge 2-WG provides capacity for smaller equipment; Other structures require large detour.	Significant increases to travel time for farm equipment / slow moving vehicles. Travel on Arterial routes required.	Most benefit to farm equipment / slow moving vehicles. Vehicles can remain on local roads.	Vehicles can remain on local roads. Significant detour times for equipment around 5-E.	Vehicles can remain on local roads. Significant detour times for equipment around 3-E.	Vehicles can remain on local roads. Significant detour times for equipment around 5-E and 3-E.
	Rating	◔	○	●	◕	◕	◑
4	**Local Community Travel** (Deliveries, Operations Vehicles, Waste Collection, School Buses, etc.)	Total of 14.1 minutes saved for local routes compared to all bridges closed.	Considered as base for comparisons. All noted improvements relative to all bridges closed.	Total of 34.4 minutes saved for local routes compared to all bridges closed.	Total of 24.3 minutes saved for local routes compared to all bridges closed.	Total of 26.9 minutes saved for local routes compared to all bridges closed.	Total of 18.8 minutes saved for local routes compared to all bridges closed.
	Rating	◑	○	●	◕	◕	◑
	Summary Transportation	◔	○	●	◕	◕	◑

Bridge and Transportation Study of Bridges 2-WG, 3-E, 5-E & 7-E - Evaluation of Alternative Solutions

Highest Impact / Least Preferred ○ ◔ ◑ ◕ ● Least Impact / Most Preferred

	Criteria for Evaluating Alternatives	Alternative 1: Do Nothing	Alternative 2: All Bridges Closed	Alternative 3: All Bridges Open	Alternative 4: Bridges 2WG, 3E & 7E Open	Alternative 5: Bridges 2-WG, 5-E & 7-E Open	Alternative 6: Bridges 2-WG & 7-E Open
B	**Natural Environment**						
1	**Environmentally Sensitive Areas** (potential to impact wetlands, watercourse, woodlands, etc.)	No construction disturbance now, but potential future collapse of structures would result in more impacts due to lack of mitigation measures.	Opportunity to re-naturalize the area upon removal of the structures. Low potential for impacts to surrounding wetlands during removals.	Potential for disturbance within non-provincially significant wetland areas adjacent to Bridges 7-E and 3-E.	Potential for disturbance within non-provincially significant wetland areas adjacent to Bridges 7-E and 3-E.	Potential for disturbance within non-provincially significant wetland areas adjacent to Bridges 7-E.	Potential for disturbance within non-provincially significant wetland areas adjacent to Bridges 7-E.
	Rating	◑	◕	◑	◑	◕	◕
2	**Terrestrial Habitat** (potential to impact breeding birds, general wildlife habitat, habitat connectivity)	No impact	No impact. Terrestrial passage improved through removal of structures.	Opportunity for improvements to terrestrial passage through structure replacements; Potential impacts to Significant Woodlands for road widening at 3-E, 5-E and 7-E.	Opportunity for improvements to terrestrial passage through structure replacements; Potential impacts to Significant Woodlands for road widening at 3-E and 7-E.	Opportunity for improvements to terrestrial passage through structure replacements; Potential impacts to Significant Woodlands for road widening at 5-E and 7-E.	Opportunity for improvements to terrestrial passage through structure replacements; Potential impacts to Significant Woodlands for road widening at 7-E.
	Rating	◕	●	◔	◑	◑	◕
3	**Fisheries / Aquatic Habitat** (potential to impact /benefit aquatic habitat features)	Future collapse of structures will result in significant negative impacts to watercourse and associated habitat.	Minimal impacts associated with structure removal (could cut-off abutments above grade to eliminate). Opportunity to provide improvements through re-naturalization of watercourse.	Moderate potential to cause temporary impact during construction. Opportunity for improvements to habitat heterogeneity and erosion protection at 2-WG, 3-E and 5-E.	Moderate potential to cause temporary impact during construction. Opportunity for improvements to habitat heterogeneity and erosion protection at 2-WG and 3-E.	Moderate potential to cause temporary impact during construction. Opportunity for improvements to habitat heterogeneity and erosion protection at 2-WG and 5-E.	Moderate potential to cause temporary impact during construction. Opportunity for improvements to habitat heterogeneity and erosion protection at 2-WG.
	Rating	○	●	◑	◑	◑	◔
4	**Species at Risk (SAR)** (potential to impact habitat of Species at Risk e.g. Barn Swallow, bats, Butternut, etc.)	Mitigation required for potential impacts to 1 confirmed & 4 potential SAR at Bridge 2-WG,	No impacts to SAR anticipated	Mitigation required for potential impacts to 1 confirmed & 4 potential SAR at Bridge 2-WG, 1 confirmed & 4 potential SAR at Bridge 3-E, 5 potential SAR at Bridge 5-E, 5 potential SAR at Bridge 7-E	Mitigation required for potential impacts to 1 confirmed & 4 potential SAR at Bridge 2-WG, 1 confirmed & 4 potential SAR at Bridge 3-E, 5 potential SAR at Bridge 7-E	Mitigation required for potential impacts to 1 confirmed & 4 potential SAR at Bridge 2-WG, 5 potential SAR at Bridge 5-E, 5 potential SAR at Bridge 7-E	Mitigation required for potential impacts to 1 confirmed & 4 potential SAR at Bridge 2-WG, 5 potential SAR at Bridge 7-E
	Rating	◕	●	○	◔	◔	◑
	Summary Natural Environment	◑	●	◔	◑	◑	◑

	Criteria for Evaluating Alternatives	Alternative 1: Do Nothing	Alternative 2: All Bridges Closed	Alternative 3: All Bridges Open	Alternative 4: Bridges 2WG, 3E & 7E Open	Alternative 5: Bridges 2-WG, 5-E & 7-E Open	Alternative 6: Bridges 2-WG & 7-E Open
C	**Economic Environment**						
1	**Estimated Construction Costs**	No immediate costs, but costs for turn-arounds and future structure removals upon failure ($1M for all 4 bridges) would be higher than removing now.	$0.6M estimated for removal of all bridges and construction of turn-arounds	$7.3M estimated for proposed replacements and removals	$5.7M estimated for proposed replacements and removals	$5.1M estimated for proposed replacements and removals	$3.6M estimated for proposed replacements and removals
	Rating	●	●	○	◔	◔	◑
2	**Maintenance and Operational Costs**	Ongoing maintenance of barricades for preventing public use of structure	Maintenance for bridge assets eliminated.	Typical maintenance costs associated with 4 Bridges.	Typical maintenance costs associated with 3 Bridges.	Typical maintenance costs associated with 3 Bridges.	Typical maintenance costs associated with 2 Bridges.
	Rating	○	●	◔	◑	◑	◕
	Summary Economic Environment	◑	●	◔	◔	◑	◕

Bridge and Transportation Study of Bridges 2-WG, 3-E, 5-E & 7-E - Evaluation of Alternative Solutions



	Criteria for Evaluating Alternatives	Alternative 1: Do Nothing	Alternative 2: All Bridges Closed	Alternative 3: All Bridges Open	Alternative 4: Bridges 2WG, 3E & 7E Open	Alternative 5: Bridges 2-WG, 5-E & 7-E Open	Alternative 6: Bridges 2-WG & 7-E Open
D	**Social & Cultural Environment**						
1	**Social Environment** (Way of life, connection to facilities, political, etc.)	Community continues to feel forgotten by Township. Residential Areas experience minimal traffic related noise.	Community continues to feel forgotten by Township. Residential Areas experience minimal traffic related noise.	Residential Areas experience increased traffic related noise at all sites. Connectivity to neighbours provided.	Residential Areas experience increased traffic related noise at three sites. Connectivity to neighbours provided at three sites. Improved access to Local Businesses on Sixth Line	Residential Areas experience increased traffic related noise at three sites. Connectivity to neighbours provided at three sites.	Residential Areas experience increased traffic related noise at two sites. Connectivity to neighbours provided at two sites.
	Rating	◔	○	◕	●	◕	◑
2	**Community Preference** (Based on comments received)	Meets 14 votes for having bridges open and 7 votes for closing bridges.	Meets 0 votes for having bridges open and 7 votes for closing bridges.	Meets 56 votes for having bridges open and 0 votes for closing bridges.	Meets 41 votes for having bridges open and 3 votes for closing bridges.	Meets 42 votes for having bridges open and 4 votes for closing bridges.	Meets 27 votes for having bridges open and 7 votes for closing bridges.
	Rating	◔	◔	●	◕	◕	◑
3	**Archaeological** (potential to impact resources)	No ground disturbance.	All ground disturbance for removal of structures to below grade would be within areas excavated during original construction	All bridges have low archaeological potential. Some disturbance in areas outside of original bridge construction excavation	All bridges have low archaeological potential. Some disturbance in areas outside of original bridge construction excavation	All bridges have low archaeological potential. Some disturbance in areas outside of original bridge construction excavation	All bridges have low archaeological potential. Some disturbance in areas outside of original bridge construction excavation
	Rating	◕	●	◑	◕	◕	◕
4	**Cultural & Built Heritage**	Visual contribution to rural character of area and historical context of bridge crossings maintained until failure. Bridge 3-E's built heritage values maintained until failure.	On-site context of historical bridge crossings at the locations are lost for all structures once removed. Bridge 3-E's built heritage values maintained until removal.	Newer structures don't blend as well with rural character of area. Bridge 3-E's built heritage values are documented and new structure designed with sympethetic features.	Newer structures don't blend as well with rural character of area. Bridge 3-E's built heritage values are documented and new structure designed with sympethetic features.	Newer structures don't blend as well with rural character of area. Bridge 3-E's built heritage values are documented and retained until structure removal.	Newer structures don't blend as well with rural character of area. Bridge 3-E's built heritage values are documented and retained until structure removal.
	Rating	◔	◔	◕	◕	◕	◑
	Summary Social & Cultural Environment	◑	◔	◕	◕	◕	◑

	Alternative 1: Do Nothing	Alternative 2: All Bridges Closed	Alternative 3: All Bridges Open	Alternative 4: Bridges 2WG, 3E & 7E Open	Alternative 5: Bridges 2-WG, 5-E & 7-E Open	Alternative 6: Bridges 2-WG & 7-E Open
Overall Ranking (Equal Weighted Criteria) [1]	**6**	**3**	**5**	**2**	**1**	**4**
Overall Ranking (Sensitivity Analysis) [2]	**6**	**5**	**3**	**2**	**1**	**4**

[1] The 'Overall Ranking (Equal Weighted Criteria)' is based on the main criteria categories (Transportation, Natural Environment, Economic Factors, Social & Cultural Environment) being equally weighted.

[2] The 'Overall Ranking (Sensitivity Analysis)' is based on the averaged results of a series of scenarios ran with different weighting criteria for each of the main criteria categories (Transportation, Natural Environment, Economic Factors, Social & Cultural Environment).

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Appendix C.2

Sensitivity Analysis for Evaluation Matrix

Bridge and Transportation Study of Bridges 2-WG, 3-E, 5-E & 7-E - Sensitivity Analysis

Scenario:	Transportation	Environmental	Economic	Social & Cultural	Weighted Score (∑ (Category Score * Category Weight))					
					Alternative 1: Do Nothing	Alternative 2: All Bridges Closed	Alternative 3: All Bridges Open	Alternative 4: Bridges 2WG, 3E & 7E Open	Alternative 5: Bridges 2-WG, 5-E & 7-E Open	Alternative 6: Bridges 2-WG & 7-E Open
Weighting #1	25%	25%	25%	25%	1.58	2.28	2.16	2.29	2.35	2.18
Weighting #2	40%	20%	20%	20%	1.46	1.83	2.53	2.38	2.47	2.09
Weighting #3	20%	40%	20%	20%	1.65	2.58	1.98	2.17	2.28	2.19
Weighting #4	20%	20%	40%	20%	1.64	2.63	1.83	2.12	2.21	2.27
Weighting #5	20%	20%	20%	40%	1.59	2.10	2.30	2.48	2.44	2.18
Weighting #6	50%	10%	10%	30%	1.33	1.19	3.04	2.66	2.67	2.00
Weighting #7	30%	10%	50%	10%	1.57	2.51	1.86	2.05	2.19	2.26
Weighting #8	50%	10%	30%	10%	1.39	1.71	2.56	2.30	2.45	2.09
Weighting #9	30%	10%	30%	30%	1.52	1.99	2.34	2.41	2.41	2.18
OVERALL SENSITIVITY SCORE:					**12.21**	**16.82**	**18.24**	**18.46**	**19.05**	**17.25**

	Transportation	Environmental	Economic	Social & Cultural	Weighted Score Ranking - Heat Map					
					Alternative 1: Do Nothing	Alternative 2: All Bridges Closed	Alternative 3: All Bridges Open	Alternative 4: Bridges 2WG, 3E & 7E Open	Alternative 5: Bridges 2-WG, 5-E & 7-E Open	Alternative 6: Bridges 2-WG & 7-E Open
Weighting #1	25%	25%	25%	25%	6	3	5	2	1	4
Weighting #2	40%	20%	20%	20%	6	5	1	3	2	4
Weighting #3	20%	40%	20%	20%	6	1	5	4	2	3
Weighting #4	20%	20%	40%	20%	6	1	5	4	3	2
Weighting #5	20%	20%	20%	40%	6	5	3	1	2	4
Weighting #6	50%	10%	10%	30%	5	6	1	3	2	4
Weighting #7	30%	10%	50%	10%	6	1	5	4	3	2
Weighting #8	50%	10%	30%	10%	6	5	1	3	2	4
Weighting #9	30%	10%	30%	30%	6	5	3	2	1	4
OVERALL SENSITIVITY RANK:					6	5	3	2	1	4

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Appendix D

Conceptual Design Drawings

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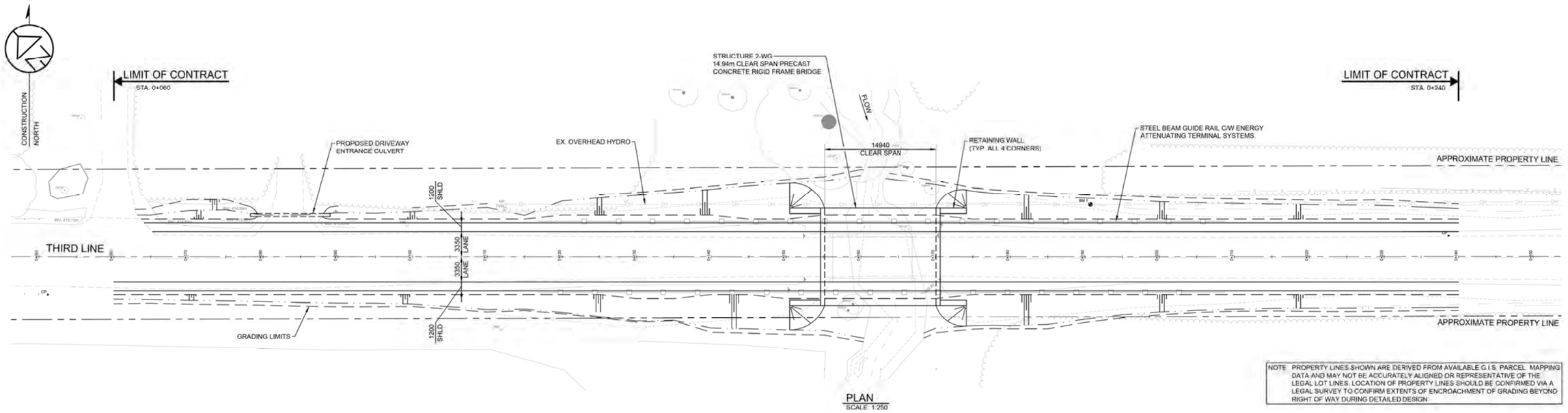
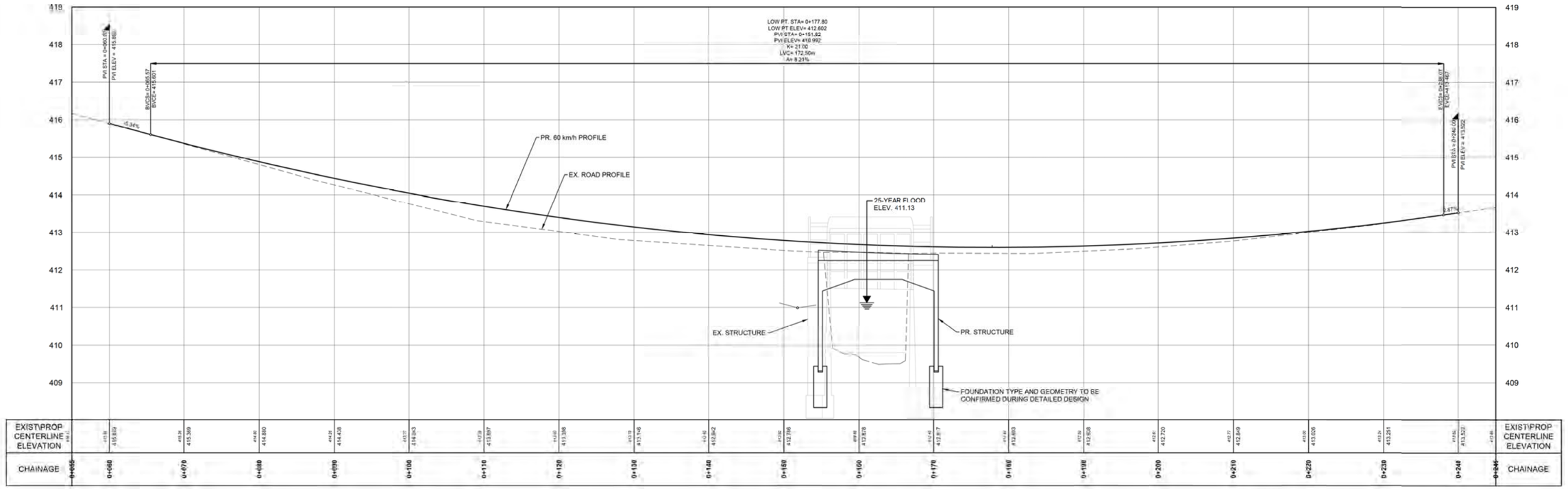


PLAN
SCALE 1:250

NOTE PROPERTY LINES SHOWN ARE DERIVED FROM AVAILABLE G.I.S. PARCEL MAPPING DATA AND MAY NOT BE ACCURATELY ALIGNED OR REPRESENTATIVE OF THE LEGAL LOT LINES. LOCATION OF PROPERTY LINES SHOULD BE CONFIRMED VIA A LEGAL SURVEY TO CONFIRM EXTENTS OF ENCROACHMENT OF GRADING BEYOND RIGHT OF WAY DURING DETAILED DESIGN.



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2. The contractor shall verify all dimensions, levels and datums on site and report any discrepancies or omissions to this office prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

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No.	Issue / Revision	Date	Auth.
0	CONCEPTUAL DESIGN FOR PROJECT FILE REPORT	24/12/30	ASD

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Collingwood, Ontario, L9Y 4J8
telephone 1 800 265 9662
web www.rjburnside.com

Client
TOWNSHIP OF CENTRE WELLINGTON
1 MACDONALD SQUARE
ELORA, ONTARIO
N0B 1S0

Drawing Title
BRIDGE 2-WG REPLACEMENT
PLAN AND PROFILE

Drawn:	Checked:	Designed:	Checked:	Date:	Drawing No.
A.C.	A.D.	A.D.	M.B.	24/21/17	B-001
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300058117		CONTRACT NO.		0	
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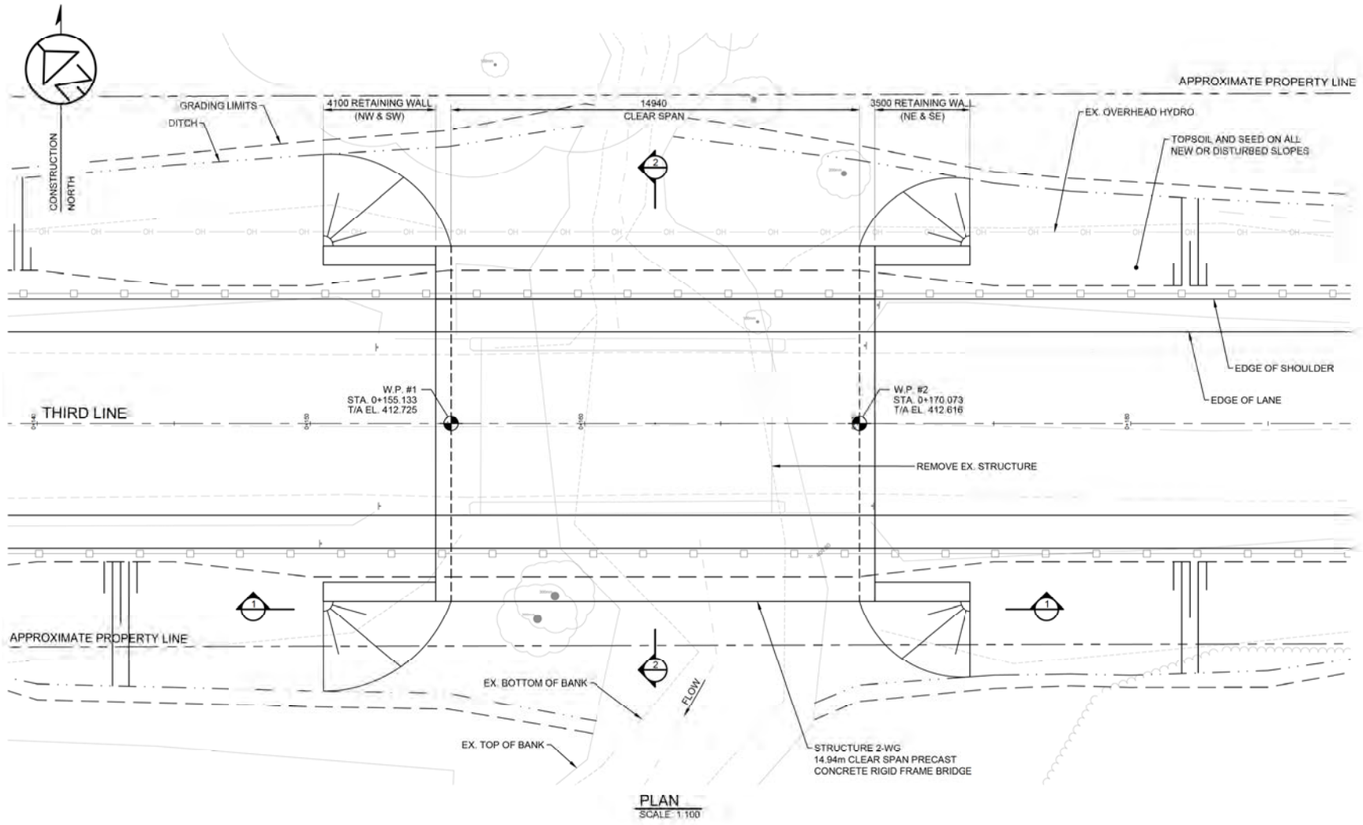

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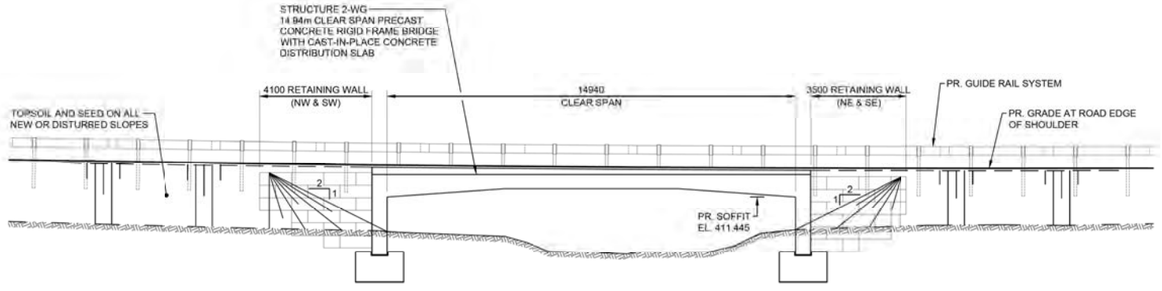

1 ELEVATION
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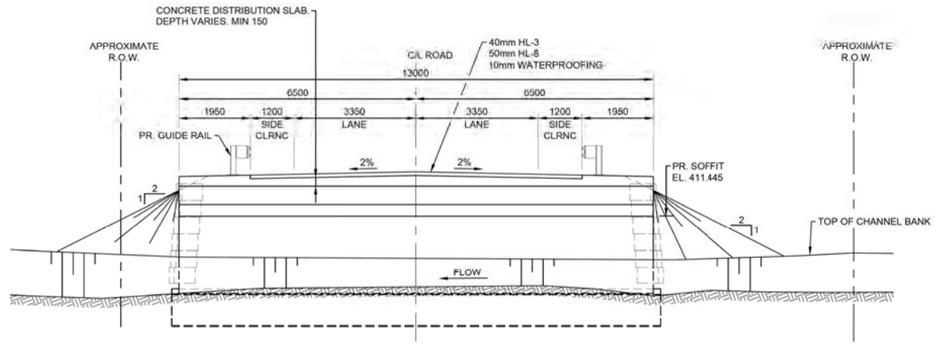

2 SECTION
SCALE 1:75

GENERAL NOTES:

1. DESIGNED TO CANADIAN HIGHWAY BRIDGE DESIGN CODE (CHBDC) CSA S6-19 TO SUPPLEMENT 2. LIVE LOAD TRUCK TO CL-625-ONT.
2. CONCRETE SHALL BE EXPOSURE CLASS C-1 WITH A MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF 35 MPa AT 56 DAYS.
3. CLEAR COVER TO REINFORCING STEEL

FOOTINGS	CAST AGAINST SOIL	100 ± 25
DECK	TOP	70 ± 20
	BOTTOM	50 ± 10
REMAINDER		70 ± 20 UNLESS OTHERWISE NOTED

4. REINFORCING BARS:

STEEL:

- REINFORCING STEEL (BLACK) SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.
- STAINLESS REINFORCING STEEL SHALL BE TYPE 316LN, DUPLEX 2205 AND HAVE MINIMUM YIELD STRENGTH OF 500 MPa, UNLESS OTHERWISE SPECIFIED.
- BAR MARKS WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS.
- ALL LAP LENGTHS SHALL BE CONSIDERED TENSION CLASS 'B' UNLESS NOTED OTHERWISE.
- NOT ALL LAP SPLICES ARE SHOWN ON THE DRAWINGS. WHERE BARS ARE SHOWN AS CONTINUOUS, LAP SPLICES ARE REQUIRED TO SUIT THE ACTUAL AVAILABLE LENGTHS OF THE REBAR. THE CONTRACTOR MAY PROVIDE LAPS NOT REPRESENTED IN THE DRAWINGS, SUBJECT TO THE APPROVAL OF THE ENGINEER.
- WHERE LAP SPLICES ARE PROPOSED BY THE CONTRACTOR, THE LOCATIONS SHALL BE SUCH THAT THEY LEAST IMPACT THE STRUCTURE.
- BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWING SS12-1, (AVAILABLE UPON REQUEST) OR THE REINFORCING STEEL INSTITUTE OF ONTARIO OR CANADA (RSIO or RSIC), UNLESS INDICATED OTHERWISE.

5. CONSTRUCTION NOTES

- BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF THE BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELEVATION BE GREATER THAN 500mm
- THE CONTRACTOR SHALL CONFIRM ALL DIMENSIONS AND DETAILS BEFORE STARTING WORK.
- THE CONTRACTOR IS RESPONSIBLE FOR THE VERIFICATION AND PROTECTION OF ALL EXISTING UTILITIES, SERVICES, STRUCTURES, ROADWAYS, ETC. DURING CONSTRUCTION.
- CHAMFERS MAY OR MAY NOT BE SHOWN ON DRAWINGS. ALL EXPOSED CORNERS TO HAVE 25mm x 25mm CHAMFERS UNLESS NOTED OTHERWISE. CONSTRUCTION JOINTS TO HAVE A 20mm x 20mm CHAMFER.

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0	CONCEPTUAL DESIGN FOR PROJECT FILE REPORT	24/12/30	ASD

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Client:
TOWNSHIP OF CENTRE WELLINGTON
1 MACDONALD SQUARE
ELORA, ONTARIO
N0B 1S0

Drawing Title:
BRIDGE 2-WG REPLACEMENT
GENERAL ARRANGMENT

Drawn:	Checked:	Designed:	Checked:	Date:	Drawing No:
A.C.	A.D	A.D	M.B.	24/21/17	B-002
Project No:		Contract No:		Revision No:	
300058117		CONTRACT NO.		0	
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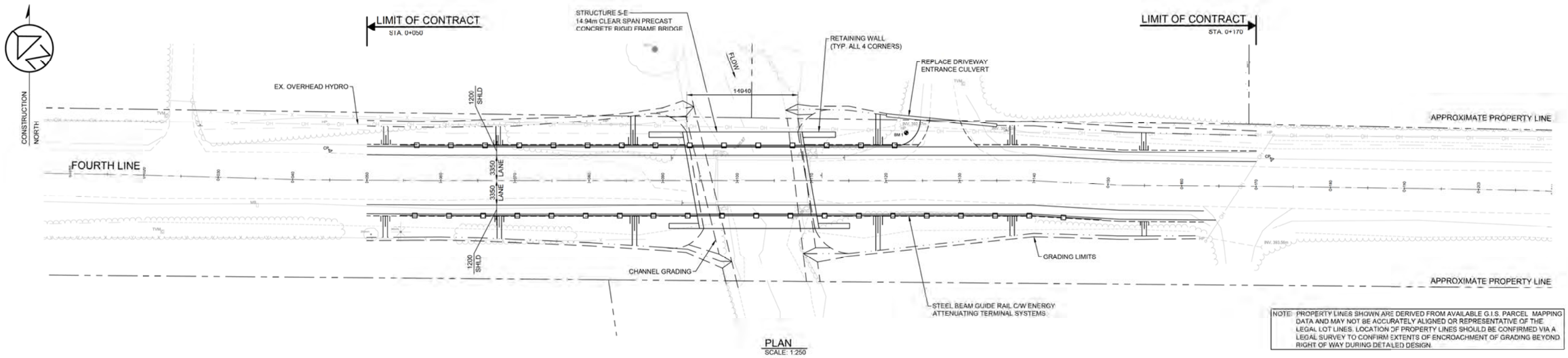
AS NOTED					



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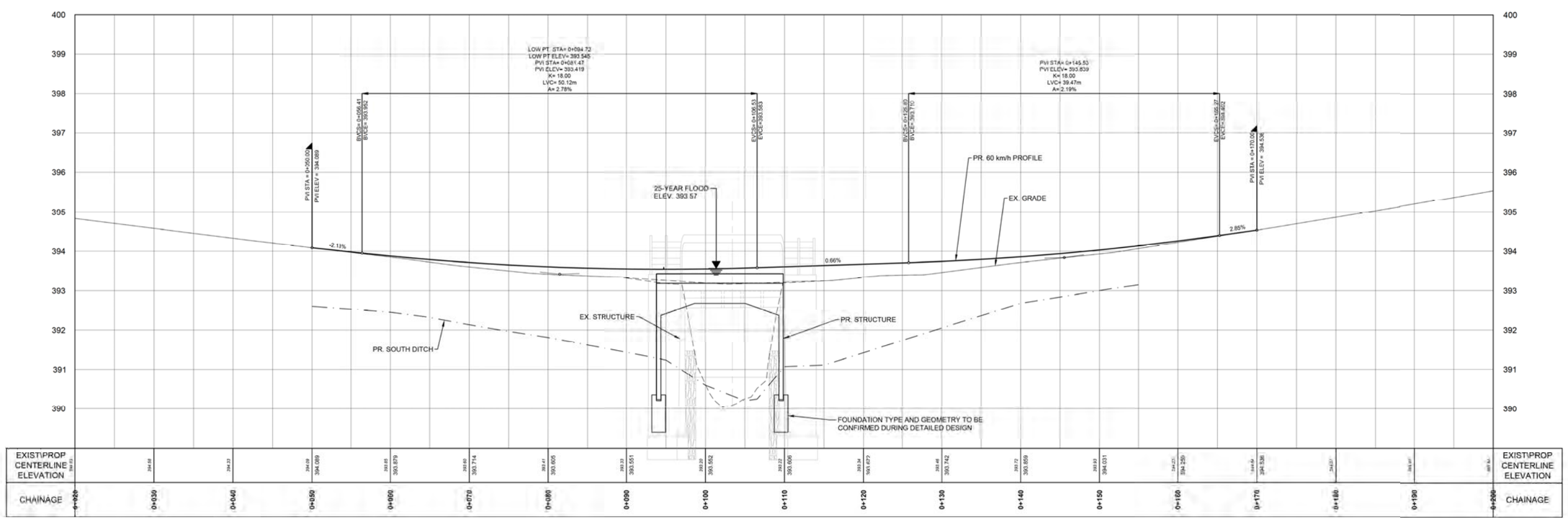
PLAN
SCALE: 1:250



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NOT FOR CONSTRUCTION

No.	Issue / Revision	Date	Auth.
0	CONCEPTUAL DESIGN FOR PROJECT FILE REPORT	12/30/2024	ASD

BURNSIDE

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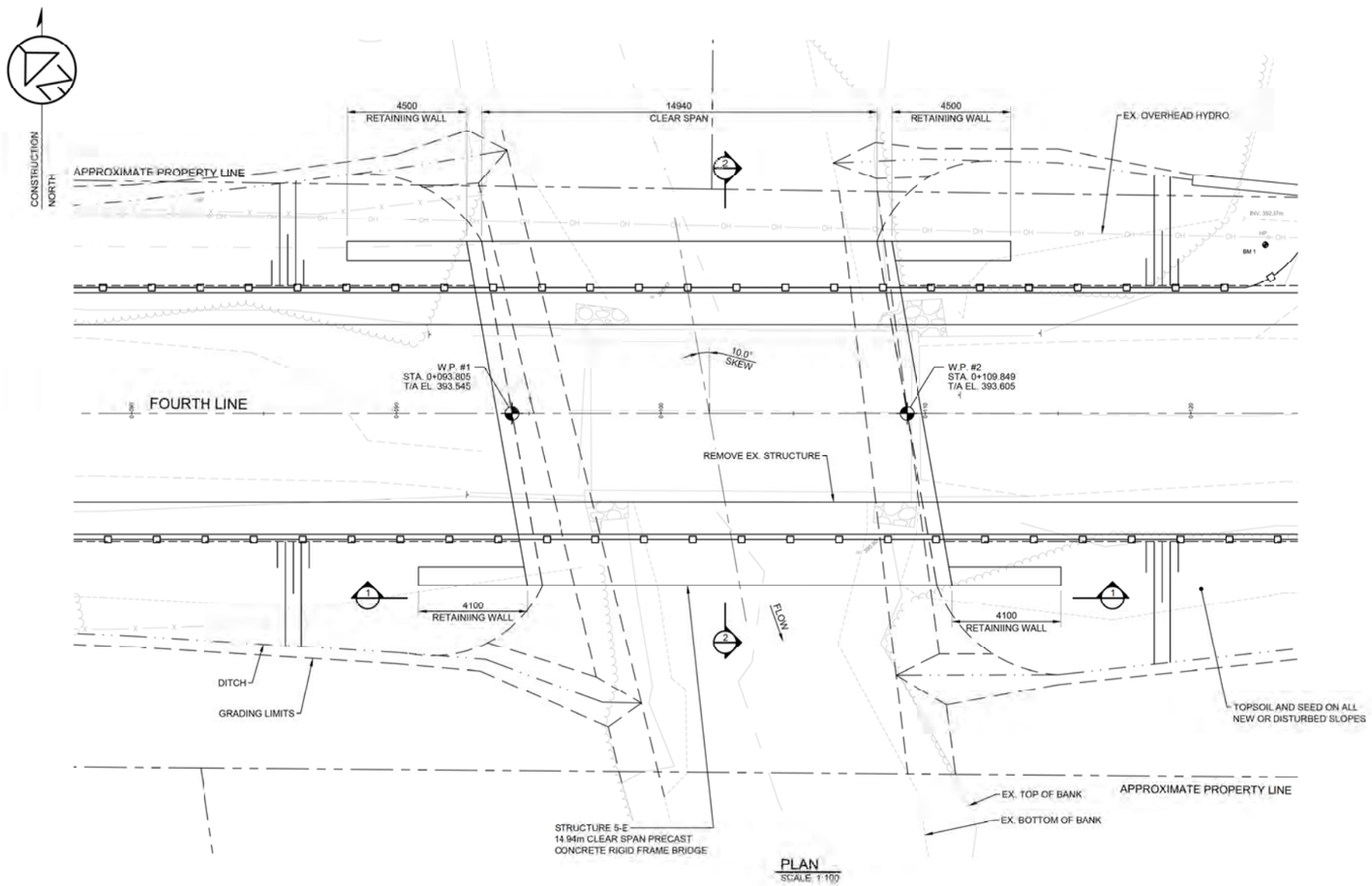
web www.rjburnside.com

Client
TOWNSHIP OF CENTRE WELLINGTON
1 MACDONALD SQUARE
ELORA, ONTARIO
N0B 1S0

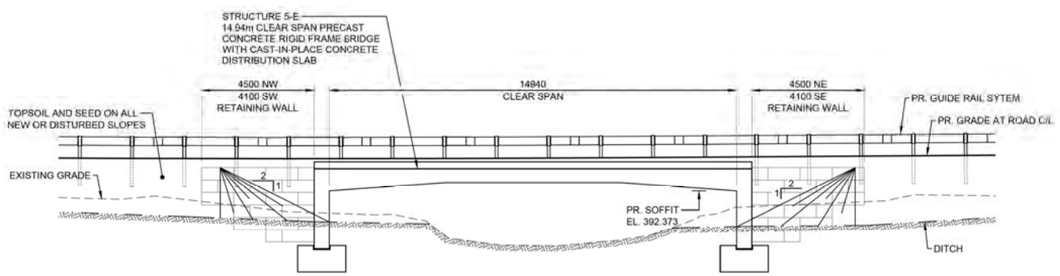
Drawing Title
BRIDGE 5-E REPLACEMENT

PLAN AND PROFILE

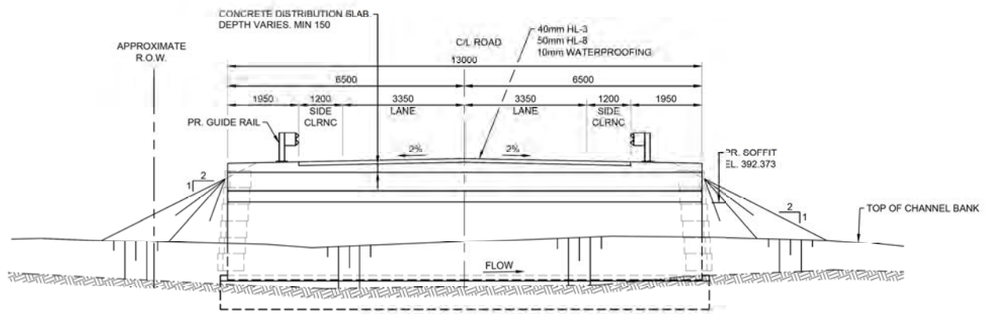
Drawn	Checked	Designed	Checked	Date	Drawing No
A.C.	A.D.	A.D.	M.B.	24/21/17	B-001
Project No. 300058117		Contract No. CONTRACT NO.		Revision No. 0	
Scale H 1:250 V 1:50					



PLAN
SCALE 1:100



1 ELEVATION
SCALE 1:100



2 SECTION
SCALE 1:75

GENERAL NOTES:

1. DESIGNED TO CANADIAN HIGHWAY BRIDGE DESIGN CODE (CHBDC) CSA S6:19 TO SUPPLEMENT 2, LIVE LOAD TRUCK TO CL-625-ONT
2. CONCRETE SHALL BE EXPOSURE CLASS C-1 WITH A MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF 35 MPa AT 56 DAYS
3. CLEAR COVER TO REINFORCING STEEL

FOOTINGS	CAST AGAINST SOIL	100 ± 25
DECK	TOP	70 ± 20
	BOTTOM	50 ± 10
REMAINDER		70 ± 20 UNLESS OTHERWISE NOTED

4. REINFORCING BARS:

STEEL:

- REINFORCING STEEL (BLACK) SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.
- STAINLESS REINFORCING STEEL SHALL BE TYPE 316LN, DUPLEX 2205 AND HAVE MINIMUM YIELD STRENGTH OF 300 MPa, UNLESS OTHERWISE SPECIFIED.
- BAR MARKS WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS.
- ALL LAP LENGTHS SHALL BE CONSIDERED TENSION CLASS 'B' UNLESS NOTED OTHERWISE.
- NOT ALL LAP SPLICES ARE SHOWN ON THE DRAWINGS. WHERE BARS ARE SHOWN AS CONTINUOUS, LAP SPLICES ARE REQUIRED TO SUIT THE ACTUAL AVAILABLE LENGTHS OF THE REBAR. THE CONTRACTOR MAY PROVIDE LAPS NOT REPRESENTED IN THE DRAWINGS, SUBJECT TO THE APPROVAL OF THE ENGINEER.
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- BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWING SS12-1, (AVAILABLE UPON REQUEST) OR THE REINFORCING STEEL INSTITUTE OF ONTARIO OR CANADA (RSIO or RSIC), UNLESS INDICATED OTHERWISE.

5. CONSTRUCTION NOTES

- BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF THE BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELEVATION BE GREATER THAN 500mm.
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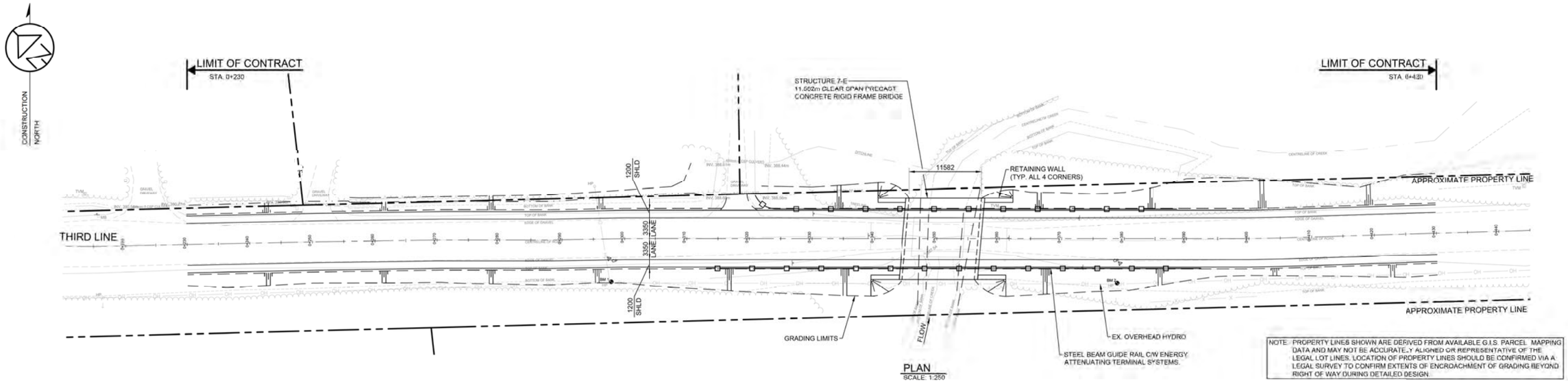
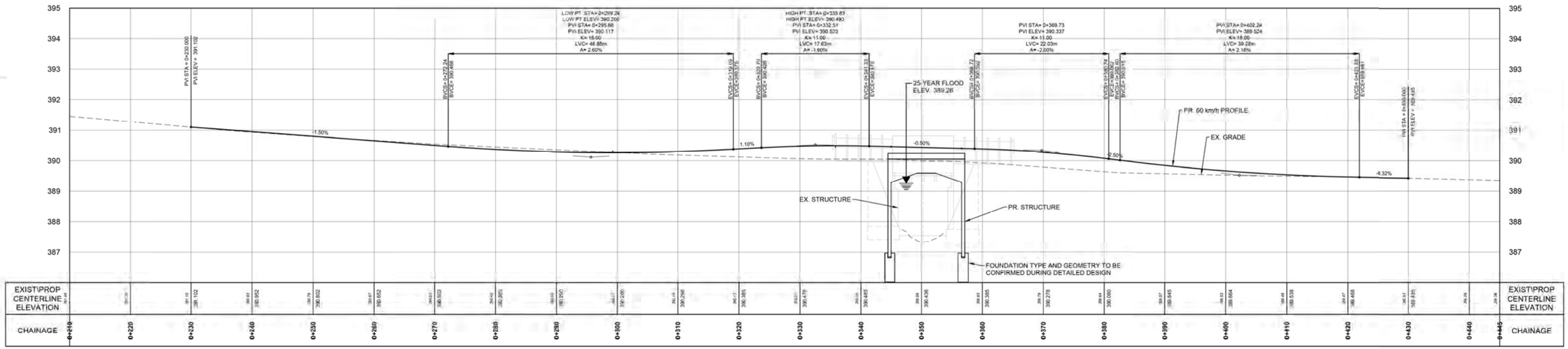
ELORA, ONTARIO
N0B 1S0

Drawing Title
BRIDGE 5-E REPLACEMENT
GENERAL ARRANGEMENT

Drawn:	Checked:	Designed:	Checked:	Date:	Drawing No:
A.C.	A.D	A.D	M.B.	24/21/17	B-002
Project No.		Contract No.		Revision No.	
300058117		CONTRACT NO.		0	
Scale:					
AS NOTED					



PLAN
SCALE: 1:250



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0	CONCEPTUAL DRAWING FOR PROJECT FILE REPORT	24/12/30	ASD

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Client
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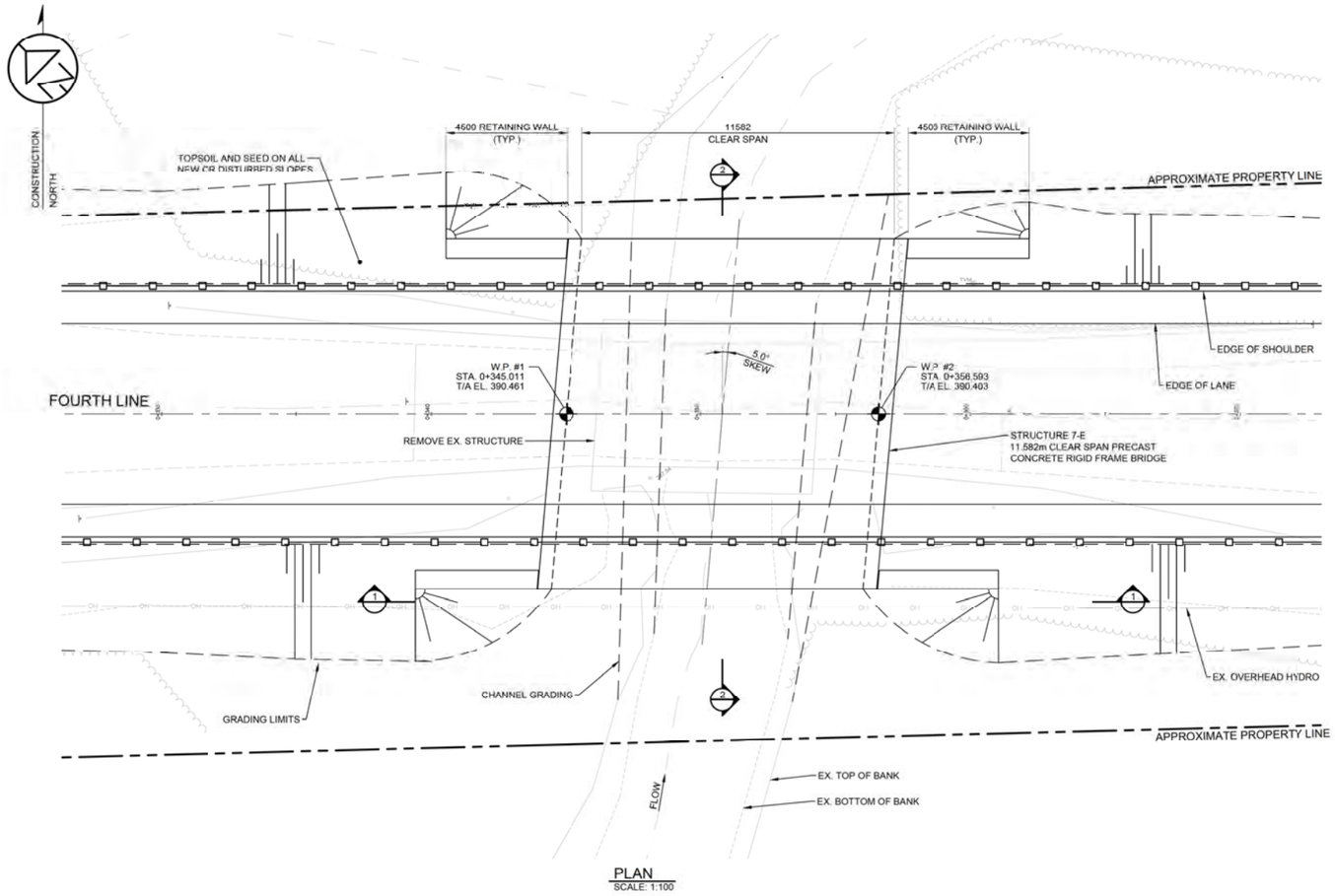
1 MACDONALD SQUARE
ELORA, ONTARIO
N0B 1S0

Drawing Title
BRIDGE 7-E REPLACEMENT
PLAN AND PROFILE

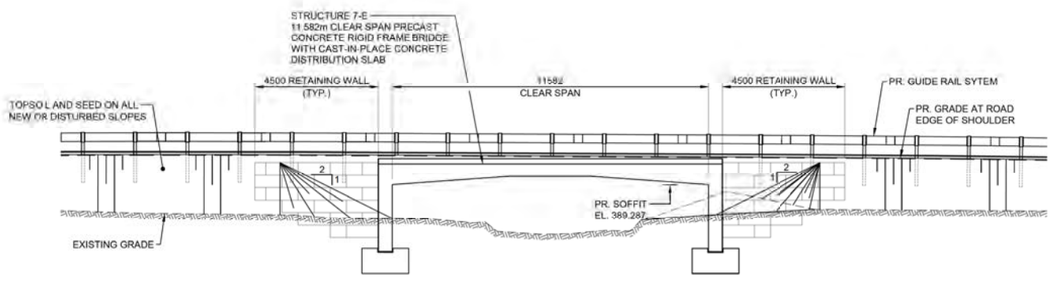
Drawn:	Checked:	Designed:	Checked:	Date:
A.C.	A.D.	A.D.	M.B.	24/21/17
Project No.		Contract No.		Revision No.
300058117		CONTRACT NO.		0

Scale
H 1:300 V 1:60

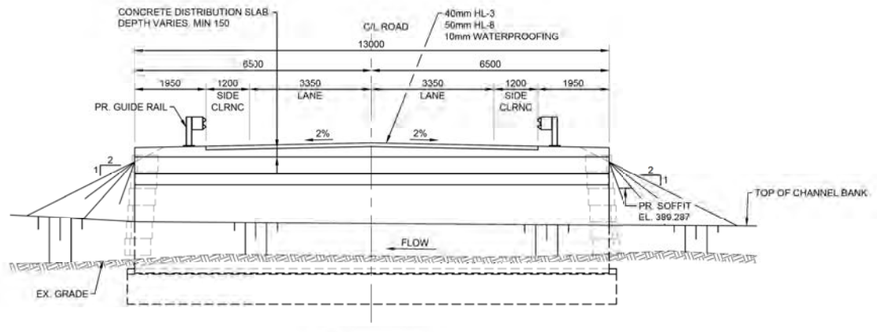
Drawing No.
B-001



PLAN
SCALE: 1:100



1 ELEVATION
SCALE: 1:100



2 SECTION
SCALE: 1:75

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Drawing Title:
BRIDGE 7-E REPLACEMENT
GENERAL ARRANGEMENT

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A.C.	A.D.	A.D.	M.B.	24/21/17	B-002
Project No.		Contract No.		Revision No.	
300056117		CONTRACT NO.		0	
Scale:					
AS NOTED					