FUNCTIONAL SERVICING AND PRELIMINARY STORMWATER MANAGEMENT REPORT

6704 AND 6684-6688 BEATTY LINE NORTH AND 7692 SIDEROAD 15 (FERGUS OAKS)

TOWNSHIP OF CENTRE WELLINGTON WELLINGTON COUNTY

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JANUARY 2025

CFCA FILE NO. 1000-6897

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Revision Number	Date	Comments
Rev. 0	January 31, 2025	Issued for OPA Application

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1.0 Introduction

C.F. Crozier & Associates Inc. (Crozier) was retained by Tribute (Fergus Oaks) Limited to prepare a Functional Servicing and Preliminary Stormwater Management Report in support of the Official Plan Amendment Application for the "Fergus Oaks" development lands, referred to in this report as the Subject Lands/Subject Development. The Subject Lands cover an area of approximately 190 ha and are located at 6704 and 6684-6688 Beatty Line North and 7692 Sideroad 15 in the Township of Centre Wellington (Township), Wellington County (County). It is noted that this differs from the "subject lands" as defined in the Planning Justification Report prepared by Landwise (January 2025) which for the purposes of the Official Plan Amendment also includes 7715 Sideroad 15.

The Subject Lands includes two (2) of the four (4) parcels that make up the "Expansion Lands" illustrated in **Figure 1** and is comprised of:

- "Fergus Oaks" located at 6704 and 6684-6688 Beatty Line North and 7692 Sideroad 15
- "Keating" located at 7715 Sideroad 15
- "Brubacher" located at 6586 Beatty Line North

The Keating and Brubacher properties are owned by separate entities from Tribute (Fergus Oaks) Limited. The purpose of the Official Plan Amendment Application is to support the inclusion of the Expansion Lands within the settlement boundary area of Fergus.

While the servicing and stormwater management investigation presented in this report is focused on the Fergus Oaks property, this report also considers how the entire Expansion Lands will be serviced. Therefore, the purpose of this report is to demonstrate that Fergus Oaks can be developed and integrated with the existing municipal infrastructure in the Township in conjunction with the Keating and Brubacher properties. The engineering work outlining the internal servicing strategy for the Keating and Brubacher Lands are to be completed by others.

1.1 Subject Lands Description

For the purposes of this report, it was assumed that Beatty Line North represents the north-south bearing and Sideroad 15 represents the east-west bearing used in the description of the existing and proposed conditions of the Subject Lands.

The Subject Lands currently consists of a combination of cultivated fields as well as associated farm complex buildings and multiple dispersed woodlands and wetlands. The Subject Lands are bounded by Irvine Creek to the north, Beatty Line North to the east, Sideroad 15 to the south, and an abandoned rail corridor to the west. The southern property line also traverses around an existing residential lot that fronts onto Sideroad 15. The Subject Lands are located within the Grand River watershed and Irvine Creek subwatershed and are subject to Grand River Conservation Authority (GRCA) regulations and policies.

According to the **Concept Plan** (Landwise, November 2024), the elements envisioned for the proposed development include:

- Low Density Residential Developments
- Medium Density Developments
- Municipal Housing (Medium Density) Developments

- Commercial Developments
- One (1) Elementary and one (1) Secondary School
- Town Park and Recreational Facility
- Two (2) Neighbourhood Parks
- Water Reservoir and Well
- Sanitary Pumping Station
- Three (3) Stormwater Management Facilities

The developable area of the Subject Lands is approximately 164 ha of the approximately 190 ha total area.

1.2 Background Information

The following drawings, design standards, and documents were referenced during the preparation of this report with relevant excerpts provided in **APPENDIX A**:

- Concept Plan (Landwise, November 2024)
- Grand River Conservation Authority (GRCA) online mapping (Accessed August 28, 2024)
- Natural Heritage Features (GeoProcess, May 2, 2023)
- Preliminary Geotechnical Investigation, Ref. No. 2305-S020 (Soil Engineers, June 9, 2023)
- The Physiography of Southern Ontario, 3rd Edition (Ministry of Natural Resources, 1984)
- Soil Survey of Wellington County, Report No. 35 (Ontario Department of Agriculture, 1963)
- Ministry of Agriculture, Food and Rural Affairs (OMAFRA) online mapping "AgMaps" (Accessed July 2, 2024)
- Water and Wastewater Servicing Expansion of the Fergus Wastewater Treatment Plant and Expansion of the Groundwater Supply System, referred to as "DLW's Memo" in this report (DLW Engineering Services, November 2024)
- New Well Exploration Program, Feasibility Assessment Report (Stantec, February 12, 2024)
- Township of Centre Wellington's Development Manual (June 2024)
- Township of Centre Wellington's GIS Mapping ("Water System – Fergus – North" & "Sanitary and Storm Sewer Systems Fergus North", December 20, 2023)
- Proposed Site Servicing Memo for 6586 Beatty Line North - Brubacher Property (SCS Consulting Group Ltd., April 19, 2024)

- Design Guidelines for Drinking-Water Systems (MECP, 2008)
- South Fergus MESP & Secondary Plan Functional Servicing Report (Tatham, March 2024)
- Functional Servicing and Stormwater Management Report for the Storybrook Subdivision (R.J. Burnside & Associates Ltd., February 2018)
- Township of Centre Wellington's Zoning By-law Schedule "A" (September 2023)
- Light Detection and Ranging (LiDAR) data from OMAFRA's 2018 Lake Erie project and retrieved from Equator (OMAFRA, 2018)

1.2.1 Natural Hazards

Review of **Grand River Conservation Authority (GRCA) online mapping** (Accessed August 28, 2024) and **Natural Heritage Features Figure** (GeoProcess, May 2, 2023) identifies the presence of the following hazards within or adjacent to the Subject Development:

- Provincially Significant Wetlands (PSWs)
- Slope erosion and slope valley hazards associated with Irvine Creek
- Floodplain hazard within the valley of Irvine Creek
- Woodland driplines

The relevant hazards and their respective buffers have been accounted for in the **Concept Plan** (Landwise, November 2024) and civil engineering design for the Subject Development. The GRCA advised the existing floodplain hazard for Irvine Creek is "Estimated" and that there is no existing engineered floodplain model associated with Irvine Creek. While a detailed floodplain analysis will likely be required during future design stages to confirm the floodplain hazard location, the grade separation between the Subject Lands and Irvine Creek suggests that the floodplain may be contained within Irvine Creek's valley. Therefore, the more constraining hazard associated with Irvine Creek is anticipated to be the slope erosion and valley hazard. Further refinement of the other existing hazards will be completed by others in future designs stages, such as a slope stability assessment and staking of the woodland and wetlands.

Furthermore, future analysis into the existing wetlands will be completed to review if these features are fed by groundwater or surface sources. This information will assist in future water balance calculations for the site and features.

1.2.2 Soil Conditions

A **Preliminary Geotechnical Investigation** (Soil Engineers, June 9, 2023) was undertaken by Soil Engineers where according to the borehole logs, beneath the topsoil the Subject Lands is underlain by sand, silt, or silty clay till. The geotechnical investigation is similar to the findings presented in the **Physiography of Southern Ontario, 3rd Edition** (Ministry of Natural Resources, 1984), where the Subject Lands are located within the northern limits of the Guelph Drumlin Field and consists of Guelph Till that is on average comprised of 50% sand, 35% silt, and 15% clay. Further, the Subject Lands are comprised of Harriston and Listowel Loam and is classified to be part of Hydrologic Soil Group B according to the **Soil Survey of Wellington County, Report No. 35** (Ontario Department of Agriculture, 1963) and **"AgMaps"** (OMAFRA, Accessed July 2, 2024).

Using the compiled site-specific and regional soil information, a Hydrologic Soil Group B was used to determine appropriate Curve Numbers to model the soils in the hydrologic model for the Subject Development.

1.2.3 Groundwater Conditions

The groundwater level was measured as part of the **Preliminary Geotechnical Investigation** (Soil Engineers, June 9, 2023), where the groundwater level was measured between approximately 425 masl and 415 masl and at an average depth of 2.8 m below the ground surface. The groundwater level has been taken into consideration during the civil engineering and the Stormwater Management Facility designs for the Site. Further groundwater monitoring will be completed as part of future investigations to further refine and establish seasonally high groundwater elevations throughout the Subject Lands.

2.0 Water Servicing

2.1 Existing Water Servicing

The Township operates an interconnected Fergus-Elora Water Supply System and is supplied by nine (9) groundwater well sources. According to **DLW's Memo** (November 2024), the interconnected water supply system has a firm capacity of approximately 167.3 L/s and a reserve capacity of 22.9 L/s.

The Township completed a **New Well Exploration Program Feasibility Assessment** (Stantec, February 12, 2024) which included test well constructions and testing at three (3) new locations (named Areas 3, 5, and 7). The assessment indicated that the addition of a production well at each of these locations could result in additional firm capacity of 90 L/s (30 L/s per well) increasing the Township's firm capacity. The testing location for the Area 7 well was located near the northwest corner of the Keating property adjacent to Sideroad 15.

Based on the **Township of Centre Wellington's GIS Mapping** ("Water System – Fergus – North", December 20, 2023) potential locations for the connection of an external watermain expansion from the Expansion Lands and into the existing water infrastructure includes the following:

- Existing 300 mm diameter watermain along Beatty Line North, ending with a 300 mm diameter stub at Sideroad 18.
- Existing 300 mm diameter watermain at the intersection of Highway 6 and Sideroad 18.
- Existing 200 mm diameter watermain stub beneath Elliot Avenue located adjacent to the southern property limits of the Brubacher property.

The GIS mapping showing the existing watermain network of the Fergus-Elora water supply system has been provided in **APPENDIX A**.

2.2 Domestic Water Demand

Based on the proposed **Concept Plan** (Landwise, November 2024) preliminary estimates for water demand for the Subject Development and Expansion Lands were calculated using the following criteria based on the Township of Centre Wellington's Development Manual (June 2024):

- Average Demand Flow (Residential and Commercial): 350 L/cap/day
- Average Demand Flow (Institutional): 140 L/cap/day
- Max Day Peaking Factor: 2.0
- Peak Hour Peaking Factor: 3.0
- Commercial: 28 m^3/ha/day
- Assumed 600 Students per School Block

The residential population for Fergus Oaks is calculated based on the residential density of 36 people per hectare, according to email correspondence with Landwise dated November 19, 2024 and provided in **APPENDIX A.** Additional population estimated for the institutional and commercial developments within Fergus Oaks were also included to be conservative in the demand calculations.

Based on these parameters, the average day, max day, and peak hour water demand was estimated to be approximately 31.0 L/s, 62.0 L/s, and 92.9 L/s respectively for the Subject Development.

The residential density of 36 people per hectare was also applied to estimate the populations for the Keating and Brubacher properties. The Brubacher property has an approximate site area of 43.50 ha based on the **Proposed Site Servicing Memo for 6586 Beatty Line North - Brubacher Property** (SCS Consulting Group Ltd., April 19, 2024) and the Keating Lands has an approximate site area of 35.60 ha based on the Township's parcel data. The population estimates and water demands are summarized in **Table 1** with detailed calculations provided in **APPENDIX B**.

Table 1: Domestic Water Demands for the Expansion Lands

Land Description	Domestic Water Demands			
	Fergus Oaks	**Keating**	**Brubacher**	**Total Expansion Lands**
Area (ha)	+/- 190.4	+/- 35.6	+/- 43.5	**+/- 269.5**
Population Estimate	8,368	1,282	1,566	**11,216**
Max Day Peaking Factor[1]	2.0	2.0	2.0	**2.0**
Peak Hour Peaking Factor[1]	3.0	3.0	3.0	**3.0**
Average Day Demand (L/s)	31.0	5.2	6.3	**42.5**
Max Day Demand (L/s)	62.0	10.4	12.7	**85.0**
Peak Hourly (L/s)	92.9	15.6	19.0	**127.6**

Note 1: Peaking Factors are selected based on population according to Table 3.1 of the Design Guidelines for Drinking-Water Systems (MECP, 2008).

2.3 Fire Flow Demand

The suggested fire flows are based on typical values for proposed land uses, and were referenced from the **South Fergus MESP & Secondary Plan Functional Servicing Report** (Tatham, March 2024)**:**

- Low density residential: 100 L/s
- Medium density residential: 120 L/s
- Commercial and Institutional: 200 L/s

Detailed fire flow demand will be completed in future design stages and will comply with the Township of Centre Wellington's Development Manual (June 2024) and the Fire Underwriters Survey (2020).

2.4 Proposed Water Servicing

2.4.1 Internal Water Servicing (Fergus Oaks)

The watermain proposed within the Subject Development is proposed to follow the alignment of the road network and will be completed with individual service connections for each development block and future residential lot. Fire hydrants will be spaced as required to provide the necessary fire protections and meet the standards outlined in the Township of Centre Wellington's Development Manual (June 2024).

Two (2) watermain connections are proposed to connect to the expanded watermain infrastructure along Beatty Line North and Sideroad 15 to provide a looped watermain network for the Subject Development. A hydraulic capacity analysis will be required in future design stages to confirm sufficient water supply and pressure is provided to each development block to meet the required fire flow demand and domestic demands.

Refer to **Figure 2** for an illustration of the proposed internal water servicing which currently shows the proposed alignment of the internal trunk watermain. The watermain will be extended into all local roads and blocks as required to provide the appropriate water servicing for each element of the Subject Development.

2.4.2 External Water Servicing

Expansion of the existing Fergus-Elora watermain network will be required to service the Expansion Lands. As described in Section 2.1, there are three (3) existing locations of the watermain infrastructure that would provide an opportunity to extend an external watermain network to the Expansion Lands. These proposed connection locations include the existing watermains along Elliot Avenue, Beatty Line North, and Highway 6 and are illustrated on the External Water Servicing Figure **(Figure 3)**.

To connect the Expansion Lands to the existing Fergus-Elora watermain network, external watermain extensions are proposed west along Sideroad 15 and south on Beatty Line North and Highway 6 from Sideroad 15. Expanding the proposed external watermain to these locations provides a looped network and offers future development opportunities for Fergus along Sideroad 15 and Highway 6. Additionally, the external watermain will facilitate multiple service connections for the Expansion Lands that will help to support the hydraulic performance of the internal watermains within each property.

According to **DLW's Memo** (November 2024), a new water reservoir and well is required service the Expansion lands and meet the increased storage and consumption demands. The water reservoir could either be proposed underground with an associated booster pumping station or through an elevated storage tank fed by the new well. Refer to **APPENDIX A** for relevant memo excerpts.

The reservoir and well location are proposed within the Subject Lands north of the SWM-2 Block and is close to the Area 7 well testing location. The new water facilities will be connected to the larger Fergus-Elora Water Supply System through the proposed internal watermain network.

Based on the foregoing, there is a feasible solution to supply water to the Expansion Lands.

3.0 Sanitary Servicing

3.1 Existing Sanitary Servicing

The Fergus Wastewater Treatment Plant (WWTP) is located at the end of Queen Street West, north of the intersection of Union Street West and Tower Street South. The WWTP discharges treated effluent into the Grand River, just north of the WWTP. According to **DLW's Memo** (November 2024), the WWTP has a rated capacity of 8,000 m^3/day with total reserve capacity of 3,484 m^3/day, including an uncommitted reserve capacity of 1,694 m^3/day.

Currently, the closest sanitary sewer to the Expansion Lands is a 250 mm diameter sanitary sewer along Beatty Line North at Sideroad 18 as illustrated on **Figure 5**. This sanitary sewer connects to a sanitary trunk sewer network that traverses through the community of Fergus and eventually discharges to the WWTP. The sanitary trunk sewer network consists of an:

- Existing 250 mm diameter sanitary sewer along Beatty Line North from Sideroad 18 to Sideroad 19
- Existing 300 mm diameter sanitary sewer along Beatty Line North from Sideroad 19 to Millage Lane
- Existing 375 mm diameter sanitary sewer along Millage Lane
- Existing 450 mm diameter sanitary trunk sewer along Black Street from Millage Lane to Perry Street
- Existing 600 mm diameter sanitary trunk sewer along Perry Street from Black Street to Garafraxa Street West
- Existing 450 mm diameter sanitary trunk sewer along Garafraxa Street
- Existing 450 mm and 525 mm diameter sanitary trunk sewer along Provost Lane.
- Existing 525 mm and 600 mm diameter sewer trunks along St. Andrew Street West from Provost Lane to Tower Street South.
- Existing 525 mm and 750 mm diameter sanitary trunks sewer along Tower Street South from St. Andrew Street West to Queen Street West, connecting to the Fergus WWTP

There are no existing sanitary sewers north of Sideroad 18 along Beatty Line North based on **Township of Centre Wellington's GIS Mapping** ("Sanitary and Storm Sewer Systems Fergus North", December 20, 2023).

It is worth noting that future development of the Brubacher property was considered in the design of the sanitary servicing for the Storybrook Subdivision as referenced in the **Functional Servicing and Stormwater Management Report** (R.J. Burnside & Associates Ltd., February 2018) and in the **Proposed Site Servicing Memo for 6586 Beatty Line North - Brubacher Property** (SCS Consulting Group Ltd., April 19, 2024)**.** There is an existing sanitary sewer stub at the northern limits of the Storybrook Subdivision at Elliot Avenue and has been proposed to convey wastewater generated within the Brubacher property towards a sanitary pumping station within the Storybrook Subdivision. The sanitary pumping station has been designed to convey wastewater to the existing sanitary trunk sewer at Millage Lane.

3.2 Proposed Sanitary Servicing

3.2.1 Design Sanitary Flows

Based on the proposed **Concept Plan** (Landwise, November 2024), preliminary estimates for sewage flows for the Subject Lands and Expansion Lands were calculated using the following criteria based on the Township of Centre Wellington's Development Manual (June 2024):

- Average Demand Flow (Residential and Commercial): 350 L/cap/day
- Average Demand Flow (Institutional): 140 L/cap/day
- Peak factor: 2.0 – 4.0 per Harmon calculations
- Infiltration Allowance: 0.15 L/s/ha
- Commercial: 28 m^3/ha/day
- Assumed 600 Students per school block

Similar to the water demand, the residential population for Fergus Oaks is calculated based on the residential density of 36 people per hectare, according to email correspondence with Landwise dated November 19, 2024 and provided in **APPENDIX A**. Additional population estimated for the institutional and commercial developments within Fergus Oaks were also included to be conservative in the servicing calculations. Based on these values, the total peak design flow is approximately 113.8 L/s for the Subject Development.

The residential density of 36 people per hectare was also applied to estimate the populations for the Keating and Brubacher properties. The Brubacher property has an approximate site area of 43.50 ha based on the **Proposed Site Servicing Memo for 6586 Beatty Line North - Brubacher Property** (SCS Consulting Group Ltd., April 19, 2024) and the Keating Lands has an approximate site area of 35.60 ha based on the Township's parcel data. The estimated sanitary design flows for the Expansion Lands are summarized in **Table 2** with calculations provided in **APPENDIX C**.

Table 2: Sanitary Design Flow for Expansion Lands

Sanitary Design Flow				
Land Description	**Fergus**	**Keating**	**Brubacher**	**Total Expansion**
Area (ha)	+/- 190.4	+/- 35.6	+/- 43.5	**+/- 269.5**
Population Estimate	8,368	1,282	1,566	**11,216**
Harmon Peaking Factor	3.03	3.73	3.67	**2.91**
Average Dry Weather Flow (L/s)	31.0	5.2	6.3	**42.5**
Infiltration Flow (L/s)	19.9	5.3	6.5	**31.8**
Average Wet Weather Flow (L/s)	50.9	10.5	12.9	**74.3**
Peaking Factor	3.03	3.73	3.67	**2.91**
Total Peak Sanitary Design Flow (L/s)	113.8	24.7	29.8	**155.3**

Note 1: Area used to calculate infiltration flow for Fergus Oaks excludes natural areas, stormwater management blocks and parks.

Based on the estimated population for the Expansion Lands of 11,216 persons, the average wet weather sanitary flow for the Expansion Lands is 74.3 L/s or 6,420 m^3/day. It should be noted that this flow is slightly different than the average wet weather flow presented in **DLW's Memo** (November 2024) which was anticipated due to different industry design guidelines used to calculate infiltration flow for sewer design versus municipal facility design.

The infiltration allowance in the Township's guidelines (0.15 L/s/ha) is relevant to sewer design and was used in the servicing calculations in this report. In **DLW's Memo** (November 2024) an infiltration allowance relevant to municipal facility design was used (90 L/cap/day) to assess the municipal upgrades required to the Fergus Wastewater Treatment Plant.

As outlined in **DLW's Memo** (November 2024), it is feasible to expand the existing Fergus WWTP on its existing site to have sufficient capacity to accommodate the sewage flows generated within the Expansion Lands. Refer to **APPENDIX A** for relevant memo excerpts.

3.2.2 Internal Sanitary Servicing (Fergus Oaks)

The Subject Lands will be serviced by internal gravity sanitary sewers installed beneath the road allowance as illustrated on the Internal Sanitary Servicing Figure **(Figure 4)**. Individual gravity sanitary service connections will be provided for individual residential units and other development blocks. The sewer will be sufficiently deep (approximately 2.0 – 3.5 m) to provide gravity services to all units and buildings with basements.

Due to the existing topography and the feasibility of connecting to the existing sanitary services on Beatty Line North, a pumping station is proposed in the northern area of the Subject Development to avoid having excessively deep sanitary sewers both internally and externally to the Subject Lands. The internal sanitary sewers will connect into external sanitary sewers at the two (2) road entrances to the Subject Development along Sideroad 15.

3.2.3 External Sanitary Servicing

An external sanitary sewer will be extended north on Beatty Line North from the terminus of the existing sanitary sewer located at Sideroad 18 along the eastern limits of the Expansion Lands. The external sanitary sewer will then be extended west along Sideroad 15 to the southwest corner of the Subject Lands to provide connections to the proposed internal sanitary sewers located at the two (2) road entrances of the Subject Development as illustrated on **Figure 4**. The external sanitary sewer will provide opportunities for sanitary sewer connections to the Keating and Brubacher properties along Beatty Line North and Sideroad 15.

South of the existing sanitary sewer at Beatty Line North and Sideroad 18, three (3) external sanitary servicing options were investigated to convey the wastewater from the Expansion Lands to the Fergus Wastewater Treatment Plan. Several factors were reviewed for each option, such as:

- Facility and servicing costs
- Existing infrastructure
- Ease of construction and impact to the existing community
- Opportunities to service future development lands in Fergus

The servicing strategy for each option and their associated rationale are summarized in the following sections.

Option 1: Upgrades to Existing Sanitary Trunk Sewer

The Option 1 sanitary servicing strategy is presented in **Figure 5 and Figure 6** with supporting calculations provided in **APPENDIX C**. This option proposes that wastewater generated within the Expansion Lands is proposed to be conveyed to the WWTP through the existing trunk sanitary sewer route described in Section 3.1 which has a total length of approximately 3,100 m.

Existing sanitary sewer as-builts, flow rates, and design sheets were not available at the time of this investigation. Therefore, a preliminary capacity analysis of the existing sanitary trunk sewer through Fergus was completed based on estimated population densities for the existing drainage areas and the estimated sanitary flows from the Expansion Lands presented in Section 3.2.1. Existing population densities were estimated to be approximately 30 persons/ha based on the approximate built boundary of Fergus and the current population of Fergus. Existing sanitary sewer pipe diameters were obtained from the Township's online available GIS data and existing sewer slopes were approximated based on existing topography and standard design practices.

Based on this analysis, approximately 2,000 m of existing sanitary trunk sewer would be required to be upsized from Sideroad 18 to St. Andrew St. West, ranging in size from 450 mm diameter to 600 mm diameter. The remaining 1,100 m of existing sanitary trunk sewer was estimated to be operating under capacity and can convey the additional flows generated by the Expansion Lands without any upgrades. Therefore, while this option requires some upgrades to existing sanitary sewers, it is also anticipated to improve the utilization of the existing infrastructure that is currently operating under capacity.

Due to the proximity of the sanitary sewer upgrades to existing communities, further review into the as-built condition of the sewers is recommended once records are available to confirm the anticipated construction methodology for this option. Based on a preliminary review, construction of this option likely would require temporary sanitary sewer bypass infrastructure, decommissioning and removing the existing sanitary sewer, and installing an upsized sanitary sewer trunk via open cut.

Option 2: New Sanitary Trunk Sewer Along Beatty Line North to Upgraded Union Street Pumping Station

The Option 2 sanitary servicing strategy is presented in **Figure 7 and Figure 8** with supporting calculations provided in **APPENDIX C**. This option proposes that sanitary flows from the Expansion Lands would be conveyed to the WWTP by constructing a new sanitary trunk line along Beatty Line North. Although there is an existing sanitary stub located at Elliot Avenue at the northern limits of the Storybrook Subdivision, indicating a potential sanitary connection for the Brubacher property, the proposed sanitary sewer trunk on Beatty Line North has been conservatively sized to accommodate the sanitary design flow from the entire Expansion Lands with additional capacity for future development.

The proposed sanitary trunk sewer would run south along Beatty Line North from Sideroad 18 for approximately 2,400 m prior to traversing existing open space, crossing the Grand River and discharging to the existing Union Street pumping station. The section of sewer between Sideroad 18 and Colborne Street is anticipated to be installed via open cut. A trenchless installation would likely be completed for the remainder of the proposed sanitary trunk sewer based on the required depth of the sewer and to avoid disturbing the natural surface features of the open space and Grand River. Once the wastewater reaches the Union Street pumping station, it would be conveyed to the WWTP through the existing infrastructure consisting of a forcemain and gravity sewers. The existing Union Street pumping station would need to be upsized to accommodate the sanitary flows from the proposed sanitary trunk sewer.

The proposed sanitary trunk sewer beneath Beatty Line North would be approximately 3 m - 4 m deep from Sideroad 15 to Colborne Street, and subsequently 7 m - 13 m deep from Colborne Street to St. Geroge Street before traversing the Grand River. The proposed trunk sanitary sewer has been sized to convey the wastewater generated within the Expansion Lands as well as future and existing developments fronting Beatty Line North as identified in the **Township of Centre Wellington's Zoning By-law Schedule "A"** (September 2023). The wastewater generated within the future and existing developments were estimated based on a population density of 30 persons/ha used in the Option 1 Analysis.

Option 2 would result in minimal disturbance to existing residential communities during construction as the majority of the proposed sanitary sewer would be installed along a relatively rural portion of Beatty Line North south of Millage Lane. The construction methodology incorporates both open cut and trenchless methodologies and will be refined during future design stages.

Option 3: Hybrid

Option 3 is a combined strategy consisting of a proposed sanitary trunk sewer (as presented in Option 2) and the replacement of existing infrastructure (as presented in Option 1). The Option 3 servicing strategy is illustrated in **Figure 9 and Figure 10** with supporting calculations provided in **APPENDIX C**.

Similar to the Option 2 strategy, a proposed sanitary trunk sewer is proposed to be extended south along Beatty Line North and has been sized to convey the wastewater generated within the Expansion Lands as well as future and existing developments fronting Beatty Line North. Once the sanitary trunk sewer reaches the intersection of St. Andrew Street West and Tower Street, it would connect into an existing maintenance hole and be conveyed via gravity through the existing sanitary sewer network towards the WWTP.

As in Option 1, existing sanitary sewer as-builts, flow rates, and design sheets were not available at the time of this investigation.

Therefore, a preliminary capacity analysis of the existing sanitary trunk sewer on St. Andrew Street West was completed based on estimated population densities for the existing drainage areas and the estimated sanitary flows from the Expansion Lands presented in Section 3.2.1. Based on a preliminary sanitary sewer capacity analysis, upsizing the existing sanitary sewer is required for only an approximate 10 m sewer section on St. Andrew Street West.

Based on the required depth of the proposed sanitary trunk sewer, it is anticipated that trenchless sewer installation would be required south of Colborne Street to the proposed connection to the existing maintenance hole at St. Andrew Street West. The other section of the proposed sewer is expected to be installed via open cut, however the methodology of the sewer installation will be confirmed during future design stages.

Option 3 takes advantage of the relatively rural portion of Beatty Line North south of Millage Lane for the placement of the proposed sanitary trunk sewer and is estimated to increase the utilization of the existing sanitary sewer beneath St. Andrew Street West. This strategy also avoids having to upgrade the sanitary sewer pumping station as required in the Option 2 servicing strategy while also requiring only a small length of active sanitary sewer upsizing between St. Andrew Street West and the WWTP.

Based on the foregoing, there is a feasible solution to service the Expansion Lands. Of these three (3) servicing options, the ultimate strategy will be confirmed at a future design stage based on consultation with the Township and further investigation into the existing capacity of existing infrastructure and construction considerations.

4.0 Stormwater Management

4.1 Design Criteria

The stormwater management design criteria were established in accordance with the policies and standards of various agencies including the Township of Centre Wellington, the Ministry of Environment, Conservation and Parks (MECP), and Grand River Conservation Authority.

The stormwater management criteria applicable to the proposed development are as follows:

- Development Standard
  - Urban cross section for public roadway with 5-year storm sewer system.
  - Minor and major drainage system to convey frequent and infrequent rainfall/runoff events.
  - An optimal lot grade at 2%
- Water Quality Control
  - 80% removal efficiency of total suspended solids (TSS) per MECP 'enhanced protection' requirements.
- Water Quantity Control
  - Control of the post development peak flows to pre-development levels for all storms up to and including the 100-year event based on preliminary correspondence with the Grand River Conservation Authority (Warner to Britton, May 11, 2023) provided in **APPENDIX D**.
  - The larger of the uncontrolled 100-year and the Regional Storm Events must be safely conveyed through the SWM Facility via an emergency flow route.

- Erosion Control
    - 24 to 48-hour extended detention of the 25 mm 4-hour Chicago storm event.

4.2 Existing Drainage Conditions

The Subject Lands are located within the Irvine Creek Watershed, and drainage from the Subject Lands contributes both directly to Irvine Creek and to several wetlands that drain to Irvine Creek. Drainage flow routes and pre-development drainage conditions were determined through review of LiDAR data for the Subject Lands obtained from Equator (OMAFRA, 2018).

A site visit was also completed on September 5, 2024, to prepare a preliminary inventory of existing culverts along Beatty Line North and Sideroad 15. A summary of the existing infrastructure identified is provided in **APPENDIX D**. Based on the existing topography, the Subject Lands have been delineated into the following pre-development catchments and are illustrated on the Pre-Development Drainage Figure **(Figure 11)**:

- Catchment 101 (22.02 ha) consists of cultivated fields that drain overland towards the PSW located in the southeast corner of the Subject Lands (Southeast Outlet). Through review of LiDAR data as well as the completion of a site walk, it is suspected that runoff generated in Catchment 101 drains towards Nichol Drain through the larger wetland system. The catchment outlet location will be confirmed in the field through the collection of detailed topographic survey.

- Catchment 102 (58.69 ha) consists of cultivated fields that drain overland towards the southwest corner of the Subject Lands (Southwest Outlet). Similarly to Catchment 101, a culvert was not clearly identified at the downstream limit of Catchment 102 during the site walk. However, asphalt cracking and a road depression across Sideroad 15 in this location supports the potential for a collapsed culvert in this location.

  Downstream of this inferred culvert location there is an existing ditch that runs along the east side of an abandoned rail corridor and into the Keating and Brubacher properties. The catchment outlet location will be confirmed in the field through the collection of detailed topographic survey.

- Catchment 103 (31.63 ha) consists of cultivated fields that drain overland into other cultivated fields to the north of the Subject Lands. The runoff then travels overland through the cultivated fields to the north towards Irvine Creek (Northwest Outlet).

- Catchment 104 (42.80 ha) consists of cultivated fields that drain overland towards woodlands and a PSW at the west side of the catchment. The runoff then travels through the woodland and wetland towards Irvine Creek (Northwest Outlet).

- Catchment 105 (9.10 ha) consists of drainage from agricultural fields that drain north overland and into Irvine Creek (Northwest Outlet).

4.3 Proposed Drainage Conditions

The Subject Development will be constructed to a fully urbanized system complete with a curb and gutter storm sewer collection strategy within the proposed roadways. Details of the proposed storm servicing is provided on the Storm Servicing Figure **(Figure 12)**. The minor drainage system will consist of storm sewers and catchbasins sized to convey the 5-year storm event to one of three (3) proposed Stormwater Management Facilities. The major flow system will provide overland flow routes within the road allowance as illustrated on the Preliminary Grading Figure **(Figure 13)** and Post-Development Drainage Figure **(Figure 14)**.

The proposed grading and storm servicing divides the Subject Development into six (6) post-development drainage catchment areas:

- Catchment 201 (30.52 ha) consists of medium density blocks, a commercial block, a school and roads within the proposed right-of-way areas. Storm sewer infrastructure within the proposed right-of-way is proposed to capture and convey stormwater runoff to the proposed stormwater management facility located within the southeast corner of the Subject Development (SWM-1).

- SWM-1 (4.21 ha) represents the stormwater management facility located within the southeast corner of the Subject Development, that controls the runoff from Catchment 201 and outlets into the existing PSW.

- Catchment 202 (28.06 ha) consists of medium density blocks, a commercial block, roads within the proposed right-of-way areas, and a town park and recreational facilities. Storm sewer infrastructure within the proposed right-of-way is proposed to capture and convey stormwater runoff to the proposed stormwater management facility located within the southwest corner of the Subject Development (SWM-2).

- SWM-2 (3.95 ha) represents the stormwater management facility located within the southwest corner of the Subject Development, that controls the runoff from Catchment 202. The stormwater management facility will outlet to the existing ditches along the Sideroad 15 right-of-way.

- Catchment 203 (89.62 ha) consists of low-density blocks, a school, neighbourhood parks, and roads within the proposed right-of-way areas. Storm sewer infrastructure within the proposed right-of-way is proposed to capture and convey stormwater runoff to the proposed stormwater management facility located within the northwest corner of the Subject Development (SWM-3).

- SWM-3 (7.88 ha) represents the stormwater management facility located within the northwest corner of the Subject Development that controls the runoff from Catchment 203. There are two (2) proposed outlets from the stormwater management facility. The primary outlet will direct treated stormwater directly to Irvine Creek and the secondary outlet will direct treated stormwater towards the woodland and PSW located to the west of the facility. These outlets are proposed to mimic the downstream drainage conditions of Catchments 103 and 105 (primary outlet) and Catchment 104 (secondary outlet) and will allow for controlled release of flow to the existing wetland.

4.4 Hydrologic Analysis

4.4.1 Quantity Control

Hydrologic modelling was prepared for the pre-development and post-development conditions of the Subject Lands using Visual OTTHYMO (VO). The purpose of the modelling was to determine the detention storage requirements to control post-development peak flow rates to pre-development levels at the existing stormwater outlets for the Subject Lands.

The 2, 5, 10, 25, 50, and 100-year rainfall of the 4-hour Chicago, 12-hour Type II (MTO), and 24-hour Type II (MTO) design storms were used to model the hydrologic conditions of the Subject Lands. The design storms were derived using the intensity-duration frequency curve parameters from the Township of Centre Wellington's Development Manual (June 2024) and are provided in **APPENDIX D**.

4.4.2 Pre-Development Hydrologic Analysis

To establish the pre-development peak flows generated within the Subject Lands, a pre-development hydrologic model was created using VO. The Subject Lands were delineated into five (5) pre-development catchments based on the existing topography as described in Section 4.1 and illustrated on **Figure 11**.

A summary of the hydrologic parameters utilized in the pre-development model as well as the estimated peak flows are provided in **Table 3** and **Table 4** with detailed parameter input sheets provided in **APPENDIX D**. Due to the rural nature of the pre-development catchments, each of them was modelled as NASHYDs.

Table 3: Summary of Pre-Development Hydrologic Input Parameters

Catchment	Area (ha)	Composite Curve Number (CN)	Modified Curve Number (CN*)	Initial Abstraction (mm)	Time to Peak (hr)	Outlet
101	22.02	79	81	6.77	0.51	Southeast
102	58.69	79	81	6.79	0.95	Southwest
103	31.63	77	79	7.03	1.19	Northwest
104	42.80	78	80	6.89	0.88	
105	9.10	78	80	7.00	0.35	
Total Area =	**164.24**					

Table 4: Summary of Pre-Development Flow Rates

Return Period (Years)	Southeast Outlet: Catchment 101 (22.02 ha)	Southwest Outlet: Catchment 102 (58.69 ha)	Northeast Outlet: Catchments 103, 104 & 105 (83.53 ha)
4-hour Chicago (m^3/s)			
2	0.36	0.65	0.82
5	0.60	1.09	1.37
10	0.79	1.41	1.78
25	1.05	1.84	2.33
50	1.25	2.18	2.76
100	1.45	2.53	3.22
12-hour SCS Type II (m^3/s)			
2	0.76	1.28	1.61
5	1.17	1.97	2.50
10	1.47	2.47	3.15
25	1.84	3.10	3.97
50	2.13	3.59	4.62
100	2.43	4.10	5.28
24-hour SCS Type II (m^3/s)			
2	0.96	1.60	2.03
5	1.42	2.39	3.05
10	1.75	2.95	3.79
25	2.16	3.64	4.69
50	2.48	4.17	5.40
100	2.80	4.73	6.13

4.4.3 Post-Development Hydrologic Analysis

Based on the proposed grading and storm servicing design, six (6) post-development catchment areas were delineated to model the post-development peak flows directed to each outlet as described in Section 4.1 and illustrated on **Figure 14**. Three (3) of the post-development catchment areas were modelled as SWM facilities.

A summary of the hydrologic parameters used in the post-development model are provided in **Table 5**. Imperviousness assumptions for the proposed development blocks were determined using the Township of Centre Wellington's Development Manual (June 2024), Visual OTTHYMO Reference Guide, and other reference design guidelines. Each catchment was subsequently modelled as STANDHYDs due to the estimated imperviousness of the post-development conditions. Detailed parameter input sheets and imperviousness calculations are provided in **APPENDIX D**.

Table 5: Summary of Post-Development Hydrologic Input Parameters

Catchment	Area (ha)	Total Imperviousness, TIMP (%)	Directly Connected Imperviousness, XIMP (%)	Outlet
201	30.52	78	55	Southeast
SWM-1	4.21	50	50	
202	28.06	68	57	Southwest
SWM-2	3.95	50	50	
203	89.62	61	44	Northwest
SWM-3	7.88	50	50	
Total Area =	**164.24**			

After running the post-development model, it was determined that the 4-hour Chicago storm distribution produced lower peak flows and was primarily used to establish preliminary rating curves to control the release rates for each stormwater management facility. Based on the release rate control requirements, the 24-hour SCS Type II storm distribution governed the active storage requirements for each facility. A summary of the attenuated post-development peak flows and active storage requirements for each facility are provided in **Table 6, Table 7, and Table 8** respectively with supporting modelling outputs in **APPENDIX D**.

Table 6: Summary of Post-Development Modelling Results for SWM-1

Return Period (Years)	SWM-1 (Southeast Outlet)			
	Pre-Development Peak Flow/Target (m^3/s)	Post-Development Uncontrolled Peak Flow (m^3/s)	Post Development Controlled Peak Flow (m^3/s)	Maximum Active Storage Volume Required (m^3)
4-hour Chicago				
2	0.36	3.42	0.33	5,627
5	0.60	4.88	0.57	7,323
10	0.79	5.80	0.75	8,444
25	1.05	7.52	0.99	9,871
50	1.25	8.55	1.19	10,943
100	1.45	9.57	1.39	12,019
12-hour SCS Type II				
2	0.76	3.93	0.65	7,825
5	1.17	5.34	1.05	10,217
10	1.47	6.41	1.36	11,862
25	1.84	7.63	1.73	13,777
50	2.13	9.01	2.04	15,321
100	2.43	10.03	2.20	16,956
24-hour SCS Type II				
2	0.96	4.63	0.80	8,799
5	1.42	6.35	1.27	11,418
10	1.75	7.50	1.61	13,165
25	2.16	9.38	2.03	15,336
50	2.48	10.54	2.20	17,104
100	2.80	11.73	2.34	19,022

Table 7: Summary of Post-Development Modelling Results for SWM-2

Return Period (Years)	SWM-2 (Southwest Outlet)			
	Pre-Development Peak Flow/Target (m^3/s)	Post-Development Uncontrolled Peak Flow (m^3/s)	Post Development Controlled Peak Flow (m^3/s)	Maximum Active Storage Volume Required (m^3)
4-hour Chicago				
2	0.65	3.18	0.60	3,547
5	1.09	4.37	1.01	4,716
10	1.41	5.26	1.31	5,517
25	1.84	6.73	1.74	6,635
50	2.18	7.63	2.06	7,373
100	2.53	8.52	2.45	8,085
12-hour SCS Type II				
2	1.28	3.38	1.14	5,047
5	1.97	4.70	1.74	6,605
10	2.47	5.56	2.18	7,643
25	3.10	6.62	2.87	8,801
50	3.59	7.57	3.46	9,753
100	4.10	8.79	4.08	10,837
24-hour SCS Type II				
2	1.60	3.95	1.31	5,520
5	2.39	5.52	1.99	7,213
10	2.95	6.53	2.57	8,297
25	3.64	7.87	3.36	9,609
50	4.17	9.26	4.07	10,747
100	4.73	10.32	4.19	11,941

Table 8: Summary of Post-Development Modelling Results for SWM-3

Return Period (Years)	SWM-3 (Northwest Outlet)			
	Pre-Development Peak Flow/Target (m^3/s)	Post-Development Uncontrolled Peak Flow (m^3/s)	Post Development Controlled Peak Flow (m^3/s)	Maximum Active Storage Volume Required (m^3)
4-hour Chicago				
2	0.82	7.36	0.77	13,439
5	1.37	11.82	1.26	18,003
10	1.78	14.46	1.66	20,964
25	2.33	17.60	2.20	24,633
50	2.76	20.19	2.64	27,528
100	3.22	22.57	3.08	30,396
12-hour SCS Type II				
2	1.61	9.28	1.40	19,105
5	2.50	14.00	2.31	25,347
10	3.15	16.81	2.97	29,706
25	3.97	20.27	3.83	34,968
50	4.62	23.01	4.51	39,092
100	5.28	25.82	5.20	43,268
24-hour SCS Type II				
2	2.03	10.85	1.77	21,738
5	3.05	16.64	2.81	28,661
10	3.79	19.89	3.58	33,447
25	4.69	23.90	4.53	39,245
50	5.40	27.17	5.29	43,804
100	6.13	30.43	5.68	48,799

For each modelled storm distribution and stormwater management facility, post-development peak flows are equal to or less than pre-development levels, satisfying the quantity control criteria established in Section 4.1. The stormwater management facilities, SWM-1, SWM-2, & SWM-3, have been preliminary designed as "wet ponds" to provide the required flood storage, erosion and quality control. Further details on the stormwater management facility designs are provided in the following sections.

4.5 Stormwater Quality & Erosion Control

To design the water quality and erosion control elements of the stormwater management facilities, the runoff from the 4-hour Chicago 25 mm design storm was modelled in VO and was compared with the water quality volume (i.e., permanent pool volume) and erosion control volume (i.e., extended detention volume) calculated using Table 3.2 of the Stormwater Management Planning and Design Manual (MECP, March 2003). A summary of the water quality and erosion control volumes are presented in **Table 9** with detailed calculations provided in **APPENDIX D**.

Table 9: Summary of Water Quality and Erosion Control Volume Requirements

Return Period (Years)	SWM-1 (Southeast Outlet)	SWM-2 (Southwest Outlet)	SWM-3 (Northwest Outlet)
Required Water Quality/Permanent Pool Volume (m^3)			
4-hour Chicago 25 mm Design Storm	4,670	4,126	10,922
MECP SWM Manual, Table 3.2	6,692	5,607	15,788
Required Erosion Control/Extended Detention Volume (m^3)			
4-hour Chicago 25 mm Design Storm	4,670	4,126	10,922
MECP SWM Manual, 40 m^3/ha	1,389	1,280	3,900

The required permanent pool volume for each stormwater management facility was governed by the volumes determined using Table 3.2 of the Stormwater Management Planning and Design Manual (MECP, March 2003). The required extended detention volume for each stormwater management facility was governed by the runoff generated by the 4-hour Chicago 25 mm design storm.

4.6 Stormwater Management Pond Provided Volumes

Preliminary designs and layouts of the proposed stormwater management ponds were completed based on the required active storage and water quality requirements presented in Sections 4.4 and 4.5. A summary of the stormwater management ponds' provided volumes is presented in **Table** 10 and are illustrated on Stormwater Management Facility **Figure 15, Figure 16, and Figure 17**.

Table 10: Summary of SWM Facility Provided Volumes

	SWM-1 (Southeast Outlet)	SWM-2 (Southwest Outlet)	SWM-3 (Northwest Outlet)
Active Storage Volume (m^3)			
Required	19,022	11,941	48,799
Provided	26,550	26,650	55,350
Water Quality/Permanent Pool (m^3)			
Required	6,692	5,607	15,788
Provided	13,450	11,775	27,600

The provided active storage and permanent pool volumes exceed the required volumes to meet the stormwater management criteria for the Subject Development. Extended detention volumes will be provided in future design stages based on proposed outlet structure designs and will be equal to, or greater than, the required volumes presented in Section 5.3.

4.7 Water Balance

The implementation of low impact developments (LIDs) across the Subject Development to promote the infiltration and site water balance has been considered as part of the overall development. Preliminary background information and geotechnical investigations identified the Subject Lands' native soils to be classified part of Hydrologic Soil Group B which is favourable to support the use of infiltration techniques. Further investigation and measuring of the hydraulic conductivity of the native soils will be completed during future design stages to support the design of LIDs.

Lot level water quality and onsite detention/retention controls are preferred stormwater management practices as recommended within the Township of Centre Wellington's Development Manual (June 2024).

Some examples of these methods include infiltration galleries, bioretention, bioswales, enhanced swales, and rain gardens where opportunities to implement these practices will be investigated throughout each development block.

The need to complete feature-based water balances will also be investigated during future design stages for the wetlands and woodlots near each of the Subject Lands' outlets with input from hydrogeological and ecological investigations.

5.0 Conclusions & Recommendations

Fergus Oaks (Subject Lands/Subject Development) is approximately 190 ha and currently consists of cultivated fields as well as associated farm complex buildings and multiple dispersed woodlands and wetlands. The Subject Lands include two (2) of the four (4) properties that make up the Expansion Lands where the other properties consist of the Keating and Brubacher properties.

The Subject Development is proposed to contain low and medium density residential developments, commercial developments, schools, a recreational facility and neighbourhood and town parks. While the development concept and engineering design for the Keating and Brubacher properties will be completed under separate covers, their future population has been estimated and considered in the external servicing considerations for the Subject Development and overall Expansion Lands.

Based on the details contained in this report, the following conclusions were summarized for the Subject Development and the Expansion Lands:

<u>Water Servicing</u>

- The Fergus-Elora water supply system has a firm capacity of 167.3 L/s and reserve capacity of 22.9 L/s as outlined in DLW's Memo (November 2024). Based on a Wellfield Capacity Assessment and testing at three (3) proposed well locations identified, the addition of production wells at these locations could increase the capacity of the water supply system and service the Expansion Lands.

- The average day demand for the Subject Development was estimated to be approximately 31.0 L/s where the total for the Expansion Lands was estimated to be 42.5 L/s.

- Expansion of the Fergus-Elora watermain network is required to service the Expansion Lands along Beatty Line North, Highway 6, and Sideroad 15 which would also provide future development opportunities in Fergus.

- The Area 7 production well and a water reservoir is proposed to be located north of the SWM-2 Block within the Subject Development.

- The external watermain expansion will facilitate multiple connections to the Expansion Lands facilitating looped watermain networks throughout the Subject Development, Keating, and Brubacher properties.

- There is a feasible solution to provide water supply and servicing to the Expansion Lands.

Sanitary Servicing

- The existing Fergus Wastewater Treatment Plant has a rated capacity of 8,000 m^3/day and uncommitted reserve capacity of 1,649 m^3/day as outlined in DLW's Memo (November 2024).

- The average wet weather flow for the Subject Development was estimated to be approximately 50.9 L/s (4,398 m^3/day) where the total for the Expansion Lands was estimated to be 74.3 L/s (6,420 m^3/day). Based on DLW's Memo (November 2024) the existing Fergus WWTP can be expanded on its current site and can accommodate the additional wastewater generated within the Expansion Lands.

- Within the Subject Development, a pumping station and forcemain in the northern portion of the property is proposed to avoid having excessively deep sanitary sewers both internally and externally. The forcemain will discharge into a maintenance hole near the centre of the Subject Development where it will be conveyed via gravity to the external sanitary connection at Sideroad 15.

- Three (3) external sanitary servicing strategies were investigated to convey the wastewater generated within the Expansion Lands to the Fergus Wastewater Treatment Plant.

    - The Option 1 sanitary servicing strategy takes advantage an approximately 3,100 m stretch of existing sanitary trunk sewer to convey the wastewater flow where it is estimated approximately 2,000 m of its length would be required to be upsized. The remaining 1,100 m was estimated to be operating under capacity where this option would improve the utilization of these existing sanitary sewers.

    - The Option 2 sanitary servicing strategy would result in minimal disturbance to existing residential communities during construction as the majority of the proposed sanitary sewer would be installed along a relatively rural portion of Beatty Line North south of Millage Lane. This option would require upgrades to the existing Union Street Pumping Station.

    - The Option 3 sanitary servicing strategy is proposed as a combination of Options 1 and Option 2. This option would take advantage of the relatively rural portion of Beatty Line North south of Millage Lane for the installation of the proposed sanitary trunk sewer and is estimated to increase the utilization of the existing sanitary sewer beneath St. Andrew Street West. This strategy also avoids having to upgrade the sanitary sewer pumping station as required in the Option 2 servicing strategy while also requiring only a small length of active sanitary sewer upsizing between St. Andrew Street West and the WWTP.

- The proposed sanitary trunk sewer Options 2 and 3 provide future opportunities for existing and proposed developments to be serviced for the benefit of the Township.

- The ultimate external servicing strategy will be confirmed at a future design stage based on consultation with the Township and further investigation into the existing capacity of existing infrastructure and construction considerations.

- The external servicing strategy will facilitate sanitary servicing connections for the Subject Development, Keating, and Brubacher properties along Beatty Line North and Sideroad 15. Additionally, the existing sanitary sewer stub on Elliot Avenue provides the Brubacher property with another potential sanitary servicing connection.

- There is a feasible solution to provide sanitary servicing to the Expansion Lands.

Storm Servicing and Stormwater Management

- In pre-development conditions there are three (3) existing stormwater outlets for the Subject Lands including the southeast towards the existing PSW at the Beatty Line North and Sideroad 15 intersection, southwest towards Sideroad 15 and the abandoned rail corridor, and northwest towards Irvine Creek.

- The proposed roadways will be constructed into a fully urbanized system complete with a curb and gutter storm sewer collection strategy. The proposed grading and storm servicing conveys stormwater in post-development conditions to three (3) proposed stormwater management facilities located adjacent to the existing outlets of the Subject Lands.

- The Stormwater Management Facilities are proposed to be "wet ponds" and will provide the necessary stormwater management controls for the Subject Development including water quantity, quality, and erosion control.

- The native soils within the Subject Lands are conducive to the implementation of Low Impact Development infrastructure to promote infiltration and achieve site water balance.

- Feature-based water balances will be investigated in future design stages associated with the PSWs and woodlots near the existing outlets of the Subject Lands.

- There is a feasible solution to provide Storm Servicing and Stormwater Management for the Subject Development.

Based on the above conclusions, we support the Official Plan Amendment Application to include the Expansion Lands within the settlement area boundary of Fergus. From the perspective of functional servicing and preliminary stormwater management, the servicing of the Expansion Lands is feasible.

Respectfully submitted,

C.F. CROZIER & ASSOCIATES INC.





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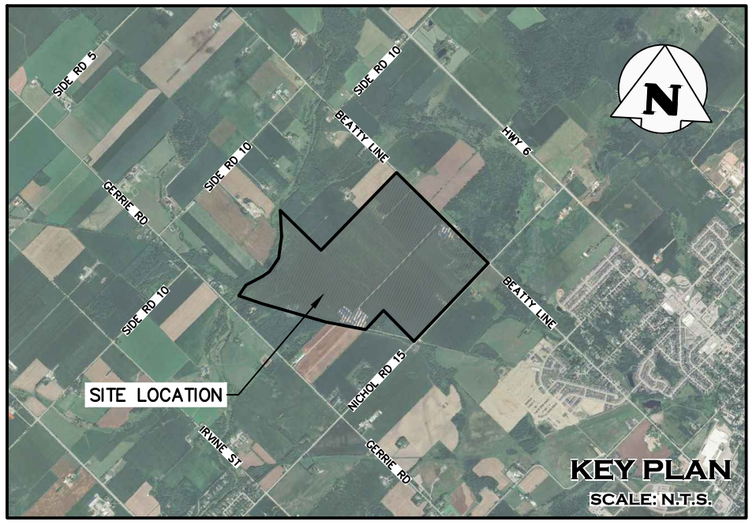
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FIGURES

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FERGUS OAKS RESIDENTIAL

6704 AND 6684-6688 BEATTY LINE NORTH
AND 7692 SIDEROAD 15
TOWN OF CENTRE WELLINGTON
WELLINGTON COUNTY



MUNICIPALITY

TOWN OF CENTRE WELLINGTON
1 MACDONALD SQUARE
ELORA, ON, N0B 1S0

COUNTY

WELLINGTON COUNTY
74 WOOLWICH ST.
GUELPH, ON, N1H 3T9

CIVIL

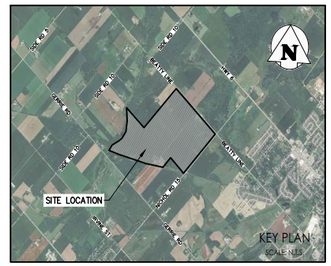
C.F. CROZIER & ASSOCIATES INC.
2800 HIGH POINT DRIVE,
SUITE 100
MILTON, ON, L9T 6P4

SUBMISSION HISTORY		
SUB. NUMBER	DESCRIPTION	DATE
0	ISSUED FOR OPA APPLICATION	JAN.31, 2025

PROJECT No.: 1000-6897

1ST SUBMISSION FILE: ISSUE FOR OPA APPLICATION

CROZIER CONSULTING ENGINEERS
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LIST OF FIGURES	
SHEET NUMBER	SHEET TITLE
--	COVER SHEET
IDX	FIGURE INDEX
1	EXPANSION LANDS LOCATION
2	INTERNAL WATER SERVICING
3	EXTERNAL WATER SERVICING
4	INTERNAL SANITARY SERVICING
5	EXTERNAL SANITARY SEWER ANALYSIS (OPTION 1)
6	EXTERNAL SANITARY SEWER ANALYSIS PROFILE (OPTION 1)
7	EXTERNAL SANITARY SEWER ANALYSIS (OPTION 2)
8	EXTERNAL SANITARY SEWER ANALYSIS PROFILE (OPTION 2)
9	EXTERNAL SANITARY SEWER ANALYSIS (OPTION 3)
10	EXTERNAL SANITARY SEWER ANALYSIS PROFILE (OPTION 3)
11	PRE-DEVELOPMENT DRAINAGE
12	INTERNAL STORM SERVICING
13	PRELIMINARY SITE GRADING
14	POST-DEVELOPMENT DRAINAGE
15	STORMWATER MANAGEMENT FACILITY (SWM-1)
16	STORMWATER MANAGEMENT FACILITY (SWM-2)
17	STORMWATER MANAGEMENT FACILITY (SWM-3)

Stamp

FOR REVIEW

Stamp

Project

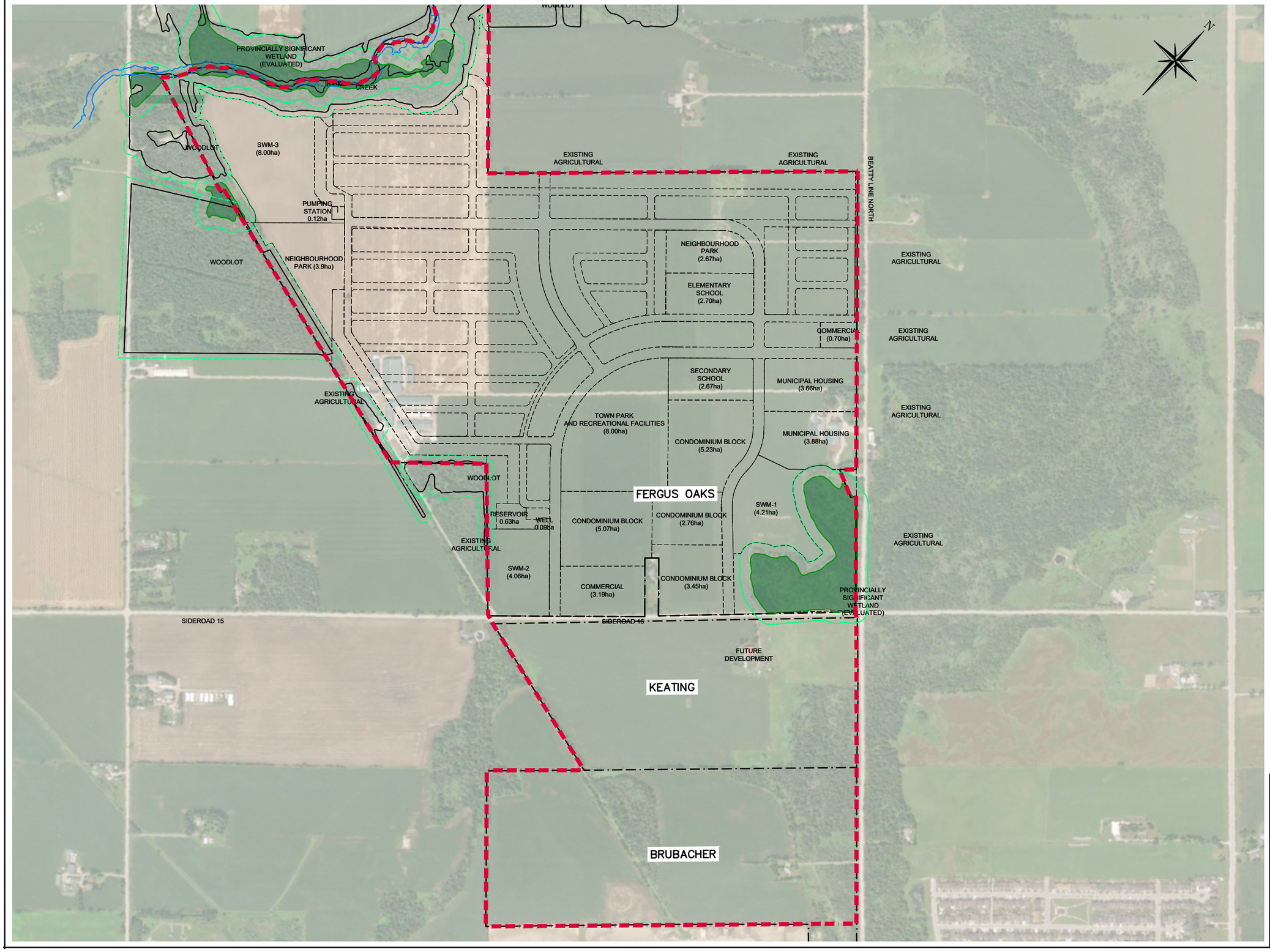
FERGUS OAKS RESIDENTIAL

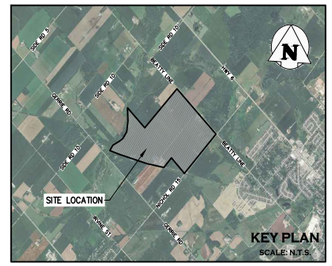
Drawing

FIGURE INDEX

CROZIER CONSULTING ENGINEERS

Drawn	Design	Project No.	
D.G./A.M.	H.L./J.K.F.		1000-6897
Check	Check	Scale	Figure
B.H./N.C.O.	M.B.		IDX





LEGEND

- PROPERTY LINE
- PARCEL LINE
- EXISTING WATERCOURSE
- WOODLOT SETBACK
- 30m WETLAND SETBACK
- PROVINCIALLY SIGNIFICANT WETLAND
- EXPANSION LANDS

100 0m 100 200 300 400

Project: FERGUS OAKS RESIDENTIAL

Drawing: EXPANSION LANDS LOCATION

CROZIER CONSULTING ENGINEERS

Drawn	Design	Project No.	
D.G./A.M.	H.L./J.K.F.	1000-6897	
Check	Check	Scale	Figure
B.H./N.C.O.	M.B.	AS SHOWN	1

IRVINE CREEK

WOODLOT

SWM-3
(8.00ha)

PUMPING STATION
0.12ha

EXISTING AGRICULTURAL

EXISTING AGRICULTURAL

420.00

422.00

424

426.00

BEATTY LINE NORTH

300mm PVC WM TYP.

EXTENSION INTO LOCAL ROADS

300mm PVC WM TYP.

WOODLOT

NEIGHBOURHOOD PARK (3.9ha)

NEIGHBOURHOOD PARK (2.67ha)

428.00

ELEMENTARY SCHOOL (2.70ha)

426.00

300mm PVC WM TYP.

300mm PVC WM TYP.

COMMERCIAL (0.70ha)

EXISTING AGRICULTURAL

EXISTING AGRICULTURAL

424

SECONDARY SCHOOL (2.67ha)

MUNICIPAL HOUSING (3.66ha)

EXISTING AGRICULTURAL

426.00

426.00

TOWN PARK AND RECREATIONAL FACILITIES (8.00ha)

300mm PVC WM TYP.

CONDOMINIUM BLOCK (5.23ha)

MUNICIPAL HOUSING (3.88ha)

300mm PVC WM TYP.

428.00

426.00

424

WOODLOT

300mm PVC WM TYP.

SWM-1
(4.21ha)

424

422.00

RESERVOIR
0.63ha

WELL
0.09ha

426.00

CONDOMINIUM BLOCK (5.07ha)

CONDOMINIUM BLOCK (2.76ha)

EXISTING AGRICULTURAL

422.00

424

SWM-2
(4.06ha)

COMMERCIAL (3.19ha)

CONDOMINIUM BLOCK (3.45ha)

PROVINCIALLY SIGNIFICANT WETLAND (EVALUATED)

300mm PVC WM TYP.

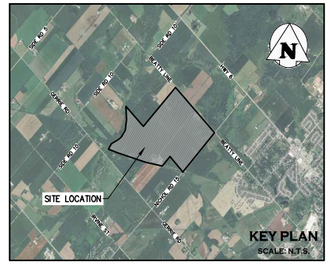
422.00

EROAD 15

SIDEROAD 15

EXPANSION LANDS
POSSIBLE WATERMAIN CONNECTION

N



LEGEND

- PROPERTY LINE
- EXISTING CONTOUR (2.0m)
- EXISTING WATERCOURSE
- PROPOSED INTERNAL WATERMAIN
- PROPOSED EXTERNAL WATERMAIN
- WOODLOT SETBACK
- 30m WETLAND SETBACK
- PROVINCIALLY SIGNIFICANT WETLAND

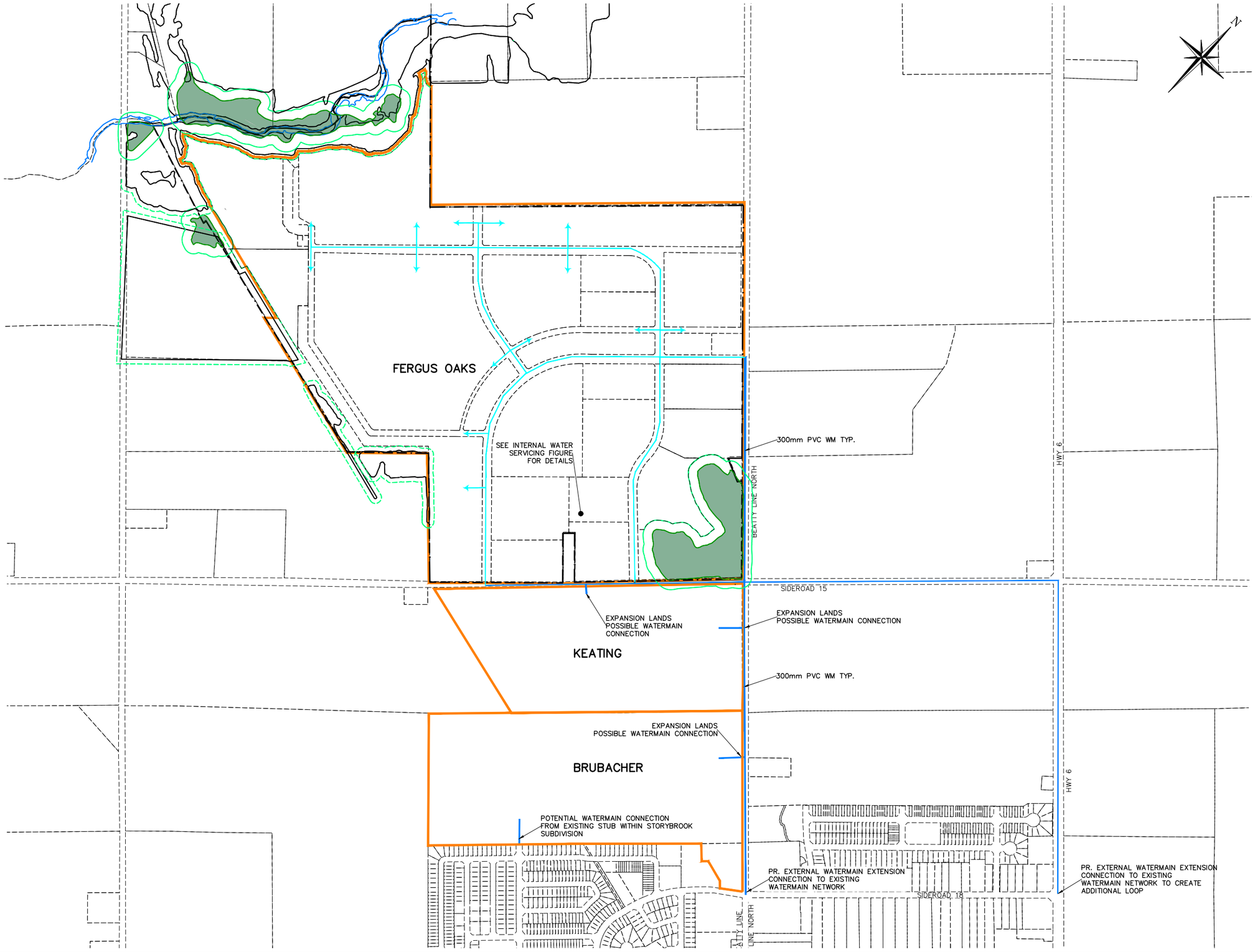
100 0m 100 200

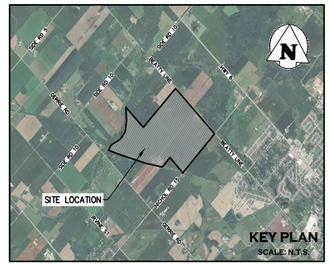
Project: FERGUS OAKS RESIDENTIAL

Drawing: INTERNAL WATER SERVICING

CROZIER CONSULTING ENGINEERS

Drawn: D.G./A.M.	Design: H.L./J.K.F.	Project No.: 1000-6897	
Check: B.H./N.C.O.	Check: M.B.	Scale: AS SHOWN	Figure: 2





LEGEND

- PROPERTY LINE
- PARCEL LINE
- WOODLOT SETBACK
- 30m WETLAND SETBACK
- SANITARY DRAINAGE AREA (EXPANSION LANDS)
- PROPOSED INTERNAL WATERMAIN
- PROPOSED EXTERNAL WATERMAIN

200 0m 200 400
SCALE 1:6000

Project
FERGUS OAKS RESIDENTIAL

Drawing
EXTERNAL WATER SERVICING

CROZIER CONSULTING ENGINEERS

Drawn D.G./A.M.	Design H.L./J.K.F.	Project No.	1000-6897
Check B.H./N.C.O.	Check M.B.	Scale AS SHOWN	Figure 3

IRVINE CREEK

WOODLOT

SWM-3 (8.00ha)

PUMPING STATION 0.12ha

SPS T/G 422.39 NE INV 419.29

MH57A T/G 422.51 SE INV 419.51 SW INV 419.41

MH1A T/G 422.60 NE INV 419.51 NW INV 419.61

WOODLOT

NEIGHBOURHOOD PARK (3.9ha)

EXISTING AGRICULTURAL

EXISTING AGRICULTURAL

EXISTING AGRICULTURAL

EXISTING AGRICULTURAL

EXISTING AGRICULTURAL

EXISTING AGRICULTURAL

EXISTING AGRICULTURAL

BEATTY LINE NORTH

420.00

422.00

424

426.00

428.00

MH13A T/G 425.96 SE INV 422.92

MH9A T/G 428.72 SW INV 424.87

MH5A T/G 426.45 SE INV 422.32 NE INV 422.31 NW INV 422.50 SW INV 422.28

MH10A T/G 428.58 SE INV 424.29

NEIGHBOURHOOD PARK (2.67ha)

ELEMENTARY SCHOOL (2.70ha)

COMMERCIAL (0.70ha)

MH19A T/G 428.75 SW INV 424.60

MH20A T/G 427.76 SE INV 422.74 NE INV 422.81 NW INV 422.77 SW INV 424.25

MH24A T/G 428.84 N INV 424.54 S INV 424.57 W INV 424.60

MH25A T/G 428.36 N INV 425.07

MH56A T/G 429.97 NE INV 425.53 SW INV 423.56

SECONDARY SCHOOL (2.67ha)

MH32A T/G 427.55 SE INV 422.04 NW INV 422.09

MUNICIPAL HOUSING (3.66ha)

MUNICIPAL HOUSING (3.88ha)

TOWN PARK AND RECREATIONAL FACILITIES (8.00ha)

MH26A T/G 427.50 SE INV 422.81

MH27A T/G 426.82 NW INV 423.31 SE INV 423.28

CONDOMINIUM BLOCK (5.23ha)

MH36A T/G 425.99 NW INV 420.41 SE INV 420.36

SWM-1 (4.21ha)

RESERVOIR 0.63ha

WELL 0.09ha

CONDOMINIUM BLOCK (5.07ha)

CONDOMINIUM BLOCK (2.76ha)

CONDOMINIUM BLOCK (3.45ha)

COMMERCIAL (3.19ha)

SWM-2 (4.06ha)

MH31A T/G 422.17 NW INV 421.06 NE INV 421.00

PROVINCIALLY SIGNIFICANT WETLAND (EVALUATED)

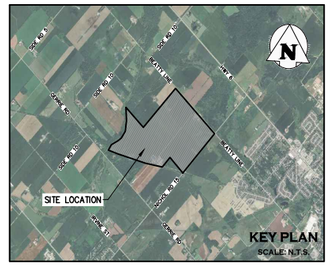
SAN @ 0.5% TYP.

SIDEROAD 15

EROAD 15

MH39A T/G 427.20 NW INV 418.60 SW INV 418.58 NE INV 418.55

PROPOSED EXTERNAL SANITARY SEWERTO CONNECT TO EXISTING SEWER AT SIDEROAD 18.



LEGEND

- PROPERTY LINE
- EXISTING CONTOUR (2.0m)
- EXISTING WATERCOURSE
- EXTERNAL SANITARY SEWER
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER FORCEMAIN
- WOODLOT SETBACK
- 30m WETLAND SETBACK
- PROVINCIALLY SIGNIFICANT WETLAND

100 0m 100 200

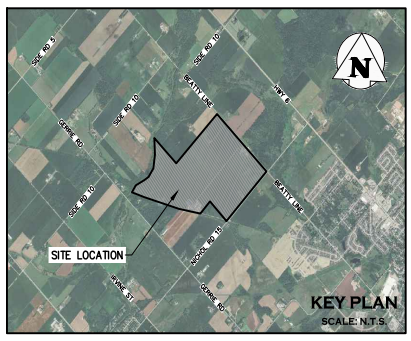
Project: FERGUS OAKS RESIDENTIAL

Drawing: INTERNAL SANITARY SERVICING

CROZIER CONSULTING ENGINEERS

Drawn: D.G./A.M.	Design: H.L./J.K.F.	Project No.	1000-6897
Check: B.H./N.C.O.	Check: M.B.	Scale: AS SHOWN	Figure: 4

OPTION 1				
From MH ID	To MH ID	Length (m)	Existing Dia. (mm)	Pr. Dia. (mm)
00404	00473	410.8	250	450
00473	00477	375.5	300	450
00477	00481	215.5	375	450
00481	00408	569.6	450	-
00408	00538	343.8	600	-
00538	00597	236.9	600	-
00597	00605	22.1	450	525
00605	00620	74.7	450	-
00620	00694	217.0	450	525
00694	00718	99.1	450	525
00718	00737	56.9	450	525
00737	00743	69.4	525	-
00743	00728	104.7	600	-
00728	00731	10.5	525	600
00731	00773	134.0	750	-
00773	WWTP	182.0	1050	-



LEGEND

- SANITARY DRAINAGE AREA (EXPANSION LANDS)
- EXISTING SANITARY SEWER TO REMAIN
- EXISTING SANITARY SEWER TO BE UPSIZED
- PROPOSED SANITARY SEWER FOR EXPANSION LANDS
- MH00404 — EXISTING SANITARY MAINTENANCE HOLE AND ID
- MH300A — PROPOSED SANITARY MAINTENANCE HOLE AND ID
- EXISTING SANITARY AREA
- ID / A / POP — DRAINAGE I.D.; AREA (ha) | POPULATION (PERSONS)

NOTE:

- SANITARY SEWER INFORMATION FOR ILLUSTRATIVE PURPOSES ONLY.
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- PIPE SLOPES AND LENGTHS ARE ESTIMATED FROM FERGUS' GIS MAPPING (DECEMBER 2023) ARE NOT BASED ON AS–RECORDED DRAWINGS.
- SANITARY CATCHMENT POPULATIONS ARE ESTIMATES, SEE FUNCTIONAL SERVICING AND PRELIMINARY STORMWATER MANAGEMENT REPORT (CROZIER, 2024).
- DESIGN FLOWS ARE CALCULATED BASED ON TOWNSHIP OF CENTRE WELLINGTON'S DEVELOPMENT MANUAL (JUNE 2024) AND TOWNSHIP OF CENTRE WELLINGTON DEVELOPMENT CHARGES BACKGROUND STUDY (WATSON & ASSOCIATES, APRIL 16, 2021).
- SITE AREAS OF 190.4 HA, 35.6 HA, AND 43.5 HA ARE USED FOR FERGUS OAKS, KEATING, AND BRUBACHER LAND SANITARY FLOW DESIGN CALCULATIONS.

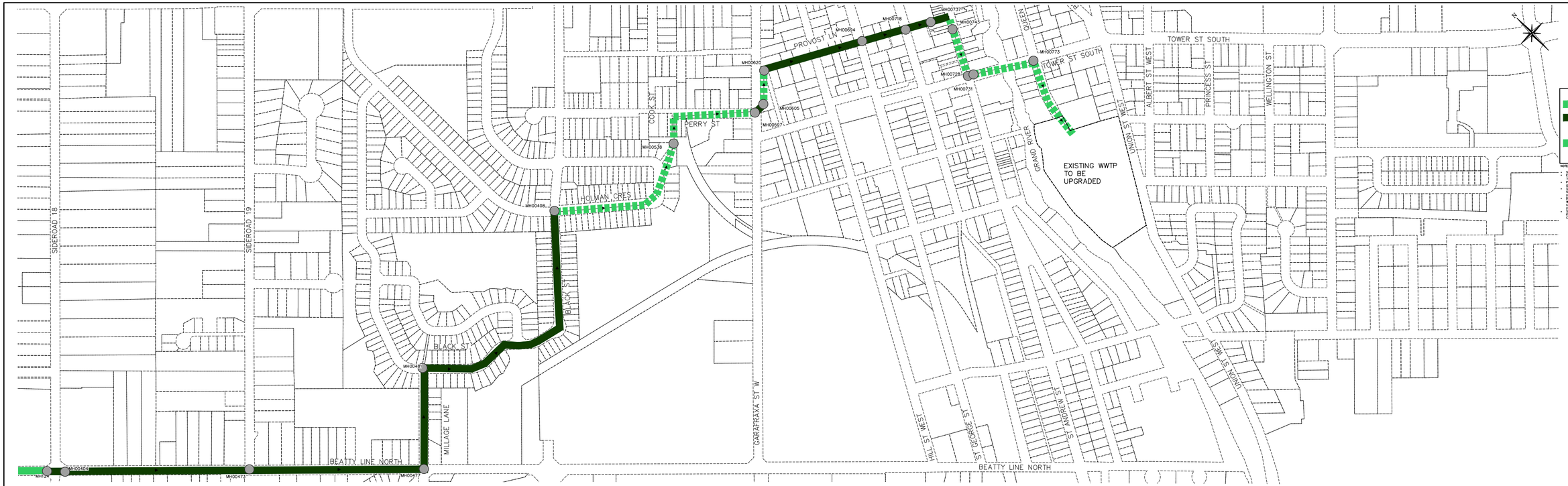
FERGUS OAKS — SEE INTERNAL SANITARY SERVICING FIGURE FOR DETAILS
FO: 118.9 | 8,368
FERGUS OAKS PROPOSED SANITARY CONNECTION
KEATING
K: 35.6 | 1,282
EXPANSION LANDS POSSIBLE SANITARY CONNECTION
B: 43.5 | 1,566
BRUBACHER
EXPANSION LANDS POSSIBLE SANITARY CONNECTION
PROPOSED EXTERNAL SANITARY EXTENSION CONNECTION TO EXISTING SANITARY NETWORK
POTENTIAL SANITARY CONNECTION FROM EXISTING STUB WITHIN STORYBROOK SUBDIVISION
A1: 47.27 | 1,418 — STORYBROOK SUBDIVISION
A2: 41.52 | 1,222
A3: 19.17 | 575
A4: 83.78 | 2,513
A5: 4.67 | 140
A6: 4.04 | 121
A7: 6.67 | 200
A8: 10.81 | 324
A9: 17.27 | 518
A10: 43.35 | 1,301
A11: 3.49 | 100
A12: 7.55 | 227
A13: 3.69 | 106
A14: 65.39 | 1,927
MH100A, MH 101A, MH124, MH00404, MH00473, MH00477, MH00481, MH00408, MH00538, MH00597, MH00605, MH00620, MH00694, MH00718, MH00737, MH00731, MH007MH00743, MH00773
EXISTING WWTP TO BE UPGRADED
BEATTY LINE NORTH, HWY 6, SIDEROAD 15, SIDEROAD 19, SIDEROAD 18, COLLIE CT, MILLAGE LANE, BLACK ST, COLBORNE ST, GARAFRAXA ST W, GARAFRAXA ST EAST, FORFAR ST EAST, COOK ST, PERRY ST, HILL ST EAST, ST GEORGE ST EAST, ST PATRICK ST EAST, ST ANDREW ST EAST, HILL ST WEST, ST GEORGE ST, ST ANDREW ST, FREDERICK CAMPBELL ST, GORDON ST, STRATHALLAN ST, DUNFRIES ST, QUEEN ST WEST, UNION ST WEST, ALBERT ST WEST, PRINCESS ST, WELLINGTON ST, TOWER ST WEST, TOWER ST SOUTH, BRIDGE ST, WELLINGTON ROAD 18, GRAND RIVER
150 0m 150 300 450 600

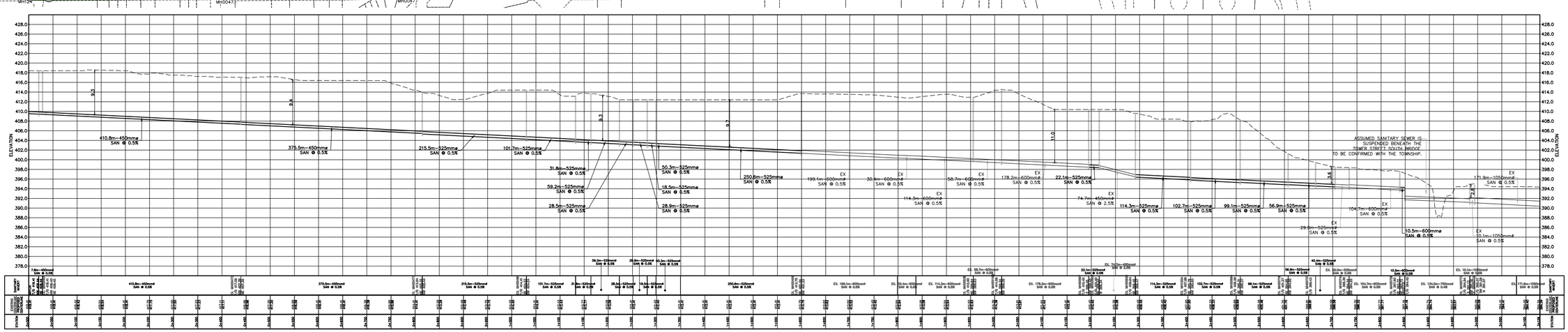
Project: FERGUS OAKS RESIDENTIAL

Drawing: EXTERNAL SANITARY SEWER ANALYSIS (OPTION 1)

CROZIER CONSULTING ENGINEERS
2800 High Point Drive
Suite 100
Milton, ON L9T 6P4
905-875-0026 T
905-875-4915 F
www.cfcrozier.ca

Drawn	Design	Project No.	
D.G./A.M.	H.L./J.K.F.		1000–6897
Check	Check	Scale	Figure
B.H./N.C.O.	M.B.	AS SHOWN	5





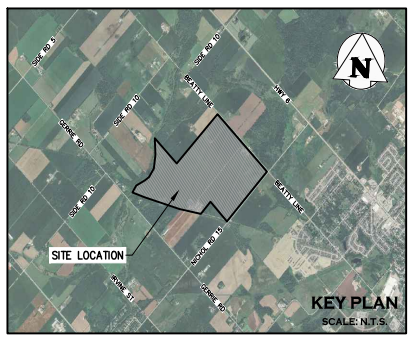
FERGUS OAKS RESIDENTIAL

EXTERNAL SANITARY SEWER ANALYSIS PROFILE (OPTION 1)

CROZIER CONSULTING ENGINEERS
29001 Airpark Road, Unit 1
Moose TOKY
Ms1 1Y4, ON L3T 6P4
905-975-0026 T
905-975-0029 F
www.crozier.ca

Drawn	Design	Project No.
BS/AM	KL/JKF	1000-6897
Check	Date	Scale	Sheet
B.H./K.C.S.	M.B.	AS SHOWN	6

OPTION 2				
From MH ID	To MH ID	Length (m)	Ex. Dia. (mm)	Pr. Dia. (mm)
200A	201A	377.3	-	450
201A	202A	407.0	-	450
202A	203A	221.7	-	450
203A	204A	438.5	-	525
204A	205A	363.6	-	525
205A	206A	718.1	-	525
206A	207A	483.8	-	525
207A	208A	364.0	-	600
208A	209A	283.4	-	600
209A	Union Street Pumping Station	136.0	-	600

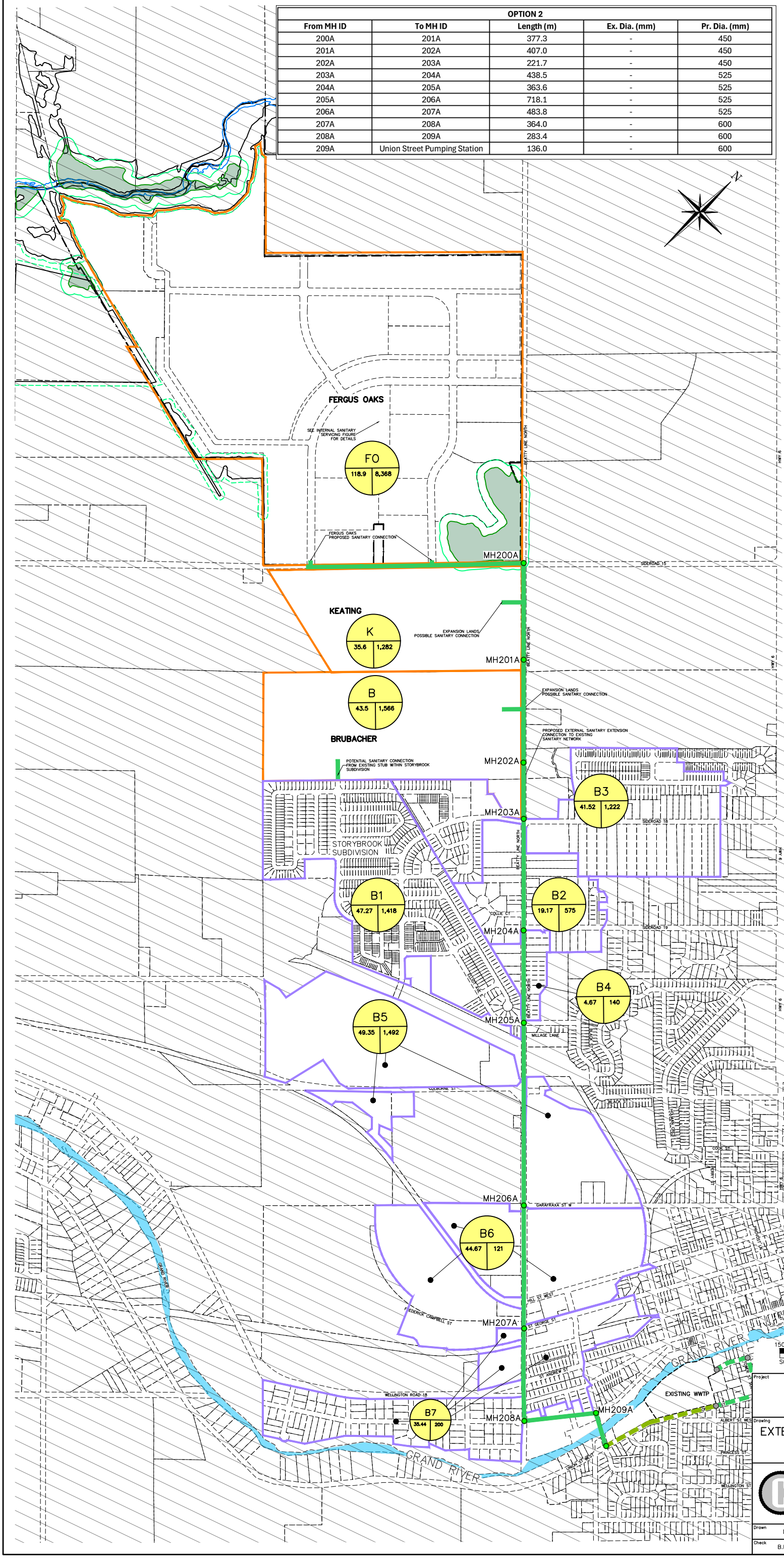


LEGEND

- SANITARY DRAINAGE AREA (EXPANSION LANDS)
- EXISTING SANITARY SEWER TO REMAIN
- EXISTING FORCEMAIN TO REMAIN
- MH00797 — EXISTING SANITARY MAINTENANCE HOLE AND ID
- PROPOSED SANITARY SEWER FOR EXPANSION LANDS
- MH200A — PROPOSED SANITARY MAINTENANCE HOLE AND ID
- EXISTING SANITARY AREA
- ID / A / POP — DRAINAGE I.D.; AREA (ha) | POPULATION (PERSONS)

NOTE:

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- SITE AREAS OF 190.4 HA, 35.6 HA, AND 43.5 HA ARE USED FOR FERGUS OAKS, KEATING, AND BRUBACHER LAND SANITARY FLOW DESIGN CALCULATIONS.



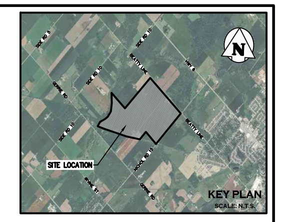
Project: FERGUS OAKS RESIDENTIAL

Drawing: EXTERNAL SANITARY SEWER ANALYSIS (OPTION 2)

CROZIER CONSULTING ENGINEERS
2800 High Point Drive
Suite 100
Milton, ON L9T 6P4
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905-875-4915 F
www.cfcrozier.ca

Drawn	Design	Project No.	
D.G./A.M.	H.L./J.K.F.	1000-6897	
Check	Check	Scale	Figure
B.H./N.C.O.	M.B.	AS SHOWN	7





LEGEND

- PROPOSED SANITARY SEWER
- EX. FORCEMAIN
- MH208A — PROPOSED SANITARY MAINTENANCE HOLE AND ID

NOTE:

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50 0m 50 100

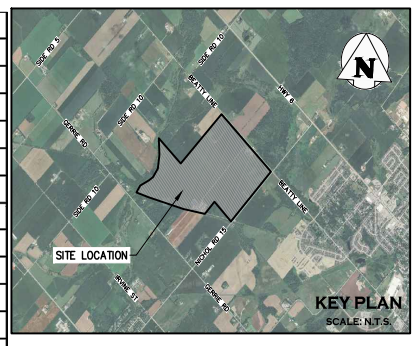
Project: FERGUS OAKS RESIDENTIAL

Drawing: EXTERNAL SANITARY SEWER ANALYSIS PROFILE (OPTION 2)

CROZIER CONSULTING ENGINEERS
2800 High Point Drive
Suite 100
Milton, ON L9T 6P4
905-875-0026 T
905-875-4915 F
WWW.CFCROZIER.CA

Drawn	Design	Project No.	
D.G./A.M.	H.L./J.K.F.	1000–6897	
Check B.H./N.C.O.	Check M.B.	Scale AS SHOWN	Figure 8

OPTION 3				
From MH ID	To MH ID	Length (m)	Ex. Dia (mm)	Pr. Dia. (mm)
300A	301A	377.3	-	450
301A	302A	407.0	-	450
302A	303A	221.7	-	450
303A	304A	438.5	-	525
304A	305A	363.6	-	525
305A	306A	718.1	-	525
306A	307A	483.8	-	525
307A	308A	364.0	-	600
308A	00728	104.7	-	600
00728	00731	10.5	525	600
00731	00773	134.0	750	-
00773	WWTP	182.0	1050	-



LEGEND

- SANITARY DRAINAGE AREA (EXPANSION LANDS)
- EXISTING SANITARY SEWER TO REMAIN
- MH00728 — EXISTING SANITARY MAINTENANCE HOLE
- PROPOSED SANITARY SEWER FOR EXPANSION LANDS
- MH300A — PROPOSED SANITARY MAINTENANCE HOLE AND ID
- EXISTING SANITARY AREA
- DRAINAGE I.D. (ID; AREA (ha) | POPULATION (PERSONS))

NOTE:

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- SITE AREAS OF 190.4 HA, 35.6 HA, AND 43.5 HA ARE USED FOR FERGUS OAKS, KEATING, AND BRUBACHER LAND SANITARY FLOW DESIGN CALCULATIONS.

FERGUS OAKS — SEE INTERNAL SANITARY SERVICING FIGURE FOR DETAILS — FO (118.9 | 8,368)

FERGUS OAKS PROPOSED SANITARY CONNECTION

KEATING — K (35.6 | 1,282) — EXPANSION LANDS POSSIBLE SANITARY CONNECTION

BRUBACHER — B (43.5 | 1,566) — EXPANSION LANDS POSSIBLE SANITARY CONNECTION

POTENTIAL SANITARY CONNECTION FROM EXISTING STUB WITHIN STORYBROOK SUBDIVISION

PROPOSED EXTERNAL SANITARY EXTENSION CONNECTION TO EXISTING SANITARY NETWORK

STORYBROOK SUBDIVISION — C1 (47.27 | 1,418)

C2 (19.17 | 575) — C3 (41.52 | 1,222) — C4 (4.67 | 140) — C0 (196.86 | 5,906) — C5 (49.35 | 1,492) — C6 (44.67 | 121) — C7 (35.44 | 200)

MH300A — MH301A — MH302A — MH303A — MH304A — MH305A — MH306A — MH307A — MH308A — MH00728 — MH00731 — MH00773

EXISTING SEWER SIZE TO BE MAINTAINED

EXISTING WWTP

SIDEROAD 15 — SIDEROAD 18 — SIDEROAD 19 — MILLAGE LANE — COLBORNE ST — GARAFRAXA ST W — GARAFRAXA ST EAST — FORFAR ST EAST — COOK ST — HILL ST EAST — ST GEORGE ST EAST — ST PATRICK ST EAST — ST ANDREW ST EAST — HILL ST WEST — ST GEORGE ST — ST ANDREW ST WEST — QUEEN ST WEST — UNION ST WEST — ALBERT ST WEST — PRINCESS ST — WELLINGTON ST — GORDON ST — SIR ALLAN ST — CAMPSTORE ST — FREDERICK CAMPBELL ST — WELLINGTON ROAD 18 — COLLIE CT — BLAIR ST — BEATTY LINE NORTH — HWY 6 — GRAND RIVER

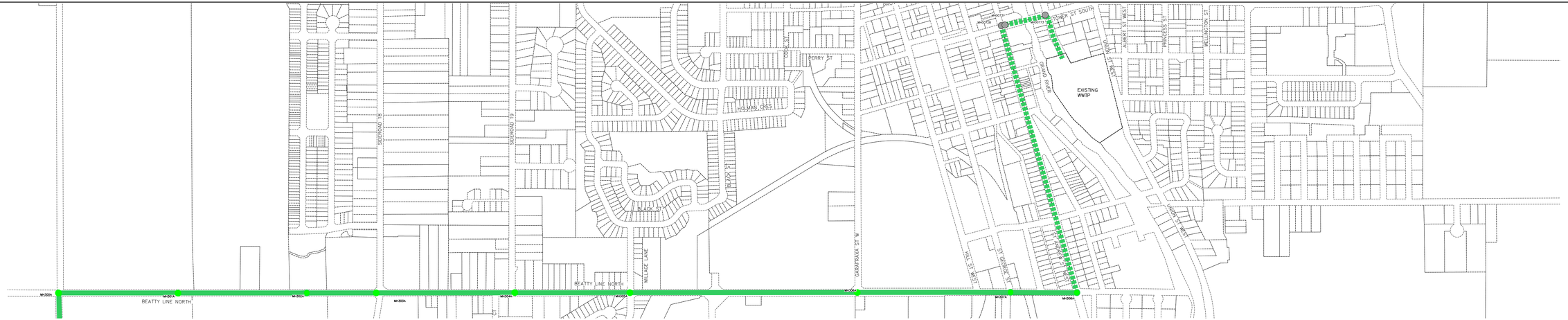
SCALE: 1:15000 (150 0m 150 300 450 600)

Project: FERGUS OAKS RESIDENTIAL

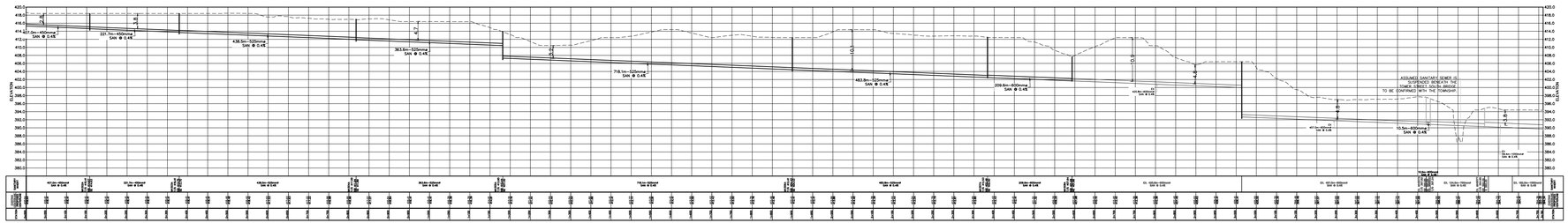
Drawing: EXTERNAL SANITARY SEWER ANALYSIS (OPTION 3)

CROZIER CONSULTING ENGINEERS
2800 High Point Drive
Suite 100
Milton, ON L9T 6P4
905-875-0026 T
905-875-4915 F
www.cfcrozier.ca

Drawn	Design	Project No.	
D.G./A.M.	H.L./J.K.F.	1000-6897	
Check	Check	Scale	Figure
B.H./N.C.O.	M.B.	AS SHOWN	9



Option 3





LEGEND

- EXISTING SANITARY SEWER TO REMAIN
- PROPOSED SANITARY SEWER
- MH300A — PROPOSED SANITARY MAINTENANCE HOLE (MH)
- MH0072B — EXISTING SANITARY MAINTENANCE HOLE (MH)

NOTE

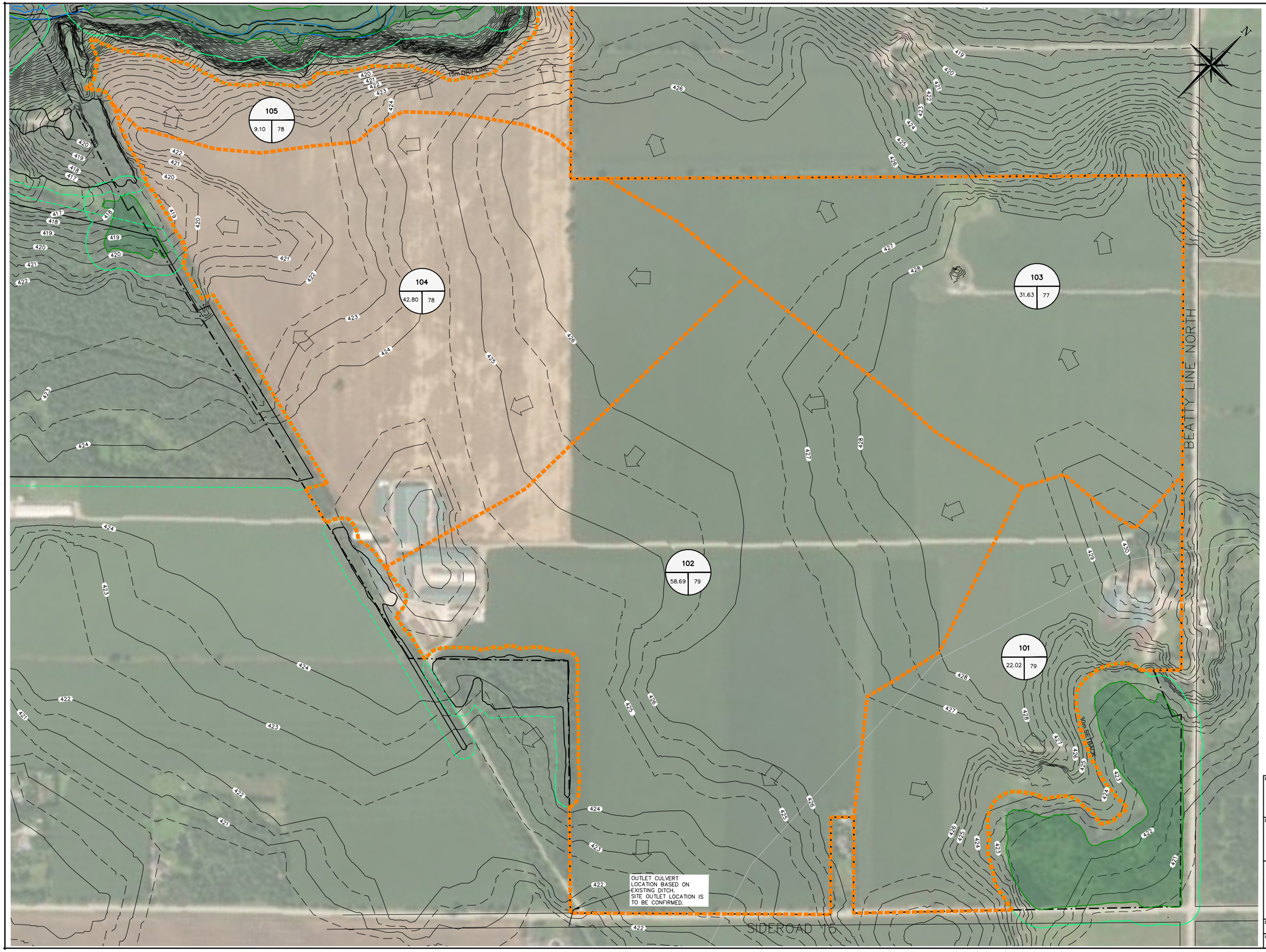
1. SANITARY SEWER INFORMATION FOR ILLUSTRATIVE PURPOSES ONLY. REFER TO SANITARY SEWER AREA PLAN AND SANITARY SEWER DESIGN SHEET FOR DETAILED SEWER DESIGN INFORMATION.
2. THE PROPOSED SANITARY SEWER ALIGNMENT SHOWN IS AS MAPPED ON GOOGLE EARTH AND ASSUMED TO BE WITHIN EXISTING ROAD ALLOWANCE. ALIGNMENT SUBJECT TO CHANGE BASED ON DETAILED SURVEYING AND PRELIMINARY GEOTECHNICAL INVESTIGATION REPORT.
3. SEWER FLOWS ARE ULTIMATE FLOWS AND INCLUDE ALLOWANCE FOR INFILTRATION AND EXCLUDE FLOWS FROM UPSTREAM OF MH300A AND MH0072B. DEVELOPMENT AREAS ARE BASED ON THE GUELPH WELLINGTON DEVELOPMENT ASSOCIATION STUDY. REFER TO SANITARY SEWER AREA PLAN.
4. PIPE SIZES, LENGTHS, AND SLOPES ARE PRELIMINARY AND SUBJECT TO CHANGE BASED ON DETAILED DESIGN. ALL PIPES ARE PRELIMINARY AND MAY CHANGE AS PER DETAILED DESIGN. PIPE SIZING WILL BE BASED ON PEAK FLOW CALCULATIONS.

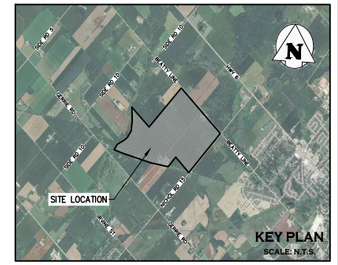
FERGUS OAKS RESIDENTIAL

EXTERNAL SANITARY SEWER ANALYSIS PROFILE (OPTION 3)

CROZIER
ENGINEERING CONSULTANTS
Suite 1101
65 Queen Street West
Toronto, Ontario M5H 2M5
Tel: 416-497-8600

DES.	CHK.	PROJECT	PROJECT No.
SJL/NJ/CJ			1000-6897
DWN.	CHK.	AS SHOWN	SHEET No.
AJ			10





LEGEND

- PROPERTY LINE
- EXISTING CONTOUR (0.5m)
- EXISTING CONTOUR (1.0m)
- EXISTING WATERCOURSE
- WOODLOT SETBACK
- 30m WETLAND SETBACK
- PROVINCIALLY SIGNIFICANT WETLAND
- CATCHMENT BOUNDARY
- ID — CATCHMENT I.D.
- A — DEVELOPABLE AREA (ha)
- CN — CURVE NUMBER
- EXISTING OVERLAND FLOW DIRECTION

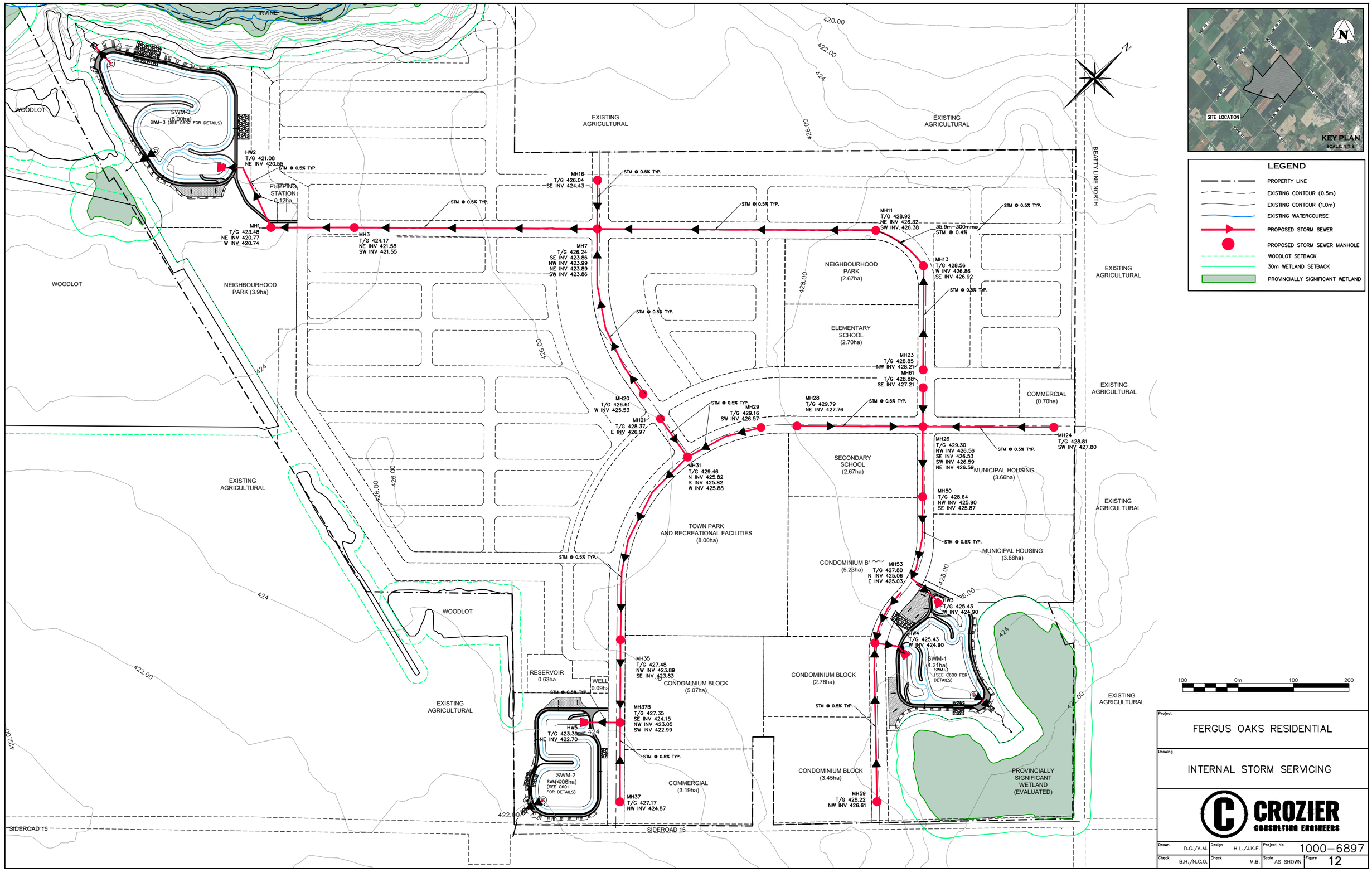
100 0m 100 200

Project: FERGUS OAKS RESIDENTIAL

Drawing: PRE-DEVELOPMENT DRAINAGE

CROZIER CONSULTING ENGINEERS

Drawn	D.G./A.M.	Design	H.L./J.K.F.	Project No.	1000-6897		
Check	B.H./N.C.O.	Check	M.B.	Scale	AS SHOWN	Figure	11



LEGEND

- PROPERTY LINE
- EXISTING CONTOUR (0.5m)
- EXISTING CONTOUR (1.0m)
- EXISTING WATERCOURSE
- PROPOSED STORM SEWER
- PROPOSED STORM SEWER MANHOLE
- WOODLOT SETBACK
- 30m WETLAND SETBACK
- PROVINCIALLY SIGNIFICANT WETLAND

100 0m 100 200

Project: FERGUS OAKS RESIDENTIAL

Drawing: INTERNAL STORM SERVICING

CROZIER CONSULTING ENGINEERS

Drawn	Design	Project No.	
D.G./A.M.	H.L./J.K.F.	1000-6897	
Check	Check	Scale	Figure
B.H./N.C.O.	M.B.	AS SHOWN	12

IRVINE CREEK

WOODLOT

SWM-3 (8.00ha)

PUMPING STATION 0.12ha

WOODLOT

NEIGHBOURHOOD PARK (3.9ha)

EXISTING AGRICULTURAL

EXISTING AGRICULTURAL

EXISTING AGRICULTURAL

BASELINE NORTH

NEIGHBOURHOOD PARK (2.67ha)

ELEMENTARY SCHOOL (2.70ha)

SECONDARY SCHOOL (2.67ha)

COMMERCIAL (0.70ha)

MUNICIPAL HOUSING (3.66ha)

MUNICIPAL HOUSING (3.88ha)

EXISTING AGRICULTURAL

EXISTING AGRICULTURAL

EXISTING AGRICULTURAL

TOWN PARK AND RECREATIONAL FACILITIES (8.00ha)

CONDOMINIUM BLOCK (5.23ha)

CONDOMINIUM BLOCK (2.76ha)

CONDOMINIUM BLOCK (5.07ha)

CONDOMINIUM BLOCK (3.45ha)

COMMERCIAL (3.19ha)

RESERVOIR 0.63ha

WELL 0.09ha

SWM-1 (4.21ha)

SWM-2 (4.06ha)

PROVINCIALLY SIGNIFICANT WETLAND (EVALUATED)

WOODLOT

EXISTING AGRICULTURAL

SIDEROAD 15

SIDEROAD 15

FUTURE

HP 430.00

HP 428.90

LP 426.29

LP 425.23

SITE LOCATION

KEY PLAN
SCALE: N.T.S

LEGEND

- PROPERTY LINE
- EXISTING CONTOUR (0.5m)
- EXISTING CONTOUR (1.0m)
- EXISTING WATERCOURSE
- WOODLOT SETBACK
- 30m WETLAND SETBACK
- PROVINCIALLY SIGNIFICANT WETLAND
- ×430.47 PROPOSED MATCH GRADE
- ×430.47 PROPOSED GRADE
- 1.5% PROPOSED SLOPE
- PROPOSED OVERLAND FLOW DIRECTION

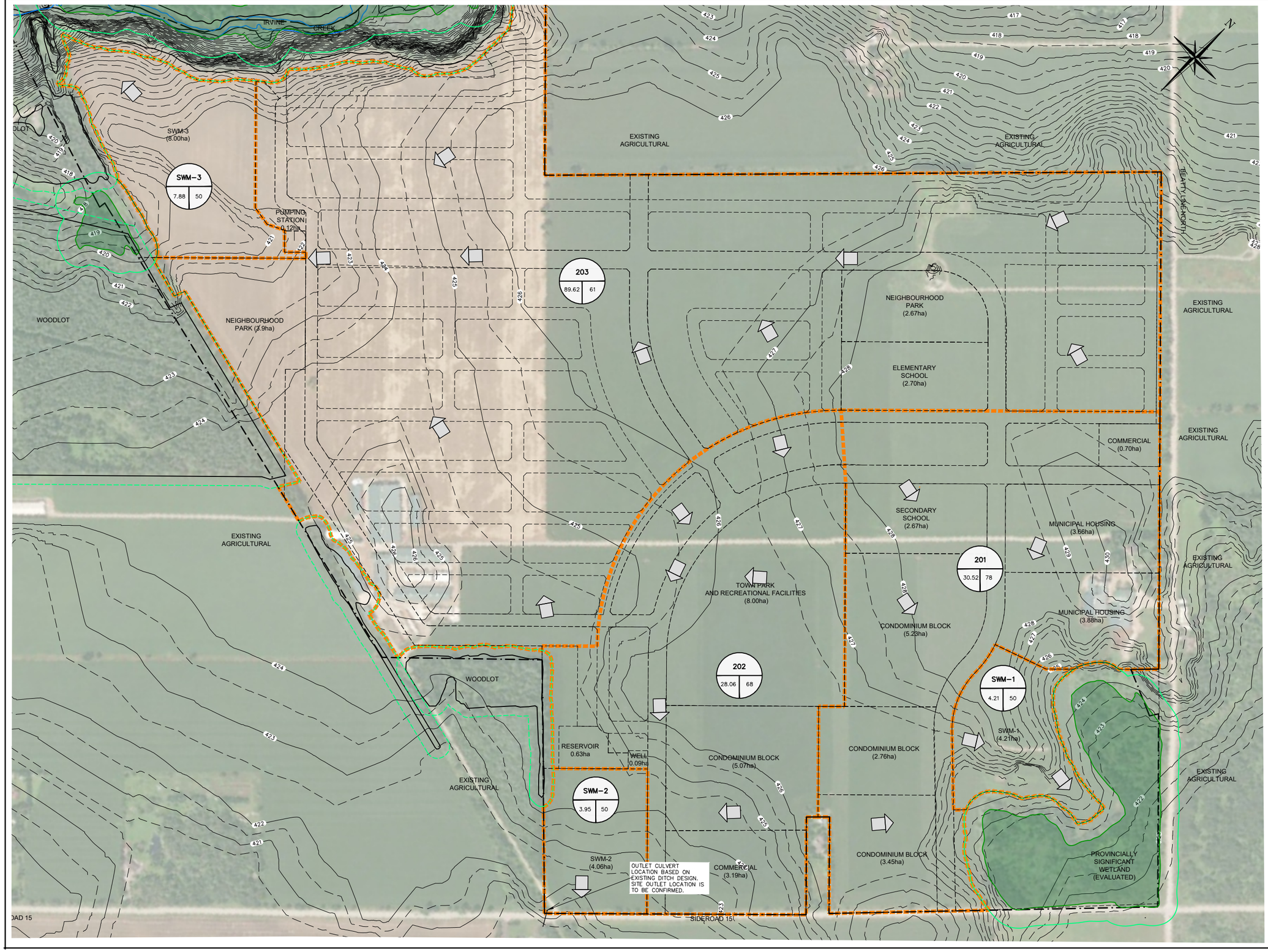
100 0m 100 200

Project
FERGUS OAKS RESIDENTIAL

Drawing
PRELIMINARY SITE GRADING

CROZIER CONSULTING ENGINEERS

Drawn	D.G./A.M.	Design	H.L./J.K.F.	Project No.	1000–6897
Check	B.H./N.C.O.	Check	M.B.	Scale	AS SHOWN
				Figure	13


IRVINE CREEK
SWM-3
(8.00ha)
SWM-3
7.88
50
PUMPING STATION
0.12ha
WOODLOT
NEIGHBOURHOOD PARK (7.9ha)
EXISTING AGRICULTURAL
203
89.62
61
NEIGHBOURHOOD PARK (2.67ha)
ELEMENTARY SCHOOL (2.70ha)
SECONDARY SCHOOL (2.67ha)
COMMERCIAL (0.70ha)
MUNICIPAL HOUSING (3.66ha)
201
30.52
78
TOWN PARK AND RECREATIONAL FACILITIES (8.00ha)
CONDOMINIUM BLOCK (5.23ha)
MUNICIPAL HOUSING (3.88ha)
202
28.06
68
SWM-1
4.21
50
SWM-1 (4.21ha)
RESERVOIR 0.63ha
WELL 0.09ha
CONDOMINIUM BLOCK (5.07ha)
CONDOMINIUM BLOCK (2.76ha)
SWM-2
3.95
50
SWM-2 (4.06ha)
OUTLET CULVERT LOCATION BASED ON EXISTING DITCH DESIGN. SITE OUTLET LOCATION IS TO BE CONFIRMED.
COMMERCIAL (3.19ha)
CONDOMINIUM BLOCK (3.45ha)
PROVINCIALLY SIGNIFICANT WETLAND (EVALUATED)
BEATTY LINE NORTH
SIDEROAD 15
SITE LOCATION
KEY PLAN
SCALE: N.T.S.
LEGEND
PROPERTY LINE
EXISTING CONTOUR (0.5m)
EXISTING CONTOUR (1.0m)
EXISTING WATERCOURSE
WOODLOT SETBACK
30m WETLAND SETBACK
PROVINCIALLY SIGNIFICANT WETLAND
CATCHMENT BOUNDARY
CATCHMENT I.D.
ID
A
TIMP%
DEVELOPABLE AREA (ha)
PERCENT IMPERVIOUS (%)
PROPOSED OVERLAND FLOW DIRECTION
50 0m 50 100 150
Project
FERGUS OAKS RESIDENTIAL
Drawing
POST-DEVELOPMENT DRAINAGE
CROZIER
CONSULTING ENGINEERS
Drawn D.G./A.M.
Design H.L./J.K.F.
Project No. 1000-6897
Check B.H./N.C.O.
Check M.B.
Scale AS SHOWN
Figure 14

PROVINCIALLY SIGNIFICANT WETLAND (EVALUATED)

PROVINCIALLY SIGNIFICANT WETLAND (EVALUATED)

SWALE OUTLET TO PSW

CONTROL STRUCTURE

OUTLET STORM SEWER w/ HEADWALL

EMERGENCY OVERFLOW SPILLWAY TO WETLAND

REVERSE SLOPED PIPE

SWM ROAD

1.0m (DEPTH) MICROPOOL

FOREBAY 1
TOP OF FACILITY ELEV. = 426.0m
PERMANENT POOL ELEV. = 424.20m
BOTTOM ELEV. = 422.70m

3.0m TOP WIDTH FOREBAY BERM ELEV. = 424.20

MAIN CELL
TOP OF FACILITY ELEV. = 426.00m
PERMANENT POOL ELEV. = 424.20m
BOTTOM ELEV. = 423.20m

3.0m TOP WIDTH BERM ELEV. = 426.00

3.0m TOP WIDTH BERM ELEV. = 426.00

FOREBAY ACCES MAX. 10.0%

FOREBAY 2
TOP OF FACILITY ELEV. = 426.0m
PERMANENT POOL ELEV. = 424.20m
BOTTOM ELEV. = 422.70m

FOREBAY ACCES MAX. 10.0%

INLET STORM SEWER w/ HEADWALL

INLET STORM SEWER w/ HEADWALL

STM HW3
T/G 425.43
W INV 424.90

STM HW4
T/G 425.43
W INV 424.90

STM MH52
T/G 427.93
NW INV 425.18
S INV 425.15

STM MH53
T/G 427.80
N INV 425.06
E INV 425.03

STM MH54
T/G 427.87
S INV 425.70

STM MH55
T/G 427.70
S INV 425.50
N INV 425.53

STM MH56
T/G 427.48
SE INV 425.28
N INV 425.31

STM MH43
T/G 427.03
SE INV 425.12
NW INV 425.12
NE INV 425.06

STM MH12
T/G 425.87
SW INV 424.93
E INV 424.93

STM MH57
T/G 426.04
SE INV 425.38
NW INV 425.35

STM MH58
T/G 427.62
SE INV 426.01
NW INV 425.98

STM MH59
T/G 428.22
NW INV 426.61

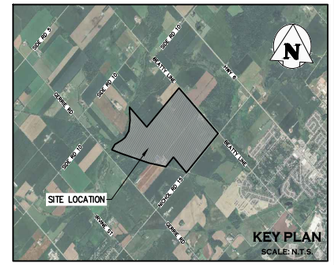
SEDIMENT DRYING/LOADING AREA

SEDIMENT DRYING/LOADING AREA

MAJOR OVERLANMD FLOW ROUTE

SIDEROAD 15

15 0m 15 30 45 60



LEGEND

- PROPERTY LINE
- EXISTING CONTOUR (0.5m)
- EXISTING CONTOUR (1.0m)
- PROPOSED STORM SEWER & MANHOLE
- 420.00 PR. SWM FACILITY CONTOUR
- 30m WETLAND SETBACK
- SIDE SLOPE
- EXISTING OVERLAND FLOW DIRECTION
- PROPOSED OVERLAND FLOW DIRECTION
- SWM PERMANENT POOL
- SWM ACCESS ROAD
- RIP RAP w/ FILTER CLOTH
- PROVINCIALLY SIGNIFICANT WETLAND
- TURFSTONE PAVERS
- LOW POINT

DESCRIPTION	REQUIRED STORAGE	PROVIDED STORAGE
PERMANENT POOL EL 422.70 – 424.20	6,692 m^3	13,450 m^3
ACTIVE STORAGE EL 425.70 – 424.20	19,022 m^3	26,550 m^3

POND GEOMETRIC DATA	
PARAMETER	DATA
DRAINAGE AREA	30.52 HA
POND BLOCK AREA	4.21 HA
BOTTOM OF MAIN CELL ELEVATION	423.20m
BOTTOM OF FOREBAY ELEVATION	422.70m
PERMANENT POOL ELEVATION	424.20m
TOP OF POND	426.00m

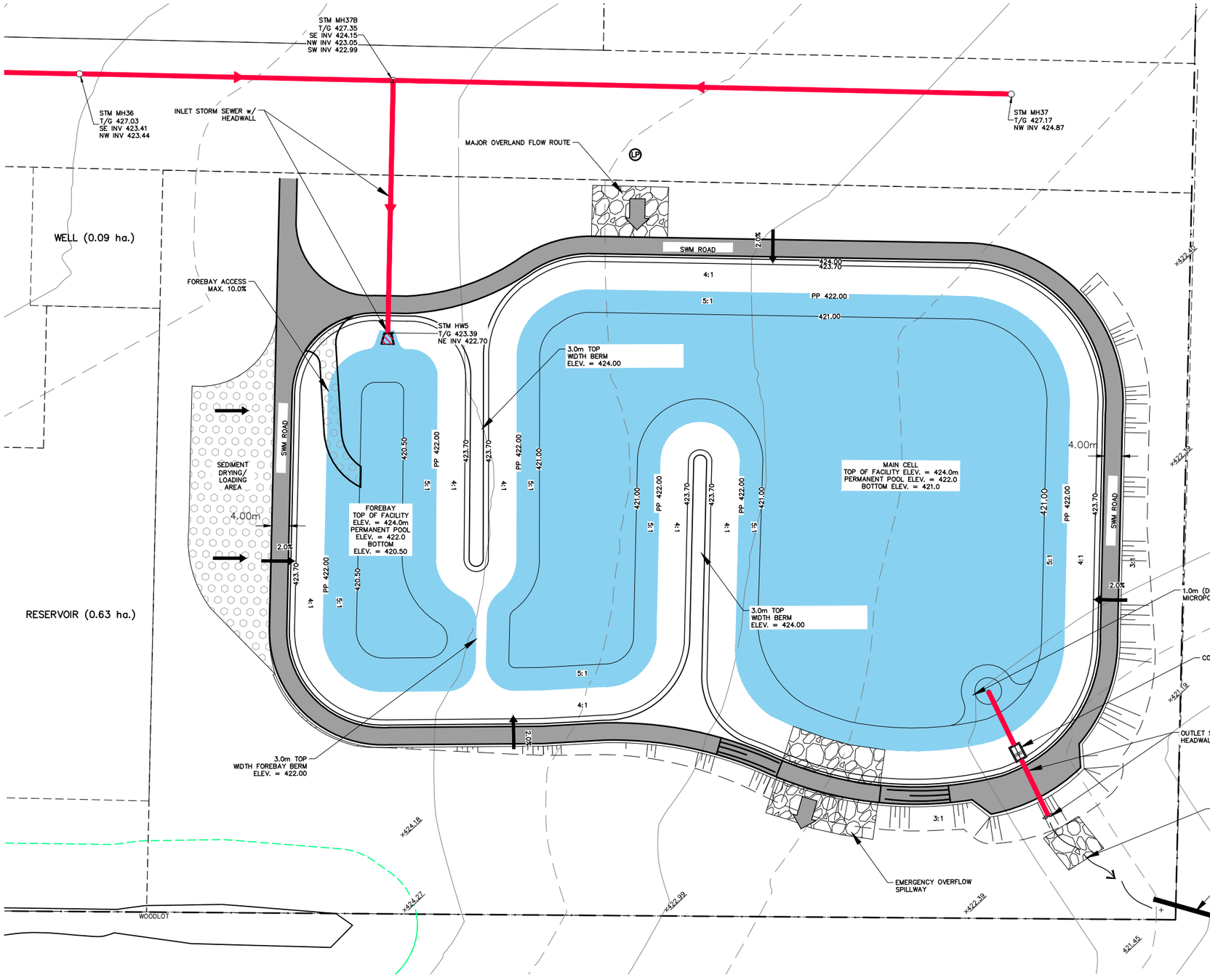
NOTE: OVERALL POND LENGTH TO WIDTH RATIO WILL BE MAXIMIZED DURING DETAILED DESIGN.

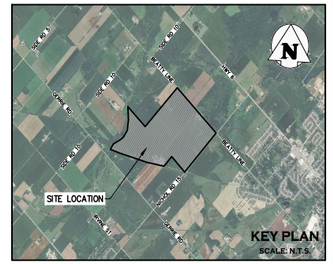
Project
FERGUS OAKS RESIDENTIAL

Drawing
STORMWATER MANAGEMENT FACILITY (SWM–1)

CROZIER CONSULTING ENGINEERS

Drawn	D.G./A.M.	Design	H.L./J.K.F.	Project No.	1000–6897
Check	B.H./N.C.O.	Check	M.B.	Scale	AS SHOWN
				Figure	15





LEGEND

- PROPERTY LINE
- EXISTING CONTOUR (0.5m)
- EXISTING CONTOUR (1.0m)
- PROPOSED STORM SEWER & MANHOLE
- 420.00 PR. SWM FACILITY CONTOUR
- WOODLOT SETBACK
- SIDE SLOPE
- EXISTING OVERLAND FLOW DIRECTION
- PROPOSED OVERLAND FLOW DIRECTION
- SWM PERMANENT POOL
- SWM ACCESS ROAD
- RIP RAP w/ FILTER CLOTH
- TURFSTONE PAVERS
- LP LOW POINT

DESCRIPTION	REQUIRED STORAGE	PROVIDED STORAGE
PERMANENT POOL EL 420.50 – 423.70	5,607 m^3	11,775 m^3
ACTIVE STORAGE EL 423.70 – 422.00	11,941 m^3	26,650 m^3

POND GEOMETRIC DATA	
PARAMETER	DATA
DRAINAGE AREA	28.06 HA
POND BLOCK AREA	3.95 HA
BOTTOM OF MAIN CELL ELEVATION	421.00m
BOTTOM OF FOREBAY ELEVATION	420.50m
PERMANENT POOL ELEVATION	422.00m
TOP OF POND	424.00m

NOTE: OVERALL POND LENGTH TO WIDTH RATIO WILL BE MAXIMIZED DURING DETAILED DESIGN.

Project
FERGUS OAKS RESIDENTIAL

Drawing
STORMWATER MANAGEMENT FACILITY (SWM–2)

CROZIER CONSULTING ENGINEERS

Drawn	D.G./A.M.	Design	H.L./J.K.F.	Project No.	1000–6897
Check	B.H./N.C.O.	Check	M.B.	Scale	AS SHOWN
				Figure	16

PROVINCIALLY SIGNIFICANT WETLAND (EVALUATED)

IRVINE CREEK

FLOW

FLOW

SWALE OUTLET TO IRVINE CREEK

OUTLET STORM SEWER w/ HEADWALL

EMERGENCY OVERFLOW SPILLWAY TO WETLAND

PRIMARY CONTROL STRUCTURE

REVERSE SLOPED PIPE

1.0m (DEPTH) MICROPOOL

MAIN CELL
TOP OF FACILITY ELEV. = 421.30m
PERMANENT POOL ELEV. = 419.30
BOTTOM ELEV. = 418.30

3.0m TOP WIDTH BERM ELEV. = 421.30

1.0m (DEPTH) MICROPOOL

3.0m TOP WIDTH FOREBAY BERM ELEV. = 419.30

3.0m TOP WIDTH BERM ELEV. = 421.30

FOREBAY
TOP OF FACILITY ELEV. = 421.30m
PERMANENT POOL ELEV. = 419.30
BOTTOM ELEV. = 417.80

SEDIMENT DRYING/ LOADING AREA

FOREBAY ACCESS MAX. 10.0%

INLET STORM SEWER w/ HEADWALL

MAJOR OVERLANMD FLOW ROUTE (TBD)

SWM ROAD

SECONDARY CONTROL STRUCTURE

SECONDARY SWALE OUTLET TO PSW

PROVINCIALLY SIGNIFICANT WETLAND (EVALUATED)

STM HW2
T/G 421.08
NE INV 420.55

STM MH62
T/G 421.36
E INV 420.14
SW INV 420.71

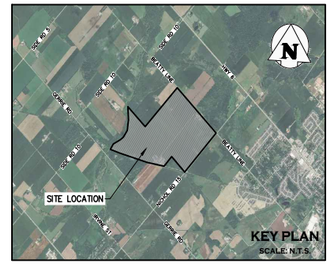
PUMPING STATION (0.12 ha.)

SWM CONNECTION TO PROPOSED DEVELOPMENT)

STM MH2
T/G 423.68
NE INV 421.02
SW INV 420.99

STM MH3
T/G 424.17
NE INV 421.58
SW INV 421.55

20 0m 20 40 60 80



KEY PLAN
SCALE: N.T.S.

LEGEND

- PROPERTY LINE
- EXISTING CONTOUR (0.5m)
- EXISTING CONTOUR (1.0m)
- PROPOSED STORM SEWER & MANHOLE
- 420.00 PR. SWM FACILITY CONTOUR
- WOODLOT SETBACK
- 30m WETLAND SETBACK
- SIDE SLOPE
- EXISTING OVERLAND FLOW DIRECTION
- PROPOSED OVERLAND FLOW DIRECTION
- SWM PERMANENT POOL
- SWM ACCESS ROAD
- RIP RAP w/ FILTER CLOTH
- PROVINCIALLY SIGNIFICANT WETLAND
- TURFSTONE PAVERS
- LP LOW POINT

DESCRIPTION	REQUIRED STORAGE	PROVIDED STORAGE
PERMANENT POOL EL 417.80 – 419.30	15,788 m^3	27,600 m^3
ACTIVE STORAGE EL 421.00 – 419.30	48,799 m^3	55,350 m^3

POND GEOMETRIC DATA	
PARAMETER	DATA
DRAINAGE AREA	89.62 HA
POND BLOCK AREA	7.88 HA
BOTTOM OF MAIN CELL ELEVATION	418.30m
BOTTOM OF FOREBAY ELEVATION	417.80m
PERMANENT POOL ELEVATION	419.30m
TOP OF POND	421.30m

NOTE: OVERALL POND LENGTH TO WIDTH RATIO WILL BE MAXIMIZED DURING DETAILED DESIGN.

Project
FERGUS OAKS RESIDENTIAL

Drawing
STORMWATER MANAGEMENT FACILITY (SWM–3)

CROZIER CONSULTING ENGINEERS

Drawn	Design	Project No.	
D.G./A.M.	H.L./J.K.F.		1000–6897
Check	Check	Scale	Figure
B.H./N.C.O.	M.B.	AS SHOWN	17

APPENDIX A

Background Information

- Concept Plan (Landwise, November 2024)
- Grand River Conservation Authority (GRCA) online mapping (Accessed August 28, 2024)
- Natural Heritage Features Figure (GeoProcess, May 2, 2023)
- Preliminary Geotechnical Investigation (Soil Engineers, June 9, 2023)
- Physiography of Southern Ontario, 3rd Edition (Ministry of Natural Resources, 1984)
- Soil Survey of Wellington County, Report No. 35 (Ontario Department of Agriculture, 1963)
- "AgMaps" (OMAFRA, Accessed July 2, 2024)
- DLW's Memo (November 2024)
- "Water and Wastewater Servicing Expansion of the Fergus Wastewater Treatment Plant and Expansion of the Groundwater Supply System"
- New Well Exploration Program Feasibility Assessment (Stantec, February 12, 2024)
- Township of Centre Wellington's GIS Mapping ("Water System – Fergus – North", December 20, 2023)
- Township of Centre Wellington's GIS Mapping ("Sanitary and Storm Sewer Systems Fergus North", December 20, 2023)
- Population Density Correspondence (Fletcher to Gillis, November 19, 2024)
- Proposed Site Servicing Memo for 6586 Beatty Line North - Brubacher Property (SCS Consulting Group Ltd., April 19, 2024)
- South Fergus MESP & Secondary Plan Functional Servicing Report (Tatham, March 2024)
- Functional Servicing and Stormwater Management Report (R.J. Burnside & Associates Ltd., February 2018)
- Township of Centre Wellington's Zoning By-law Schedule "A" (September 2023)

SITE STATISTICS

SITE AREA (TOTAL)	±190.43ha (470.56ac)
UNIT TOTALS	
CONDOMINIUM TOWNHOUSE UNITS	645
MUNICIPAL HOUSING TOWNHOUSE UNITS	314
FREEHOLD TOWNHOUSE	243
FREEHOLD SINGLE DETACHED	1556
TOTAL UNIT COUNT	2758
RESIDENTIAL DENSITY (UNITS PER HECTARE)	
CONDOMINIUM TOWNHOUSE BLOCKS	39.06UPH
MUNICIPAL HOUSING TOWNHOUSE BLOCKS	41.64UPH
TOTAL RESIDENTIAL DENSITY	14.48UPH

WOODLOT
WOODLOT
EXISTING AGRICULTURAL
EXISTING AGRICULTURAL
EXISTING AGRICULTURAL
EXISTING AGRICULTURAL
EXISTING AGRICULTURAL
BEATTY LINE NORTH
±1012.67
±818.80
±816.70
±15.20
±92.20
±15.20
±17.76
±300.09
NEIGHBOURHOOD PARK (2.67ha)
ELEMENTARY SCHOOL (2.70ha)
COMMERCIAL (0.70ha)
STREET TOWNHOUSES 45 UNITS
MUNICIPAL HOUSING (3.66ha)
TOWNHOUSES 159 UNITS
MUNICIPAL HOUSING (3.88ha)
TOWNHOUSES 159 UNITS
SECONDARY SCHOOL (2.67ha)
STREET TOWNHOUSES 129 UNITS
CONDOMINIUM BLOCK (5.23ha)
CONDO TOWNHOUSES 196 UNITS
SWM-1 (4.21ha)
PROVINCIALLY SIGNIFICANT WETLAND (EVALUATED)
TOWN PARK AND RECREATIONAL FACILITIES (8.00ha)
STREET TOWNHOUSES 68 UNITS
CONDOMINIUM BLOCK (2.70ha)
CONDO TOWNHOUSES 118 UNITS
CONDOMINIUM BLOCK (3.45ha)
CONDO TOWNHOUSES 132 UNITS
CONDOMINIUM BLOCK (5.07ha)
CONDO TOWNHOUSES 190 UNITS
COMMERCIAL (3.19ha)
WELL 0.09ha
RESERVOIR 0.63ha
SWM-2 (4.06ha)
SWM-3 (8.00ha)
PUMPING STATION 0.12ha
NEIGHBOURHOOD PARK (3.9ha)
PROVINCIALLY SIGNIFICANT WETLAND (EVALUATED)
WOODLOT
WOODLOT
WOODLOT
WOODLOT
15m DRIPLINE
30m SETBACK
±38.16
±160.60
±62.89
±416.42
±565.00
±874.34
±459.89
SIDEROAD 15
POTENTIAL FUTURE ROAD CONNECTION (TO BE DETERMINED)
FUTURE DEVELOPMENT
POTENTIAL FUTURE ROAD CONNECTION (TO BE DETERMINED)

NOTES:

1. EXISTING INFORMATION SHOWN ON THIS PLAN HAS BEEN DERIVED FROM AERIAL IMAGERY AND IS SUBJECT TO CHANGE BASED ON LEGAL AND TOPOGRAPHIC SURVEY.
2. ALL DIMENSIONS AND AREA VALUES ARE TO BE CONSIDERED APPROXIMATE AND ARE SHOWN FOR ILLUSTRATION PURPOSES ONLY AND HAVE NOT BEEN VERIFIED BY SURVEY.
3. ENVIRONMENTAL FEATURES SHOWN MUST BE VERIFIED BY QUALIFIED PROFESSIONALS. DESIGN SUBJECT TO CHANGE UPON COMPLETION OF ECOLOGICAL STUDY.
4. LAYOUT SHOWN IS INTENDED FOR ILLUSTRATIVE PURPOSES ONLY. DESIGN SUBJECT TO CHANGE THROUGH PLANNING APPROVAL PROCESS.

LEGAL DESCRIPTION

N

LEGEND

REVISIONS

REV.	DESCRIPTION	DATE	INIT.
A	REVIEW	1-NOV-2024	JS

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PROJECT TITLE

FERGUS OAKS

6704 BEATTY LINE N, 6684-6688 BEATTY LINE N,
7692 SIDEROAD 15
TOWNSHIP OF CENTRE WELLINGTON, ONTARIO

landwise
PLAN • DESIGN • MANAGE
310 LIMERIDGE ROAD WEST, SUITE 6 P 905-574-1993
HAMILTON ONTARIO, L9C 2V2 W LANDWISE.CA

DRAWING TITLE

CONCEPTUAL STRUCTURE PLAN

PRINT DATE: 06-NOV-2024	DRAWN BY: JS
REVISION: A	DESIGNED BY: JS
SCALE: 1:3000	DRAWING NUMBER: CSP1-1

Plotted by: Justin Sotos, 06-NOV-2024, 3:38PM
File Location: C:\Landwise Dropbox\SERVER\PROJECTS\Tribute Communities\Fergus Due Diligence\Drawings\Planning\Fergus Conceptual Structure Plan.dwg



Grand River Conservation Authority

Date: Aug 28, 2024

6684 & 6704 Beatty Line

Legend

- Regulation Limit (GRCA)
- Floodplain (GRCA)
  - Engineered
  - Estimated
  - Approximate
- Floodplain - Special Policy Area (GRCA)
- Slope Erosion (GRCA)
  - Steep
  - Oversteep
  - Toe
- Slope Valley (GRCA)
  - Steep
  - Oversteep
- Regulated Watercourse (GRCA)
- Regulated Waterbody (GRCA)
- Wetland (GRCA)
- Lake Erie Flood (GRCA)
- Lake Erie Shoreline Reach (GRCA)
- Lake Erie Dynamic Beach (GRCA)
- Lake Erie Erosion (GRCA)
- Parcel - Assessment (MPAC/MNRF)
- Wetland (MNRF)
  - Provincially Significant
  - Locally Significant
  - Unevaluated

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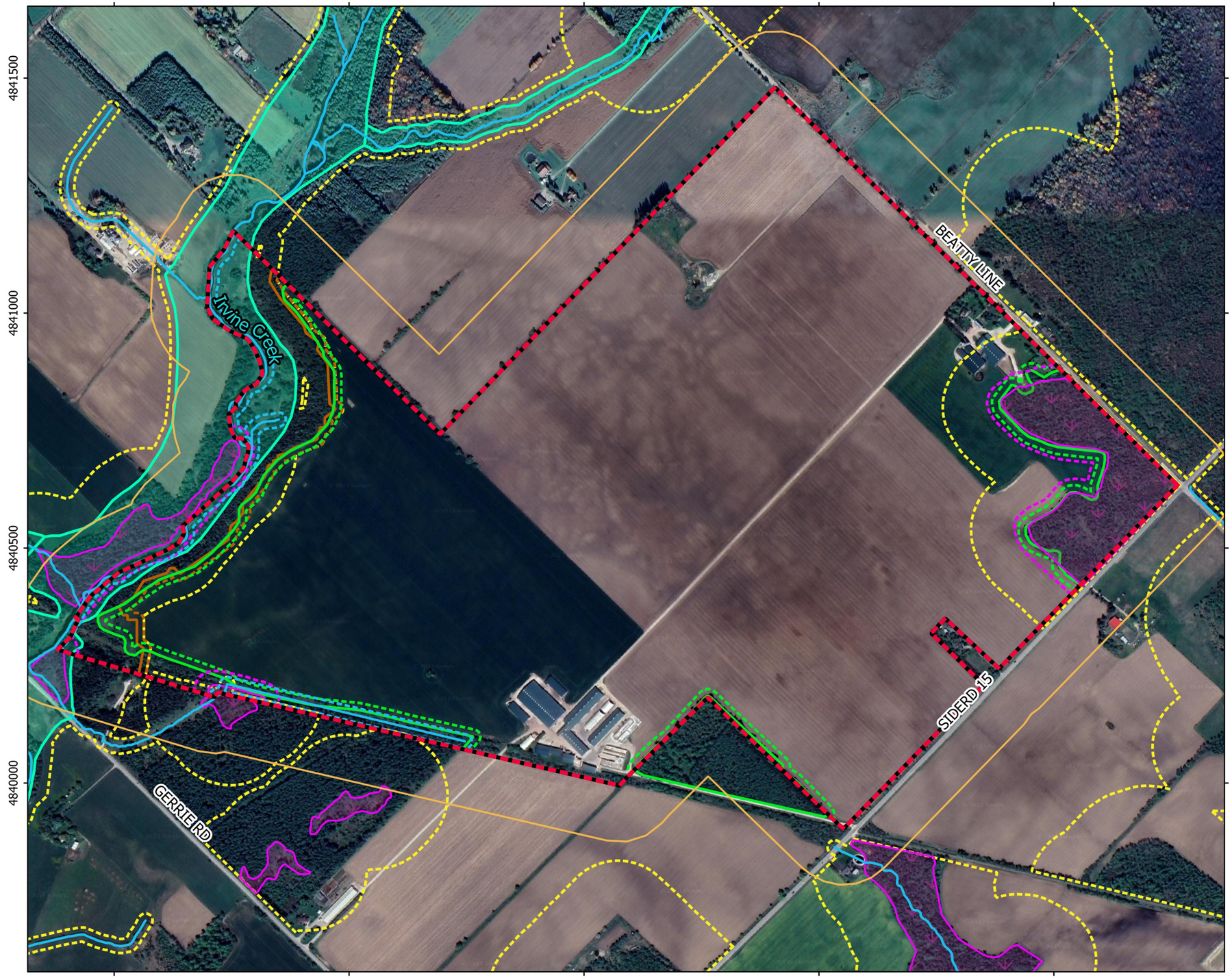
Disclaimer: This map is for illustrative purposes only. Information contained herein is not a substitute for professional review or a site survey and is subject to change without notice. The Grand River Conservation Authority takes no responsibility for, nor guarantees, the accuracy of the information contained on this map. Any interpretations or conclusions drawn from this map are the sole responsibility of the user.
The source for each data layer is shown in parentheses in the map legend. See Sources and Citations for details.

Scale 1:20,790

NAD83 UTM zone 17 (EPSG:26917)

Map Centre (X,Y): 546284.37, 4840856.37 | Map Link

This map is not to be used for navigation | 2020 Ortho (ON)



Legend

- Subject Property
- Study Area
- GRCA Regulated Area
- Watercourse
- 15 m Watercourse Buffer
- 15 m Woodland Dripline
- Woodland Dripline
- Provincially Significant Wetland (PSW)
- 30 m PSW Buffer
- 15 m Valley Buffer
- GRCA Valley Limit
- GRCA Regulatory Floodplain

N

0 100 200 300 400 500 m

Prepared using QGIS and Google Satellite Imagery

GeoProcess RESEARCH ASSOCIATES

CREATED BY:	DH	PROJECT NO.:	
CHECKED BY:	IR	DATE:	May 02, 2023

Map 3.

Natural Heritage Features

6684 & 6704 Beatty Line North
Township of Centre Wellington, ON
Eleven Oak Partners Ltd.

G:\Shared drives\Proposals\6684 & 6704 Beatty Line North\GIS\Basemap\Basemap - 6684 & 6704 Beatty Line North.qgz

Soil Engineers Ltd.
CONSULTING ENGINEERS
GEOTECHNICAL • ENVIRONMENTAL • HYDROGEOLOGICAL • BUILDING SCIENCE
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TEL: (705) 721-7863	TEL: (905) 542-7605	TEL: (905) 440-2040	TEL: (905) 853-0647	TEL: (705) 684-4242	TEL: (905) 777-7956
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June 9, 2023 Reference No. 2305-S020

Eleven Oaks Partners Ltd.
341 Four Miles Creek Road
P.O. Box 329
St. Davids, Ontario
L0S 1P0

Attention: Mr. Dan Raseta, Director, Vice President

Re: Preliminary Geotechnical Investigation
Due Diligence for Property Acquisition
6684 and 6704 Beatty Line North
Township of Centre Wellington

Dear Sir:

In accordance with your written authorization dated May 8, 2023, we have completed a preliminary geotechnical investigation at the captioned property as part of a due diligence for property acquisition purposes. The results from the investigation are presented in this report.

SITE CONDITION

The subject site consists of two parcels of land, having municipal addresses of 6684 and 6704 Beatty Line North, located at the northwest corner of Sideroad 15 and Beatty Line North in the Township of Centre-Wellington. The combined site is irregular in shape and is approximately 190 hectares in area. The property generally consists of farm land, with a portion of the land being used for a cattle farm, consisting of grain silos, storage and cattle barns, as well as other associates structures. The north limit of the site is bounded by Irvine Creek which meanders in a northeast and southwest direction. The site is relatively flat, however, the grade difference between the east and west limit of the site is approximately 9 m, descending towards the west.

FIELD WORK

Eleven (11) sampled boreholes, extending to depths of 6.6 m, 6.7 m and 8.1 m, were drilled at the site between May 18 and 24, 2023. The borehole locations are shown on Drawing No 1, enclosed.

The boreholes were advanced at intervals to the sampling depths by a track-mounted, continuous-flight power-auger machine equipped for soil sampling. Standard Penetration Test, using the procedures described on the enclosed "List of Abbreviations and Terms", was performed at the sampling depths. The test results are recorded as the Standard Penetration Resistance (or 'N' values) of the subsoil. Split-spoon samples were recovered for soil classification and laboratory testing. The relative density of the non cohesive strata and the consistency of the cohesive strata are inferred from the 'N' values.

Upon completion of drilling and sampling, monitoring wells were installed in five (5) selected boreholes for groundwater records. The depth and details of the monitoring wells are shown on the corresponding Borehole Logs.

The fieldwork was supervised and the findings were recorded by a Geotechnical Technician. The ground elevation at each borehole location was obtained using a hand-held Global Navigation Satellite System (GNSS) equipment.

SOIL AND GROUNDWATER CONDITIONS

Detailed descriptions of the encountered subsurface conditions are presented on the enclosed Borehole Logs, comprising Figures 1 to 11, inclusive.

The investigation has revealed that beneath the topsoil veneer, 10 cm to 30 cm in thickness, and a layer of earth fill at Borehole 9; the site is underlain by strata of sand, silt and silty clay till.

The earth fill was encountered at Borehole 9, in the vicinity of the cattle barns. It was likely placed during previous grading activities for the construction of the facilities on site.

The obtained 'N' values encountered in the native soils and the moisture content of he retrieved sampled are summarized in the table below:

Soil Type	Obtained 'N' Values (# blows per 30 cm of penetration)	Natural Water Content %
Sand	5 to 28 (median 12)	6 to 25 (median 20)
Silt	5 to 19 (median 10)	15 to 27 (median 21)
Silty Clay Till	4 to 100+ (median 21)	7 to 24 (median 11)

The sand and silt are loose to compact, generally compact in relative density and the silty clay till is firm to hard, generally very stiff in consistency. In the vicinity of Boreholes 8 and 10, the consistency of the silty clay till becomes hard at lower depth. The upper portion of the soils near the ground surface is generally weathered, which extends to approximately 0.9 to 1.2 m below the existing grade. The soils are in a generally moist to very moist condition.

Grain size analyses were carried out on representative samples of the sand, silt and silty clay till; the resulting grain size distributions are presented on Figures 12 to 15 inclusive.

The groundwater condition, as observed during the borehole investigation and recorded in the monitoring wells on May 29, 2023, is summarized in the table below:

BH/MW No.	Borehole Depth (m)	Seepage Encountered During Augering	Measured Groundwater Level in Borehole On Completion		Groundwater Level Recorded in Monitoring Well on May 29, 23	
		Depth (m)	Depth (m)	El. (m)	Depth (m)	El. (m)
BH/MW.1	6.7	3.0	4.6	424.0	3.5	425.1
BH.2	6.6	0.8	Not measured		No well	
BH.3	6.6	2.3	Not measured		No well	
BH.4	6.6	1.5	Not measured		No well	
BH.5	6.1	1.5	Not measured		No well	
BH.6	6.6	1.5	Not measured		No well	
BH/MW.7	6.7	1.5	Not measured		1.9	420.2
BH.8	6.2	0.8	Dry on completion		No well	
BH/MW.9	8.1	2.3	Not measured		2.1	423.0
BH/MW.10	6.6	2.1	5.9	413.8	5.1	414.6
BH/MW.11	6.6	1.5	Dry on completion		1.6	422.1

Groundwater seepage were encountered at shallow depths, ranging from 0.8 to 3.0 m below the prevailing ground surface, generally in the sand and silt deposit. The depth where seepage was encountered are presented in the borehole logs. Based on the groundwater level profiles, the seepage levels appears to represent the groundwater level within the property at the time of the borehole investigation, which will be subjected to seasonal fluctuations.

The water seepage in the sand and silt is expected to be appreciable and persistent; while in the silty clay till, it is expected to be small and limited.

DISCUSSION AND RECOMMENDATIONS

Based on the borehole findings, the preliminary geotechnical considerations pertaining to the design and construction of a residential development are presented below:

- The topsoil is void of engineering value and should be removed for site development. It should not be buried within the building areas.
- The existing earth fill is not suitable to support structures sensitive to settlement; it must be removed and replaced with properly compacted engineered earth fill.
- The existing structures and foundations will be demolished. The debris must be removed and disposed of off-site. The cavity must be inspected by the geotechnical engineer before backfilling for building construction. The backfill in cavities must be free of topsoil or deleterious material, placed and compacted to engineered fill specifications.
- The weathered soils must be sub-excavated, sorted free of topsoil and organics, and further assessed to determine its suitability for reuse.
- Where re-grading is required with additional earth filling, it may be economical to place engineered fill for the building foundation and site services support.
- A portion of the property limit abuts to Irvine Creek, which is under the Grand River Conservation Authority regulated area. Depending on the topographic feature along Irvine Creek, a slope stability assessment will be required to establish the erosion hazard limit for the future development.
- The structures can be constructed on conventional footings founded on compacted engineered fill or undisturbed native subsoil with the following recommended bearing pressures:
  - Maximum Bearing Pressure at Serviceability Limit State (SLS) = 75 to 150 kPa
  - Factored Ultimate Bearing Pressure at Ultimate Limit State (ULS) = 120 to 225 kPa
- The total and differential settlements of the footing designed at SLS are estimated to be 25 mm and 20 mm, respectively.
- Foundations exposed to weathering or in unheated areas should have at least 1.6 m of earth cover for protection against frost action.
- The silt is high in frost susceptibility and soil adfreezing potential. Where the silt is used to backfill against foundation walls, special measures will need to be implemented to prevent frost damage to the structures.
- The footing subgrade must be inspected by a geotechnical engineer, or a geotechnical technician under the supervision of a geotechnical engineer; this is to ensure that the subgrade conditions are compatible with the foundation design requirements.
- The foundations should meet the requirements specified in the latest Ontario Building Code. The structure should be designed to resist an earthquake force using Site Classification ‘D’ (stiff soil).

- In conventional basement construction, perimeter subdrain at the foundations and damp-proofing of the foundation walls will be required. The subdrain should be encased in a fabric filter to protect it against blockage by silting and connected to positive outlets. Where groundwater level is found to be relatively shallow, and where permitted by the Municipality or Conservation Authority, perimeter subdrains and underdloor subdrains can be provided to relieve any hydrostatic pressure imposed on the structures; otherwise, in areas where shallow groundwater is encountered, the grade should be raised in order to accommodate structures with basements.
- A Class 'B' bedding, consisting of compacted 19-mm Crusher-Run Limestone, is recommended for the construction of the underground services. In areas where erodible sand and silt is encountered or the services lie below the groundwater level, a Class 'A' concrete bedding may be required. Anti-seepage collars must also be provided along the service alignment at regular intervals.
- Service pipes connecting into manholes and catch basins must be connected by leak-proof joints to prevent subgrade upfiltration through the joints. Openings to subdrains and catch basins should be shielded with a fabric filter to prevent blockage by silting.
- Excavation should be carried out in accordance with Ontario Regulation 213/91. For excavation purposes, the types of soils are classified below:

Material	Type
Sound Till	2
Weathered Soils and drained Sand and Silt	3
Saturated Sand and Silt	4

- The in situ till contains cobbles and boulders. Extra effort will be required for excavation.
- Any groundwater seepage from the percolation of surface water or perched water from the sand and silt deposit and in the sand and silt seams within the till will be slow in rate and limited in quantity. It can be drained into a sump pit and removed by conventional pumping, where necessary. The yield in the sand and silt below saturation level will be appreciable and persistent. Excavation below the groundwater level will require the use of well-point dewatering system.

One must recognize that this is a summary of the boreholes completed within the property as part of a preliminary investigation. A detailed soil investigation and a comprehensive geotechnical report will be required for project design once the Draft Plan for the proposed development is available.

CONCLUSION

Based on the borehole findings, the property is generally suitable for a low density residential development.

- The topsoil encountered on site must be stripped. It can only be reused in landscaped area.
- The earth fill encountered on site to a depth of 2.3 m at Borehole 9, will require removal. It may need to be disposed of off site.
- A slope stability analysis may be required to establish the erosion hazard limit within the development, with additional setbacks for the building lots along the development limits abutting to Irvine Creek, subject to the Grand Valley Conservation Authority and Township of Centre-Wellington requirements.
- Conventional strip and spread footings can be considered to support the proposed residential structures with or without a basement. Where shallow groundwater is encountered, the grade should be raised in order to accommodate structures with basements, unless perimeter subdrains and underfloor drains are permitted to collect and discharge any groundwater within the building envelopes to relieve any potential groundwater pressure imposed on the structures.
- Dewatering is likely required for site servicing in the area where saturated sand and silt are encountered. An additional hydrogeological assessment is recommended to assess the groundwater conditions of the site and to determine the dewatering requirements.
- Once the development plans become available, a detailed geotechnical investigation should be completed
- One must recognize that this is a summary of the preliminary investigation. A detailed soil investigation and a comprehensive geotechnical report will be required for project design once the Draft Plan for the proposed development is available.

LIMITATIONS OF REPORT

This report was prepared by Soil Engineers Ltd. for the account of Eleven Oaks Partners Ltd. and for review by their designated consultants, contractors, financial institutions, and government agencies. Use of the report is subject to the conditions and limitations of the contractual agreement. The material in the report reflects the judgment of Kelvin Hung, P.Eng., and Bernard Lee, P.Eng., in light of the information available to it at the time of preparation.

Any use which a Third Party makes of this report, and/or any reliance on decisions to be made based on it are the responsibility of such Third Parties. Soil Engineers Ltd. accepts no responsibility for damages, if any, suffered by any Third Party as a result of decisions made or actions based on this report.

SOIL ENGINEERS LTD.



Kelvin Hung, P.Eng.

Bernard Lee, P.Eng.
KH/BL:dd

ENCLOSURES

Borehole Logs	Figures 1 to 11
Grain Size Distribution Graphs	Figures 12 to 15
Borehole Location Plan	Drawing No. 1
Subsurface Profile	Drawing No. 2

LIST OF ABBREVIATIONS AND DESCRIPTION OF TERMS

The abbreviations and terms commonly employed on the borehole logs and figures, and in the text of the report, are as follows:

SAMPLE TYPES

AS Auger sample
CS Chunk sample
DO Drive open (split spoon)
DS Denison type sample
FS Foil sample
RC Rock core (with size and percentage recovery)
ST Slotted tube
TO Thin-walled, open
TP Thin-walled, piston
WS Wash sample

PENETRATION RESISTANCE

Dynamic Cone Penetration Resistance:

A continuous profile showing the number of blows for each foot of penetration of a 2-inch diameter, 90° point cone driven by a 140-pound hammer falling 30 inches.

Plotted as '—●—'

Standard Penetration Resistance or 'N' Value:

The number of blows of a 140-pound hammer falling 30 inches required to advance a 2-inch O.D. drive open sampler one foot into undisturbed soil.

Plotted as '○'

WH Sampler advanced by static weight
PH Sampler advanced by hydraulic pressure
PM Sampler advanced by manual pressure
NP No penetration

SOIL DESCRIPTION

Cohesionless Soils:

'N' (blows/ft)	Relative Density
0 to 4	very loose
4 to 10	loose
10 to 30	compact
30 to 50	dense
over 50	very dense

Cohesive Soils:

Undrained Shear Strength (ksf)	'N' (blows/ft)	Consistency
less than 0.25	0 to 2	very soft
0.25 to 0.50	2 to 4	soft
0.50 to 1.0	4 to 8	firm
1.0 to 2.0	8 to 16	stiff
2.0 to 4.0	16 to 32	very stiff
over 4.0	over 32	hard

Method of Determination of Undrained Shear Strength of Cohesive Soils:

x 0.0 Field vane test in borehole; the number denotes the sensitivity to remoulding

△ Laboratory vane test

□ Compression test in laboratory

For a saturated cohesive soil, the undrained shear strength is taken as one half of the undrained compressive strength

METRIC CONVERSION FACTORS

1 ft = 0.3048 metres
1lb = 0.454 kg
1 inch = 25.4 mm
1ksf = 47.88 kPa

JOB NO.: 2305-S020

LOG OF BOREHOLE NO.: 1

FIGURE NO.: 1

PROJECT DESCRIPTION: Due Diligence for Property Acquisition

METHOD OF BORING: Solid/Hollow-Stem

PROJECT LOCATION: 6684 and 6704 Beatty Line North
Township of Centre Wellington

DRILLING DATE: May 18, 2023

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)
428.6 / 0.0	Ground Surface				
	Brown, loose to compact	1	DO	5	0
	weathered	2	DO	17	1
		3	DO	13	2
	SAND	4	DO	17	
		5	DO	16	3
	fine grained, a trace to some silt wet below 3.0 m				4
		6	DO	17	5
					6
421.9		7	DO	28	
6.7	**END OF BOREHOLE**				7
	Installed 50 mm Ø monitoring well to 5.8 m completed with 3.0 m PVC slotted screen Sand backfill from 2.1 to 5.8 m Bentonite seal from 0.0 m to 2.1 m Provided with a steel protective cover				8 9 10

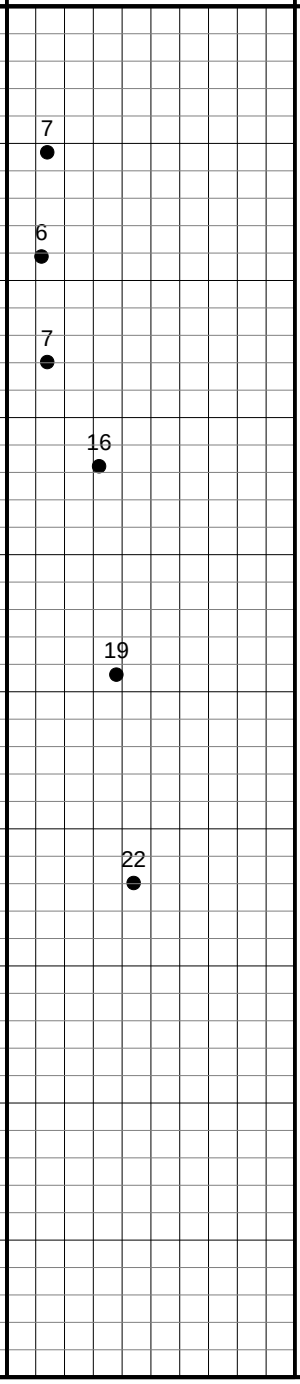
Dynamic Cone (blows/30 cm) 10 30 50 70 90

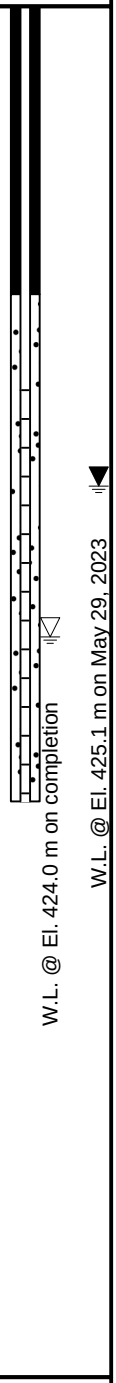
Shear Strength (kN/m²) 50 100 150 200

Penetration Resistance (blows/30 cm) 10 30 50 70 90

Atterberg Limits PL LL

Moisture Content (%) 10 20 30 40





JOB NO.: 2305-S020

LOG OF BOREHOLE NO.: 2

FIGURE NO.: 2

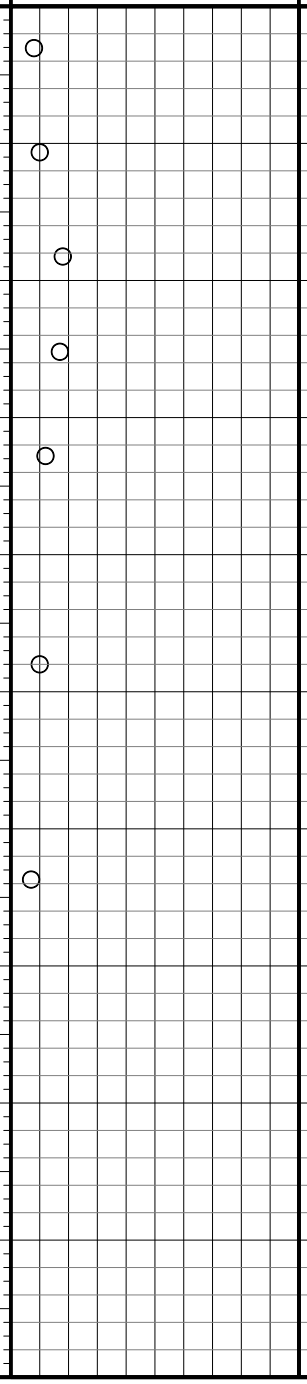
PROJECT DESCRIPTION: Due Diligence for Property Acquisition

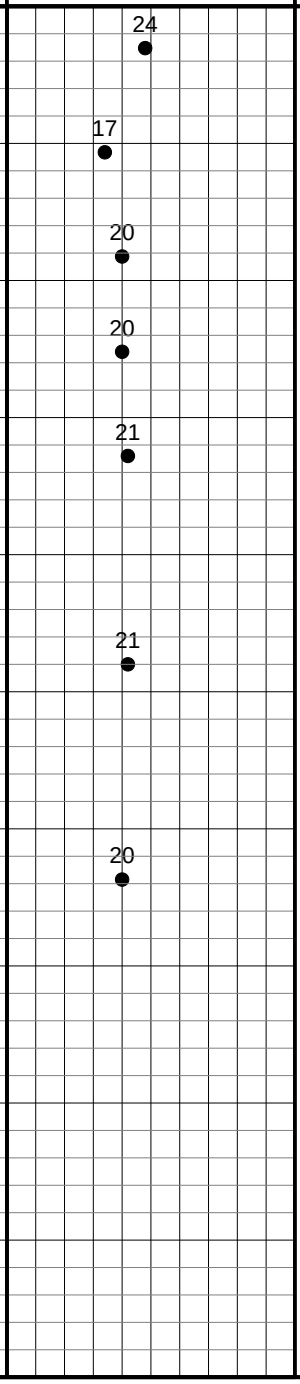
METHOD OF BORING: Hollow-Stem

PROJECT LOCATION: 6684 and 6704 Beatty Line North
Township of Centre Wellington

DRILLING DATE: May 19, 2023

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)
427.0 / 0.0	Ground Surface				
	15 cm TOPSOIL				0
	Brown, stiff	1	DO	8	
	SILTY CLAY TILL sandy, a trace of gravel weathered	2	DO	10	1
425.8 / 1.2	Brown, compact, wet				
		3	DO	18	2
	SAND	4	DO	17	
	fine grained, some silt to silty occ. silt layers	5	DO	12	3
422.4 / 4.6	Grey, compact to loose	6	DO	10	4
	SILT traces to some sand and clay occ. clay layer	7	DO	7	5
420.4 / 6.6	**END OF BOREHOLE**				6
					7
					8
					9
					10





WATER LEVEL: Not measured

Soil Engineers Ltd.

JOB NO.: 2305-S020

LOG OF BOREHOLE NO.: 3

FIGURE NO.: 3

PROJECT DESCRIPTION: Due Diligence for Property Acquisition

METHOD OF BORING: Hollow-Stem

PROJECT LOCATION: 6684 and 6704 Beatty Line North
Township of Centre Wellington

DRILLING DATE: May 18, 2023

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
427.0	Ground Surface							
0.0	**15 cm TOPSOIL**				0			
	Brown, stiff to very stiff	1	DO	13			16	
	SILTY CLAY TILL weathered	2	DO	17	1		8	
	sandy, a trace of gravel	3	DO	18	2		11	
424.7								
2.3	Grey, compact to loose, wet sand layer	4	DO	12			21	
		5	DO	19	3		19	
	SILT				4			
	brown grey	6A 6B	DO	7			22 20	
	traces to some sand and clay occ. sand layers				5			
420.9					6			
6.1	Grey, very stiff **SILTY CLAY TILL** sandy, a trace of gravel	7	DO	24			17	
420.4					7			
6.6	**END OF BOREHOLE**				8			
					9			
					10			

Not measured

Soil Engineers Ltd.

JOB NO.: 2305-S020

LOG OF BOREHOLE NO.: 4

FIGURE NO.: 4

PROJECT DESCRIPTION: Due Diligence for Property Acquisition

METHOD OF BORING: Hollow-Stem

PROJECT LOCATION: 6684 and 6704 Beatty Line North
Township of Centre Wellington

DRILLING DATE: May 19, 2023

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
423.0	Ground Surface							
0.0	**30 cm TOPSOIL**				0			
	Brown, loose to compact, wet	1	DO	6			21	
	weathered	2	DO	16	1		20	
		3	DO	21	2			
	SAND	4	DO	18			25	
		5	DO	18	3		21	
	fine grained some silt to silty				4			
		6	DO	10	5		22	
417.0								
6.0	Grey, loose **SILT**				6			
	some clay, a trace of sand	7	DO	7			21	
416.4								
6.6	**END OF BOREHOLE**				7			
					8			
					9			
					10			

WATER LEVEL: Not measured

JOB NO.: 2305-S020

LOG OF BOREHOLE NO.: 5

FIGURE NO.: 5

PROJECT DESCRIPTION: Due Diligence for Property Acquisition

METHOD OF BORING: Hollow-Stem

PROJECT LOCATION: 6684 and 6704 Beatty Line North
Township of Centre Wellington

DRILLING DATE: May 18, 2023

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
426.3	Ground Surface							
0.0	**15 cm TOPSOIL**				0			
	Brown, loose to compact	1	DO	7			17	
	SAND weathered	2	DO	9	1		20	
	fine grained some silt to silty	3	DO	11	2		21	
	wet below 1.5 m	4	DO	12			20	
423.3					3			
3.0	Compact, wet	5	DO	10			17	
	SILT				4			
	brown grey	6	DO	12	5		15	
	traces to some sand and clay							
420.2					6			
6.1	Grey, very stiff							
	SILTY CLAY TILL	7	DO	22			13	
419.7	sandy, a trace of gravel				7			
6.6	**END OF BOREHOLE**							
					8			
					9			
					10			Not measured

Soil Engineers Ltd.

JOB NO.: 2305-S020

LOG OF BOREHOLE NO.: 6

FIGURE NO.: 6

PROJECT DESCRIPTION: Due Diligence for Property Acquisition

METHOD OF BORING: Hollow-Stem

PROJECT LOCATION: 6684 and 6704 Beatty Line North
Township of Centre Wellington

DRILLING DATE: May 18, 2023

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
425.3	Ground Surface							
0.0	**25 cm TOPSOIL**				0			
	Brown, loose to compact	1	DO	9				
	weathered							
	SAND	2	DO	17	1		11	
	fine grained some silt to silty seepage at 1.5 m	3	DO	17			20	
423.0					2			
2.3	Brown, compact, wet	4	DO	14			17	
	SILT	5	DO	18	3		19	
	traces to some sand and clay occ. clay layers				4			
420.7								
4.6	Brown, compact to loose, wet	6	DO	17	5		19	
	SAND							
	fine grained some silt to silty occ. silt layer				6			
		7A	DO	7			17	
418.7	silt layer	7B					23	
6.6	**END OF BOREHOLE**				7			
					8			
					9			
					10			Not measured

Soil Engineers Ltd.

JOB NO.: 2305-S020

LOG OF BOREHOLE NO.: 7

FIGURE NO.: 7

PROJECT DESCRIPTION: Due Diligence for Property Acquisition

METHOD OF BORING: Hollow-Stem

PROJECT LOCATION: 6684 and 6704 Beatty Line North
Township of Centre Wellington

DRILLING DATE: May 24, 2023

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)
422.1 / 0.0	Ground Surface				
	15 cm TOPSOIL				0
	Brown, firm to stiff	1	DO	4	
	weathered **SILTY CLAY TILL**	2	DO	16	1
	sandy, a trace of gravel	3	DO	7	
420.1 / 2.0	Brown, loose to compact, wet				2
		4	DO	10	
		5	DO	7	3
	SAND				4
		6	DO	6	5
	fine to medium grained a trace to some silt				6
415.4 / 6.7		7	DO	12	
	END OF BOREHOLE				7
	Installed 50 mm Ø monitoring well to 6.1 m completed with 3.0 m PVC slotted screen Sand backfill from 2.1 to 6.1 m Bentonite seal from 0.0 m to 2.1 m Provided with a monument-type steel protective casing.				8
					9
					10

Dynamic Cone (blows/30 cm): 10 30 50 70 90

Shear Strength (kN/m²): 50 100 150 200

Penetration Resistance (blows/30 cm): 10 30 50 70 90

Atterberg Limits: PL — LL

Moisture Content (%): 10 20 30 40

Moisture Content (%): 22, 12, 14, 20, 19, 20, 17

WATER LEVEL

W.L. @ El. 420.2 m on May 29, 2023

Soil Engineers Ltd.

JOB NO.: 2305-S020

LOG OF BOREHOLE NO.: 8

FIGURE NO.: 8

PROJECT DESCRIPTION: Due Diligence for Property Acquisition

METHOD OF BORING: Hollow-Stem

PROJECT LOCATION: 6684 and 6704 Beatty Line North
Township of Centre Wellington

DRILLING DATE: May 19, 2023

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
420.7	Ground Surface							
0.0	**23 cm TOPSOIL**				0			
	Firm to hard	1	DO	7			24	
	weathered	2	DO	9	1		22	
		3	DO	28	2		11	
	SILTY CLAY TILL							
		4	DO	27			9	
		5	DO	22	3		11	
	some sand to sandy, a trace of gravel occ. cobbles and boulders				4			
	brown / brown/grey	6	DO	21	5		14	
414.5		7	DO	50/10	6		9	
6.2	**END OF BOREHOLE**				7			
					8			
					9			
					10			

Dry on completion

Soil Engineers Ltd.

JOB NO.: 2305-S020

LOG OF BOREHOLE NO.: 9

FIGURE NO.: 9

PROJECT DESCRIPTION: Due Diligence for Property Acquisition

METHOD OF BORING: Hollow-Stem

PROJECT LOCATION: 6684 and 6704 Beatty Line North
Township of Centre Wellington

DRILLING DATE: May 24, 2023

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)
425.1 / 0.0	Ground Surface **10 cm TOPSOIL**				0
	Dark brown to black	1	DO	6	
	EARTH FILL	2	DO	4	1
	sandy silt mixed with topsoil	3	DO	2	2
422.8 / 2.3	Loose to compact	4	DO	9	
		5	DO	14	3
	SILT				4
		6	DO	9	5
	traces to some sand and clay occ. clay layers — brown / grey	7	DO	5	6
	wet				7
419.0 / 7.6	Grey, hard **SILTY CLAY TILL**	8	DO	72	8
417.0 / 8.1	some sand to sandy, a trace of gravel occ. cobbles and boulders **END OF BOREHOLE**				9
	Installed 50 mm Ø monitoring well to 7.6 m completed with 4.5 m PVC slotted screen Sand backfill from 2.4 to 7.6 m Bentonite seal from 0.0 m to 2.4 m Provided with a monument-type steel protective casing.				10

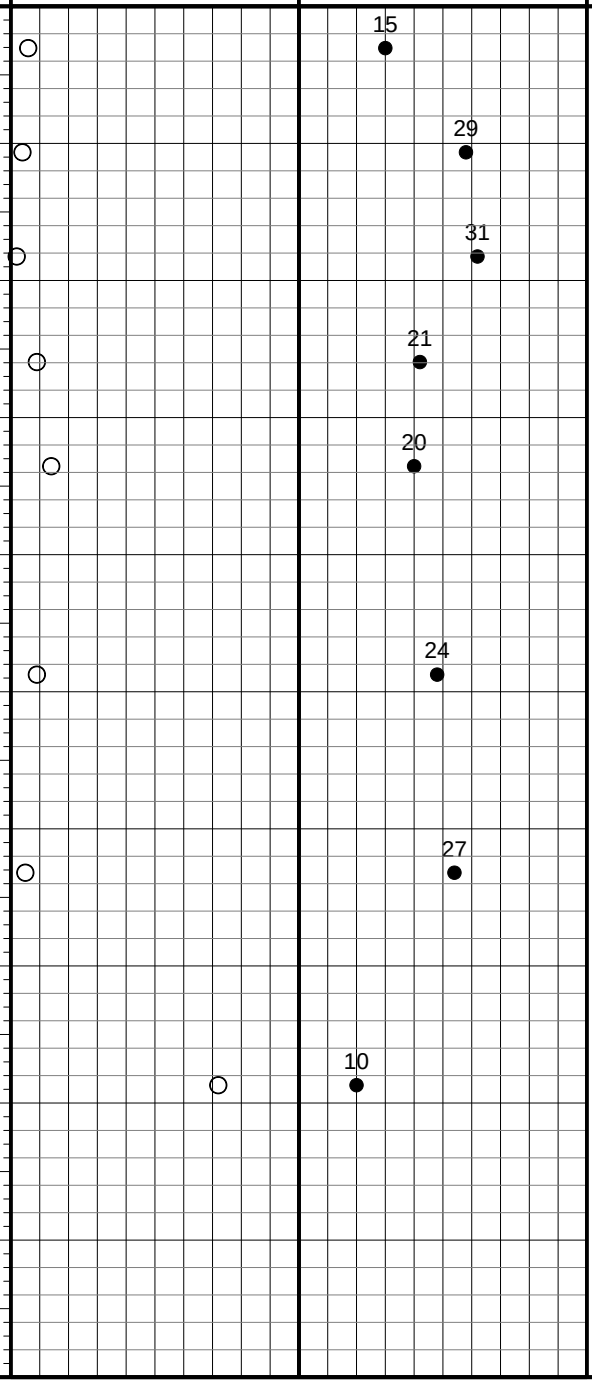
Dynamic Cone (blows/30 cm): 10 30 50 70 90

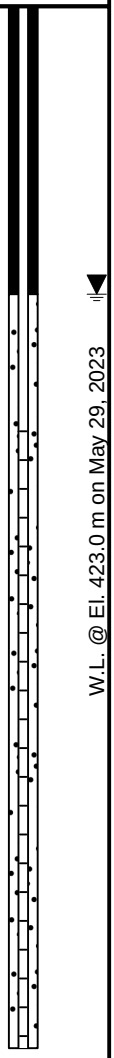
Shear Strength (kN/m²): 50 100 150 200

Penetration Resistance (blows/30 cm): 10 30 50 70 90

Atterberg Limits: PL — LL

Moisture Content (%): 10 20 30 40





W.L. @ El. 423.0 m on May 29, 2023

Soil Engineers Ltd.

JOB NO.: 2305-S020

LOG OF BOREHOLE NO.: 10

FIGURE NO.: 10

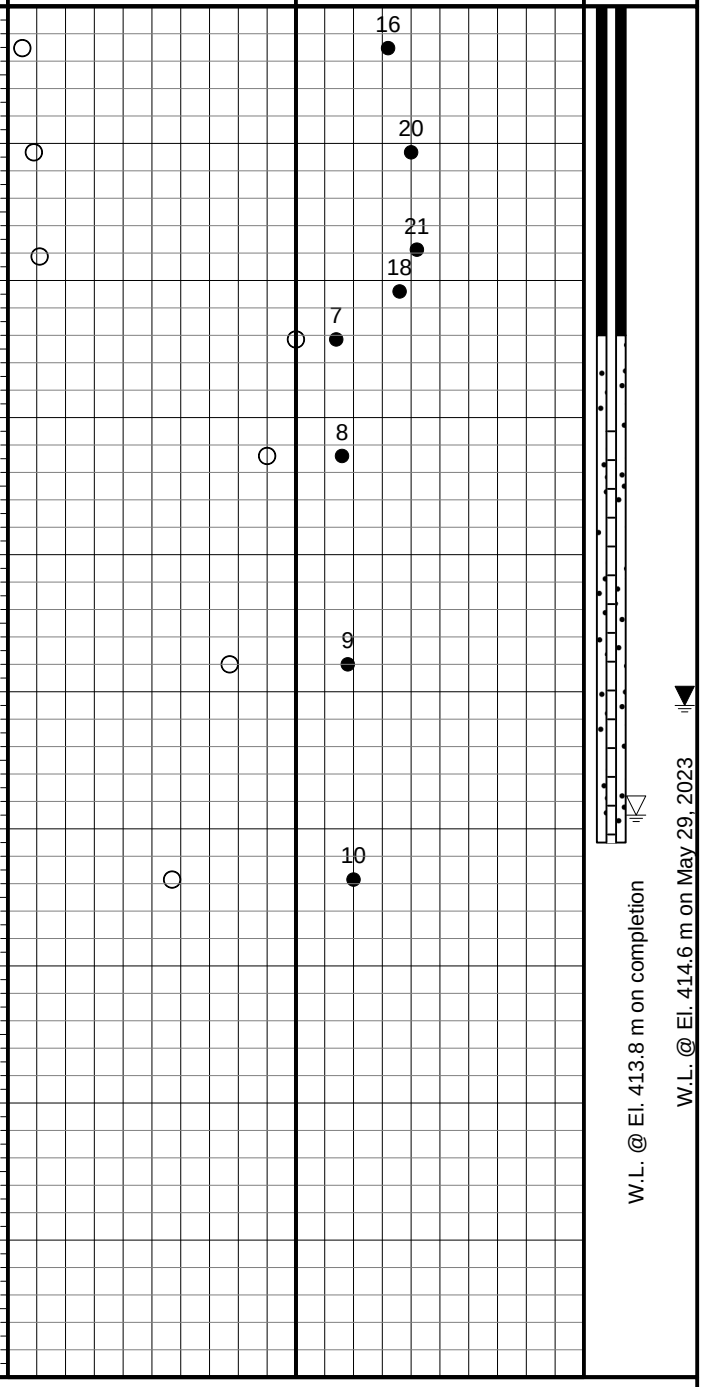
PROJECT DESCRIPTION: Due Diligence for Property Acquisition

METHOD OF BORING: Hollow-Stem

PROJECT LOCATION: 6684 and 6704 Beatty Line North
Township of Centre Wellington

DRILLING DATE: May 23, 2023

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)
419.7	Ground Surface				
0.0	**20 cm TOPSOIL**				0
	Brown, loose, weathered **SAND** fine-grained, a trace to some silt	1	DO	5	
418.9					
0.8	Brown, loose to compact — weathered	2	DO	9	1
	SILT traces to some sand and clay occ. clay layers wet				
	wet sand layer	3A	DO	11	2
		3B			
417.4					
2.3	Hard	4	DO	50/13	
	brown grey				3
		5	DO	90	
	SILTY CLAY TILL				4
	some sand to sandy, a trace of gravel occ. cobbles and boulders	6	DO	77	5
		7	DO	57	6
413.1					
6.6	**END OF BOREHOLE**				7
	Installed 50 mm Ø monitoring well to 6.1 m completed with 3.0 m PVC slotted screen Sand backfill from 2.4 to 6.1 m Bentonite seal from 0.0 m to 2.4 m Provided with a monument-type steel protective casing.				8
					9
					10



Soil Engineers Ltd.

JOB NO.: 2305-S020

LOG OF BOREHOLE NO.: 11

FIGURE NO.: 11

PROJECT DESCRIPTION: Due Diligence for Property Acquisition

METHOD OF BORING: Hollow-Stem

PROJECT LOCATION: 6684 and 6704 Beatty Line North
Township of Centre Wellington

DRILLING DATE: May 23, 2023

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)
423.7	Ground Surface				
0.0	**15 cm TOPSOIL**				0
	Brown, stiff	1	DO	14	
	SILTY CLAY TILL some sand to sandy, a trace of gravel	2	DO	9	1
	weathered				
422.2					
1.5	Compact to loose	3	DO	13	2
	SILT	4	DO	8	
	brown grey				3
	traces to some clay and sand occ. clay layers	5	DO	8	
	seepage below 1.8 m				4
420.7					
4.6	Grey, very stiff	6	DO	22	5
	SILTY CLAY TILL some sand to sandy, a trace of gravel occ. cobbles and boulders				6
417.1		7	DO	36	
6.6	**END OF BOREHOLE**				7
	Installed 50 mm Ø monitoring well to 6.1 m completed with 3.0 m PVC slotted screen Sand backfill from 2.4 to 6.1 m Bentonite seal from 0.0 m to 2.4 m Provided with a monument-type steel protective casing.				8
					9
					10

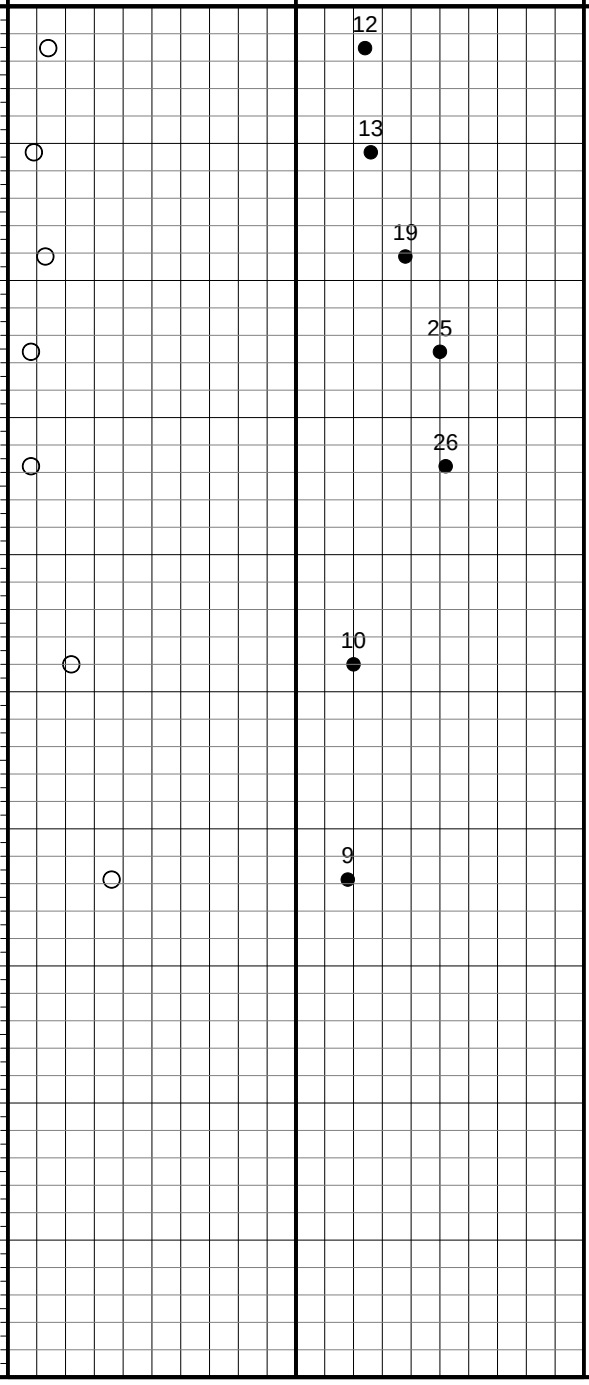
Dynamic Cone (blows/30 cm) 10 30 50 70 90

Shear Strength (kN/m²) 50 100 150 200

Penetration Resistance (blows/30 cm) 10 30 50 70 90

Atterberg Limits PL LL

Moisture Content (%) 10 20 30 40



WATER LEVEL

Dry on completion
W.L. @ El. 422.1 m on May 29, 2023

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GRAIN SIZE DISTRIBUTION

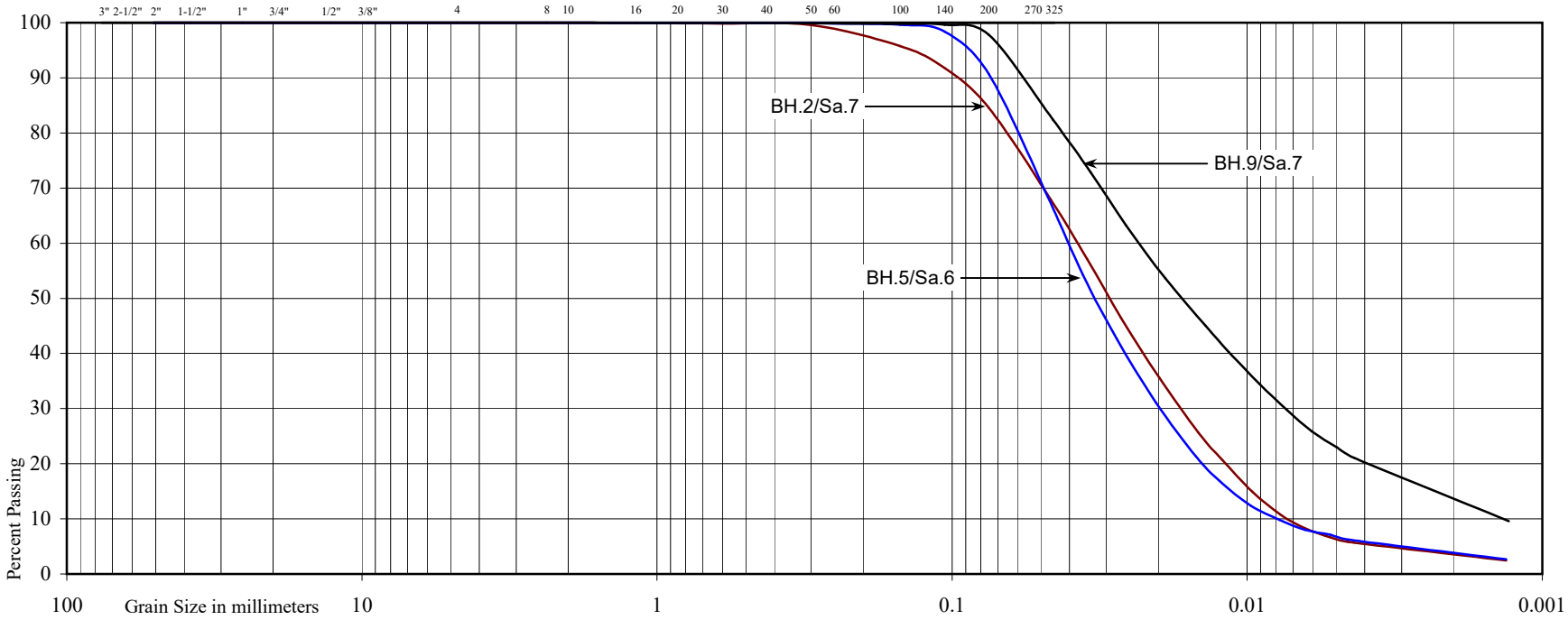
Reference No: 2305-S020

U.S. BUREAU OF SOILS CLASSIFICATION

GRAVEL		SAND				SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	V. FINE		

UNIFIED SOIL CLASSIFICATION

GRAVEL		SAND			SILT & CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



Project:	Due Diligence for Property Acquisition		
Location:	6684 and 6704 Beatty Line North, Township of Centre-Wellington		
	0		
Borehole No:	2	5	9
Sample No:	7	6	7
Depth (m):	6.4	4.8	6.3
Elevation (m):	413.3	421.5	418.8

BH./Sa.	2/7	5/6	9/7
Liquid Limit (%) =	-	-	-
Plastic Limit (%) =	-	-	-
Plasticity Index (%) =	-	-	-
Moisture Content (%) =	10	15	27
Estimated Permeability (cm./sec.) =	10^{-4}	10^{-4}	10^{-6}

Classification of Sample [& Group Symbol]: SILT

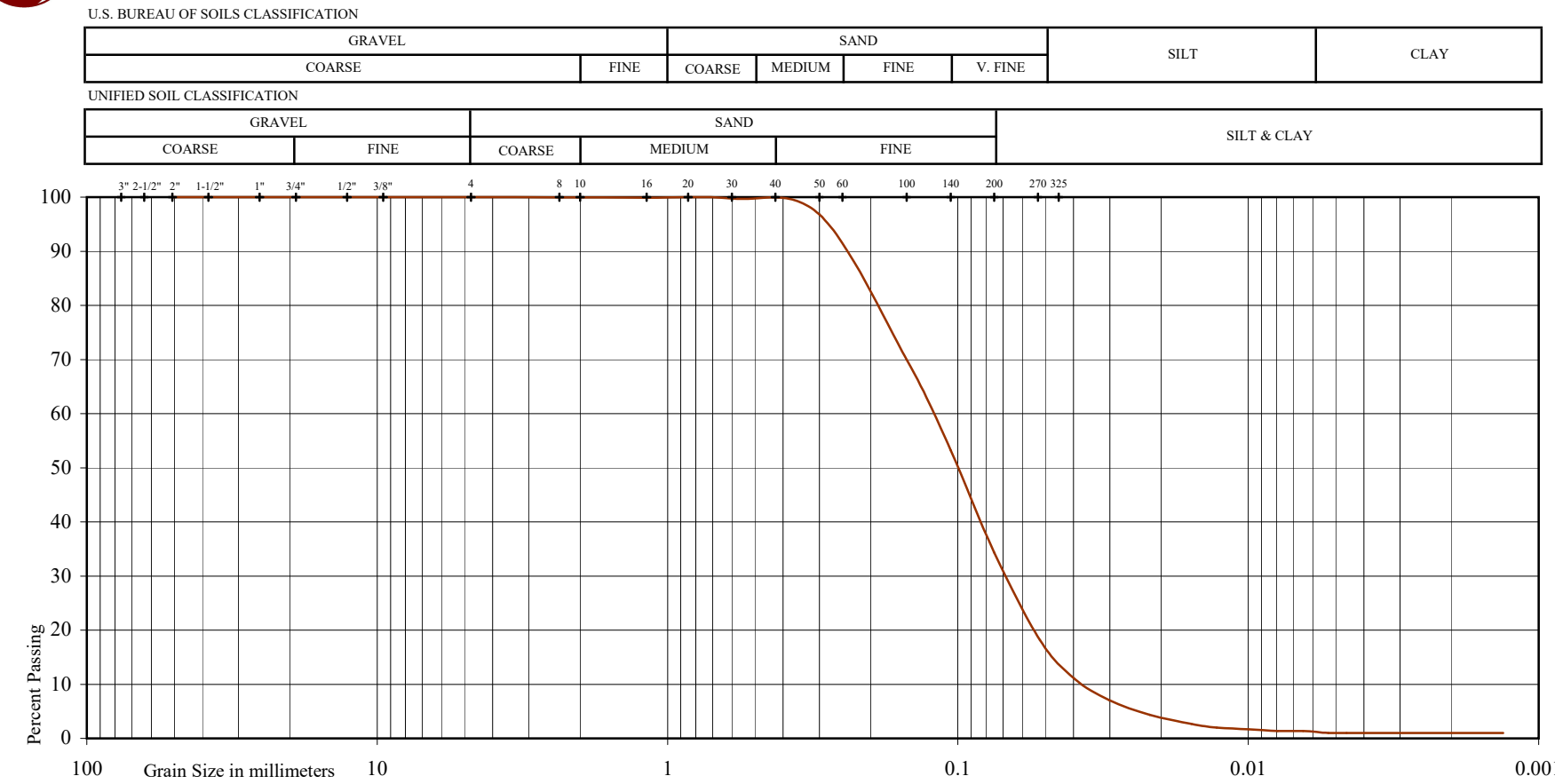
traces to some sand and clay

Figure: 12

Soil Engineers Ltd.

GRAIN SIZE DISTRIBUTION

Reference No: 2305-S020



Project: Due Diligence for Property Acquisition

Location: 6684 and 6704 Beatty Line North, Township of Centre-Wellington

Borehole No: 5

Sample No: 4

Depth (m): 2.5

Elevation (m): 423.8

Liquid Limit (%) = -

Plastic Limit (%) = -

Plasticity Index (%) = -

Moisture Content (%) = 20

Estimated Permeability (cm./sec.) = 10^{-3}

Classification of Sample [& Group Symbol]: SAND
fine grained, silty

Figure: 13

Soil Engineers Ltd.

GRAIN SIZE DISTRIBUTION

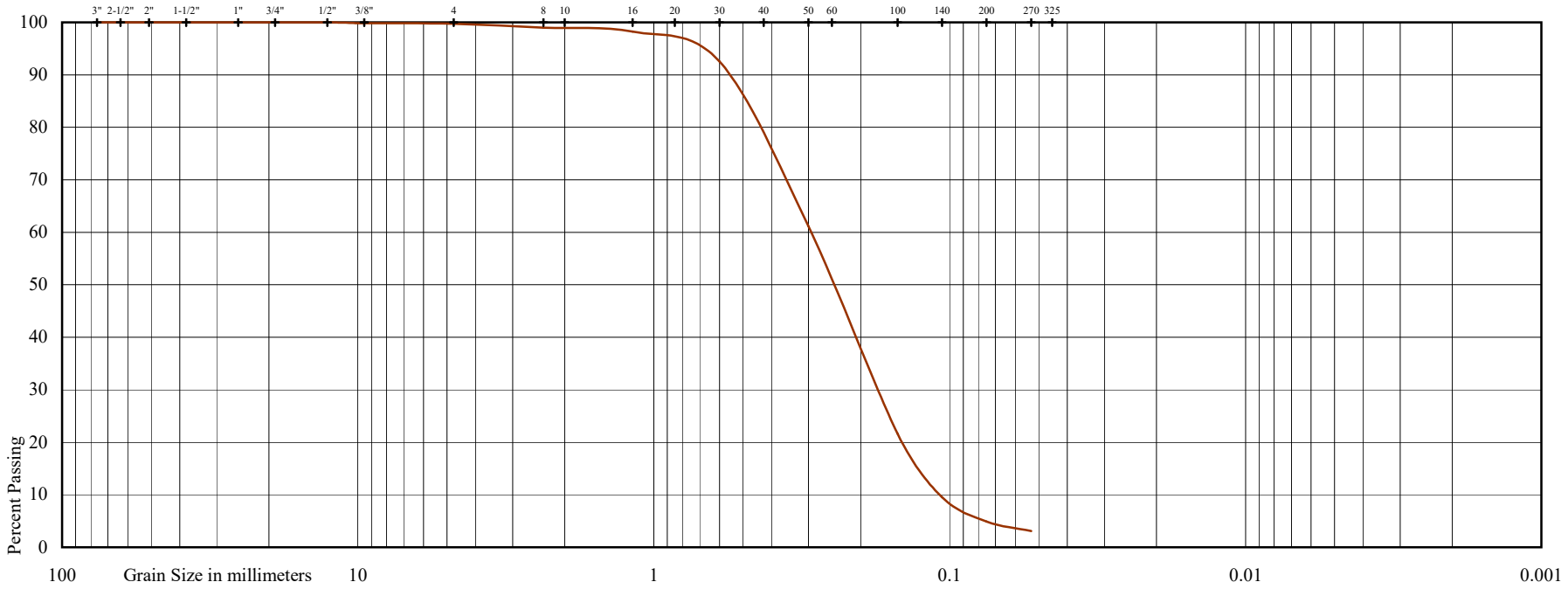
Reference No: 2305-S020

U.S. BUREAU OF SOILS CLASSIFICATION

GRAVEL		SAND				SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	V. FINE		

UNIFIED SOIL CLASSIFICATION

GRAVEL		SAND			SILT & CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



Project: Due Diligence for Property Acquisition

Location: 6684 and 6704 Beatty Line North, Township of Centre-Wellington

Borehole No: 7

Sample No: 4

Depth (m): 2.6

Elevation (m): 419.5

Liquid Limit (%) = -

Plastic Limit (%) = -

Plasticity Index (%) = -

Moisture Content (%) = 20

Estimated Permeability (cm./sec.) = 10^{-2}

Classification of Sample [& Group Symbol]: SAND

fine to medium grained, a trace of silt

Figure: 14

Soil Engineers Ltd.

GRAIN SIZE DISTRIBUTION

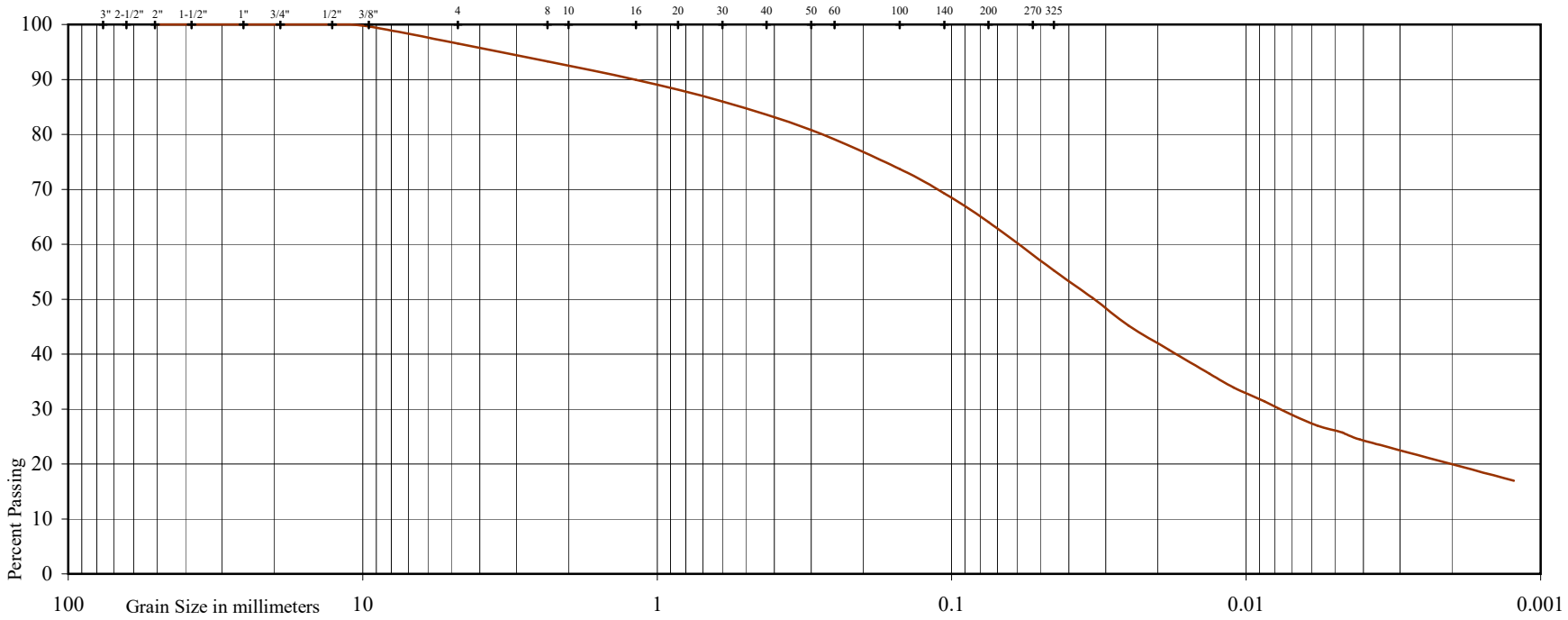
Reference No: 2305-S020

U.S. BUREAU OF SOILS CLASSIFICATION

GRAVEL		SAND				SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	V. FINE		

UNIFIED SOIL CLASSIFICATION

GRAVEL		SAND			SILT & CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



Project: Due Diligence for Property Acquisition

Location: 6684 and 6704 Beatty Line North, Township of Centre-Wellington

Borehole No: 8

Sample No: 4

Depth (m): 2.6

Elevation (m): 418.1

Liquid Limit (%) = 23

Plastic Limit (%) = 16

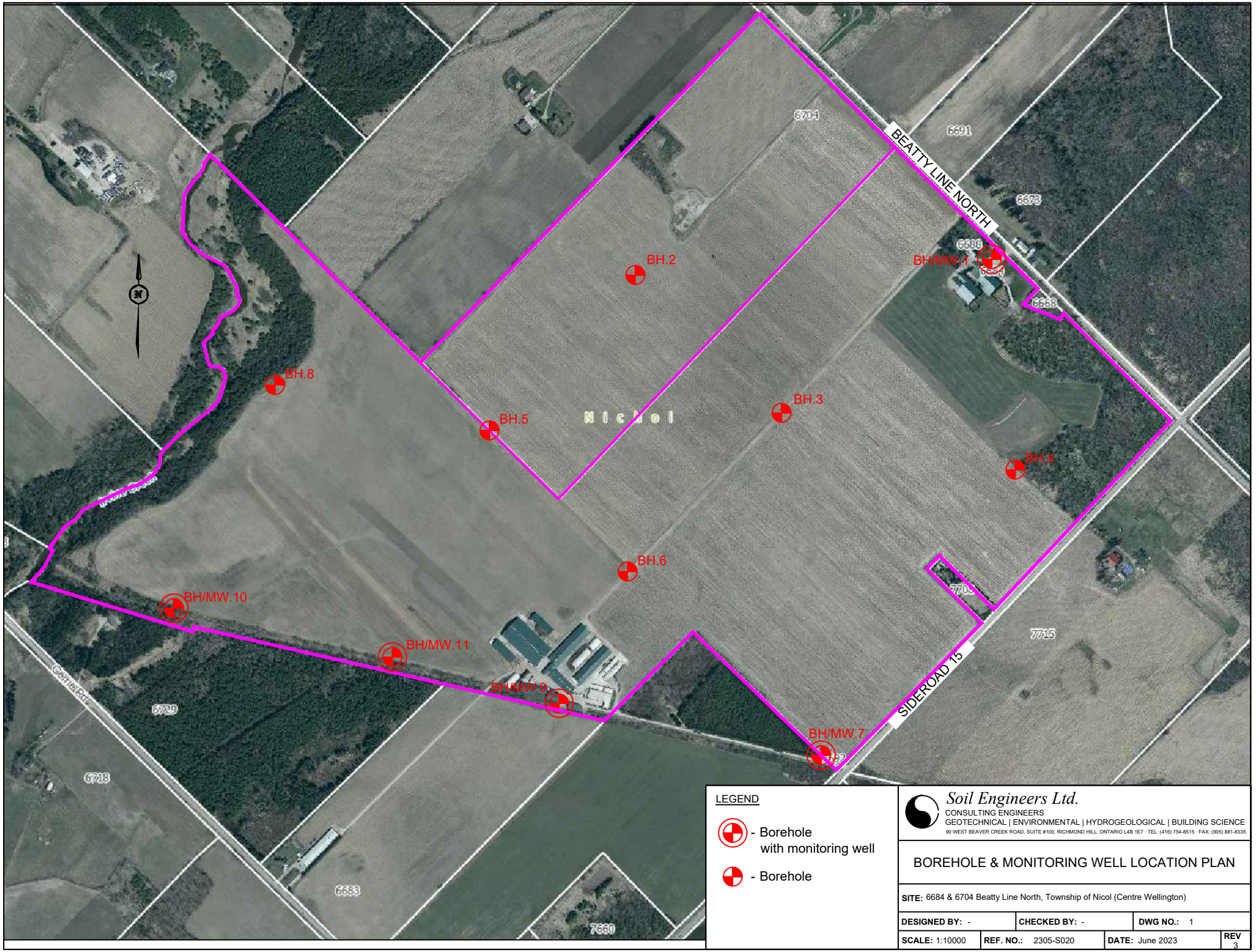
Plasticity Index (%) = 7

Moisture Content (%) = 9

Estimated Permeability (cm./sec.) = 10^{-7}

Classification of Sample [& Group Symbol]: SILTY CLAY TILL
sandy, a trace of gravel

Figure: 15



LEGEND

- Borehole with monitoring well
- Borehole

Soil Engineers Ltd.
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GEOTECHNICAL | ENVIRONMENTAL | HYDROGEOLOGICAL | BUILDING SCIENCE
90 WEST BEAVER CREEK ROAD, SUITE #100, RICHMOND HILL, ONTARIO L4B 1E7 · TEL: (416) 754-8515 · FAX: (905) 881-8335

BOREHOLE & MONITORING WELL LOCATION PLAN

SITE: 6684 & 6704 Beatty Line North, Township of Nicol (Centre Wellington)

DESIGNED BY: -	**CHECKED BY:** -	**DWG NO.:** 1	
SCALE: 1:10000	**REF. NO.:** 2305-S020	**DATE:** June 2023	**REV** 3

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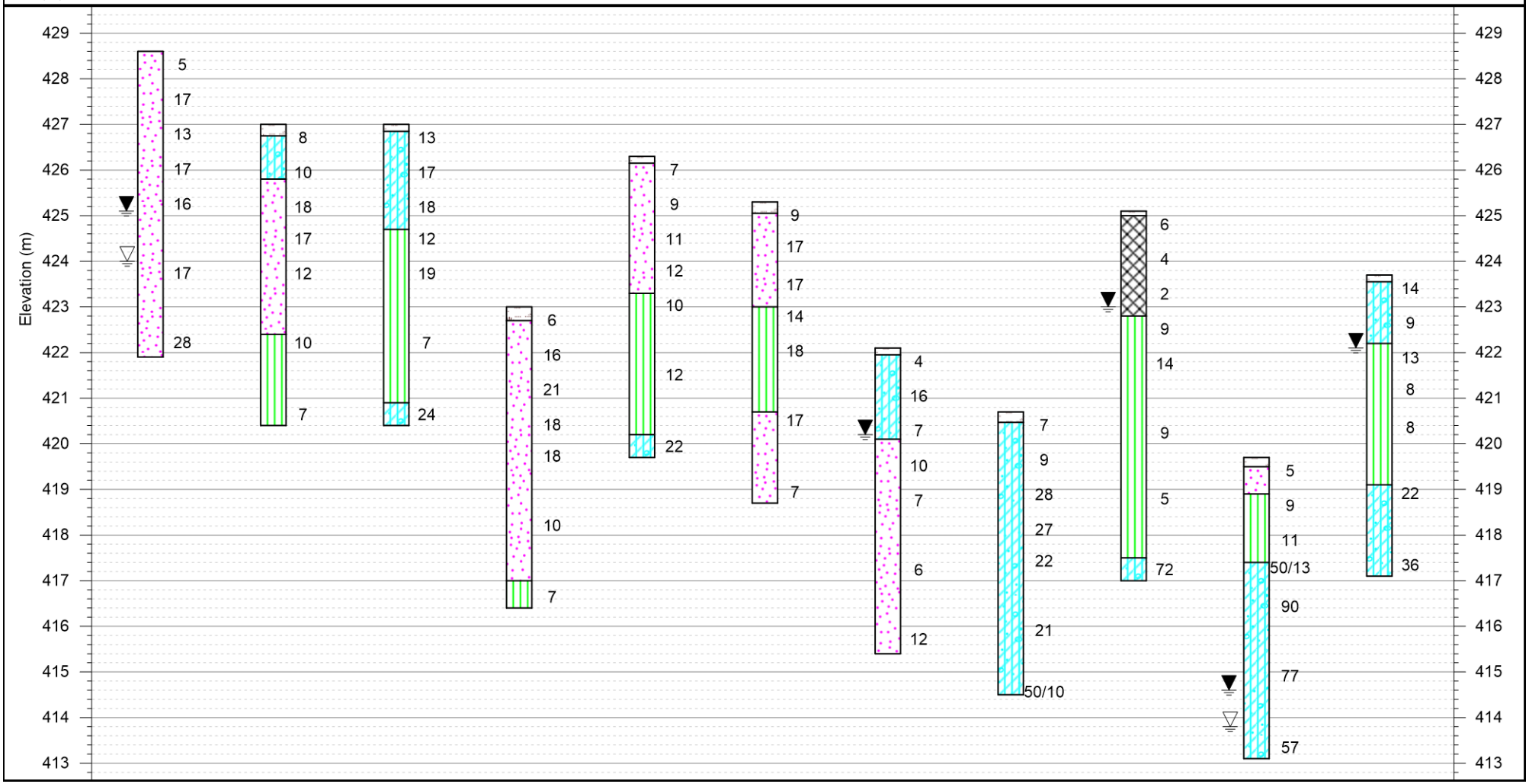
SUBSURFACE PROFILE
DRAWING NO. 2
SCALE: AS SHOWN

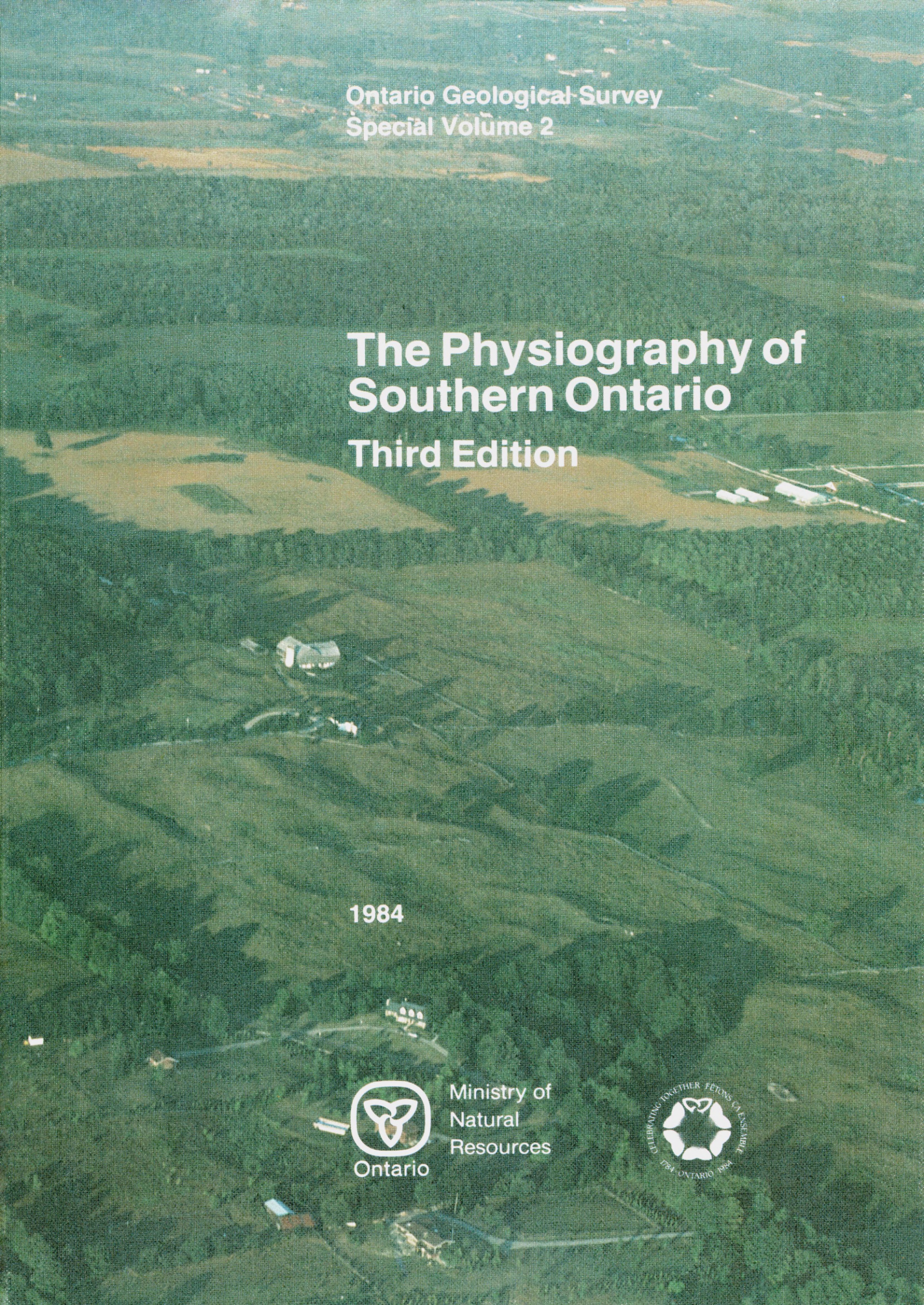
JOB NO.: 2305-S010
REPORT DATE: June 2023
PROJECT DESCRIPTION: Due Diligence for Property Acquisition

PROJECT LOCATION: 6684 and 6704 Beatty Line North
Township of Centre Wellington

LEGEND
TOPSOIL | SAND | SILT | SILTY CLAY TILL | FILL

WATER LEVEL (END OF DRILLING) | WATER LEVEL (STABILIZED)





Ontario Geological Survey
Special Volume 2

The Physiography of Southern Ontario

Third Edition

1984

Ontario
Ministry of
Natural
Resources

TABLE 3	SOIL PROFILE OF THE WATERLOO SANDY LOAM
A_h	3-5 inches, dark brown, friable, slightly stony, sandy loam; pH 6.4.
A_e	10-14 inches, light yellowish brown, very friable, stone-free sandy loam; pH 6.4.
B	8-10 inches, brown, finely blocky, dense, almost stone free, loam; pH 7.0.
C	light grey, loose, calcareous sand.

Land Use and Settlement

Waterloo County (now the Regional Municipality of Waterloo) was settled in the early 1800s by people of German descent who came to Upper Canada from Pennsylvania in their Conestoga wagons. The tradition they brought with them was one of mixed field crop and livestock agriculture. Crops normally occupy about 70% of the farmland but in some cases there is even more. A sample area studied by Lee (1943) was found to have 75% in crop.

Canada Census statistics for 1981 show that each 100 acres of farmland had 3 acres in wheat, 7 acres in barley, 0.3 acres in oats, 20 acres in mixed grains, 16 acres in corn, and 21 in hay. The most noticeable changes in the cropping system in recent years have been the increase in both grain and silage corn, and decrease in oats. Seeded pasture has also decreased from 16% in 1963 to 9% in 1981.

Agriculture is geared to intensive livestock production. Each 100 acres of farmland in Woolwich Township carries about 40 cattle, 1 horse, 1 sheep, 103 hogs, and 777 poultry. This is a total of roughly 69 livestock units. The second highest of any township in Ontario. Needless to say, no farm is an average farm: some specialize in beef production, some in hogs, and a growing number in poultry. The number of dairy farms has decreased although the population of dairy cattle has increased. Hogs have increased greatly in the last 20 years.

Like the rest of agricultural Ontario, Waterloo has lost some of its farm population, but less than the average. Its farm families are about 20% smaller than they were 20 years ago and its farms are only 14% larger.

The whole of the Waterloo sandhills is included in the umland of the greater Kitchener urban complex, which embraces Waterloo, Kitchener, and Cambridge, containing a total of 275,355 people in 1982. There can be no doubt that the market represented by this concentration of consumers is one of the reasons for the intensification of agriculture in the region.

The region is undoubtedly prosperous. Houses and barns are in good repair and usually painted. Much modern equipment is to be seen. Agriculture has made little concession to landform in this area, and greyish patches may be seen on some eroding slopes. The trend toward more corn at the expense of pasture will tend to increase soil erosion. This would appear to be the main concern for the well being of the light-textured soils on sloping land in this outstanding farming region.

11 GUELPH DRUMLIN FIELD

Centring upon the City of Guelph and Guelph Township, the Guelph drumlin field occupies an area of 320 square miles lying to the northwest, or in front, of the Paris Moraine. Within this area, including parts of the Regional Municipalities of Hamilton-Wentworth, Waterloo, and Halton, and part of Wellington County, there are approximately 300 drumlins of all sizes. For the most part these hills are of the broad oval type with slopes less steep than those of the Peterborough drumlins. In this they more closely resemble those of the Teeswater field. They show some variation in the trends of their axes, but all of them are referable to the ice thrust which radiated from the western end of the basin of Lake Ontario. The axes of the main group, near Guelph, bear about 290° while in Puslinch and the northern border of Flamborough Township, to the south, the direction is almost due west.

The drumlins of this field are not so closely grouped as those of some other areas and there is more intervening low ground, which is largely occupied by fluvial materials. The till in these drumlins is loamy and calcareous, and was derived mostly from dolostone of the Amabel Formation so strategically exposed along the Niagara cuesta. In addition it contains fragments of the underlying red shale which is exposed below the escarpment. In consequence it is pale brown in colour, or not so grey as the till of the Peterborough drumlins. Grain size analyses of Guelph till samples have shown an average of 50% sand, 35% silt, and 15% clay. While this represents the composition in the central part of the area, it should be noted that toward the southwest the till is considerably heavier. On the other hand it is progressively more sandy as one proceeds toward the northeast. Moreover, toward the northeast the surfaces of the drumlins are covered by a layer, a few inches thick, of stoneless fine sand and silt which is probably wind deposited. The till throughout is rather stony, with large surface boulders being more numerous in some localities than others.

Over-all, this is a sloping plain between 1,000 and 1,400 feet a.s.l., with an average gradient of about 20 feet per mile from north to south. It is underlain by dolostones of the Amabel and Guelph Formations which dip gently toward the southwest. These rocks are exposed only in the valleys since the drift cover is seldom less than 50 feet in depth and wells are often drilled into the bedrock for water supply.

The ice which moulded this drumlin field advanced from the southeast and the front of the melting receding glacier was at right angles to this, that is, down the slope of the plain. The drainage of the ice front was consequently able to find progressively lower and lower outlets, so that the drumlin field is furrowed by more or less parallel valleys running almost at right angles to the trend of the drumlins themselves. There are also numerous interconnecting cross valleys which occupy deeper depressions between drumlins. Along the sides of these valleys there are broad sand and gravel terraces, while the bottoms are often swampy. The general landform pattern, then, consists of drumlins or groups of drumlins fringed by gravel terraces and separated by swampy valleys in which flow sluggish tributaries of the Grand River. Incidental to this pattern are the several gravel ridges or eskers which cross the plain in the same general direction as the drumlins, with gaps cut through in places by the meltwater spillways. The best example is the one which can be traced from Guelph to West Montrose, while two more are found within five miles to the north. In the presence of so many large stream terraces, these eskers are not so highly regarded as a source of gravel as those of the Dundalk plain where stream gravels are seldom found.

Within this area the dominant soil materials are the stony tills of the drumlins and deep gravel terraces of the old meltwater spillways. Both types of material usually have a shallow veneer of loam which reduces the stoniness of the surface soil.

The soils of the drumlins are classed in the Guelph catena which contains the predominant, well-drained Guelph; the imperfectly drained London; and the poorly drained Parkhill loams. Toward the north some of the soils of the drumlinized plain have been classified in the Harriston catena because of the yellowish brown colour and somewhat more silty texture of the parent material. Otherwise the soils are fairly similar.

The loamy soils of the extensive gravel terraces are referred to the Burford catena and are widely distributed in the Grand River basin. Some of the spillways have poorly drained and even swampy stretches, which for the most part have not been cleared for cultivation.

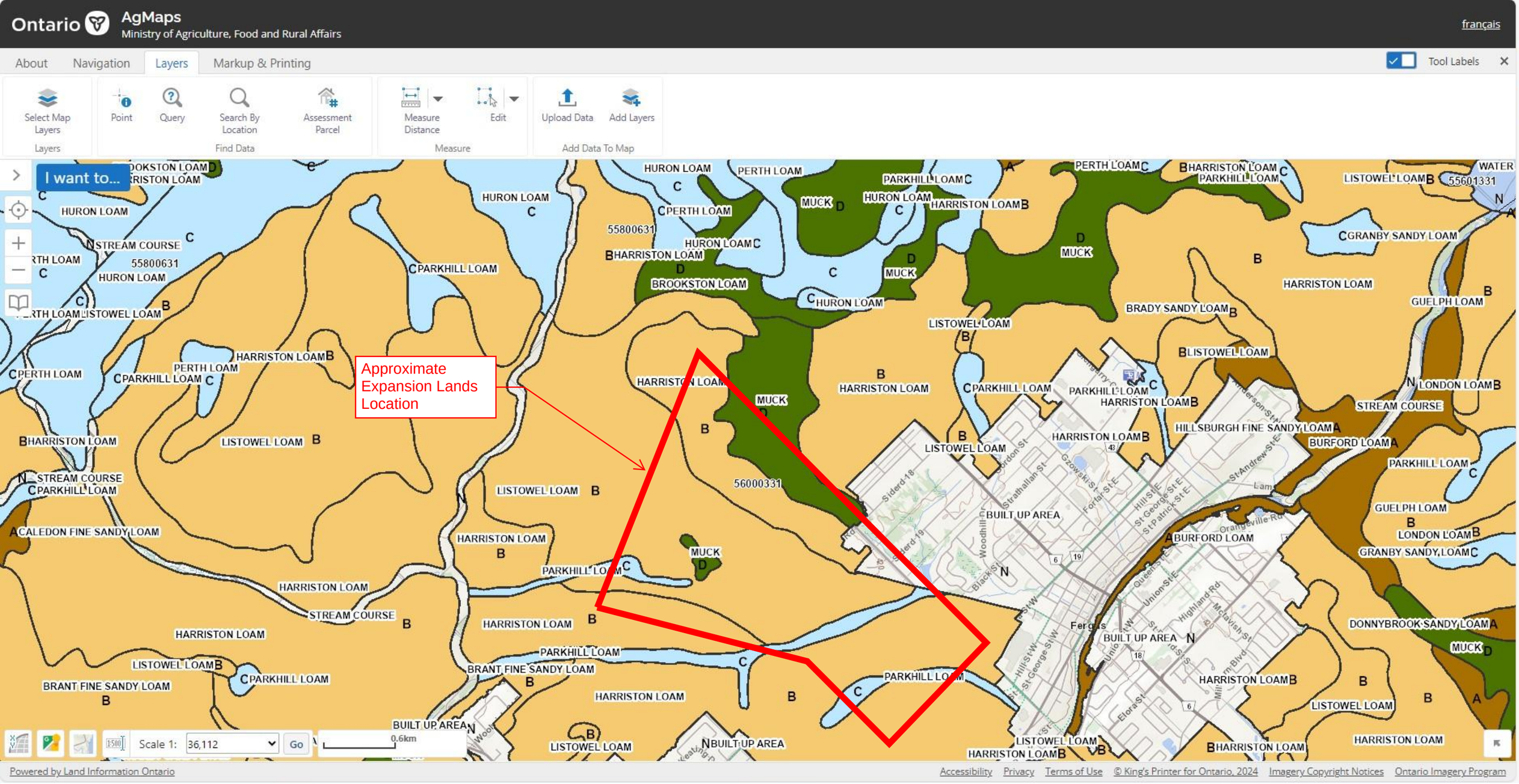
Both the Guelph and Burford are good general purpose soils. The freely drained subsoil of the Burford is somewhat of a disadvantage in dry seasons, but the Guelph on the other hand suffers a comparative disadvantage when the spring is late or the autumn wet. On the whole it is fertile, easily worked, and adaptable to many crops. It will be a durable soil if proper measures, such as strip cropping and grassed waterways, are used to control surface erosion.

The rather large areas of London loam are also quite fertile, but often need systematic tile drainage in order to be of full use. This is also true of the poorly drained Parkhill areas.

Land Use and Settlement

Agriculture on the Guelph till plain was traditionally of a rather generalized type but at the present time it shows signs of specialization toward the production of beef cattle, hogs, and poultry. According to the 1981 census, the average farm is about 130 acres in area with 80% improved and less than 10% left in woods. About 65% of the land is in crop and 10% in improved or seeded pasture. Considerable areas of unimproved land are also grazed. Much of the former "natural pasture", often poorly drained land, has been improved by drainage and seeding, and now has a high carrying capacity. There are approximately 35 livestock units per 100 acres of farmland, or 45 per average farm. Each farm carries about 32 cattle, 51 pigs, 9 sheep, and 238 poultry. In total, livestock carrying capacity in this area is not far behind the Oxford till plain, long regarded as one of the more productive livestock regions of Ontario. The chief difference is that whereas about two-thirds of all farms in Oxford are dairy farms, only about one-third of those in the Guelph till plain could be so regarded, dairying being relatively well developed only near the City of Guelph.

The City of Guelph (76,658 including the suburbs) is the social, cultural, and commercial centre of this region. Founded in 1827 by John Galt of the Canada Company, it was located on a gravel terrace at the confluence of the Speed and Eramosa Rivers or, what is really more significant, the confluence of the two big glacial spillways which were the forerunners of these small modern streams. As the city has grown it has spread over the surrounding hills. The Roman Catholic cathedral surmounts a drumlin at the end of Macdonald Street, while the Guelph Collegiate Institute is located on a sister summit to the west. The big drumlin to the east of the Speed River is crowned by hospital buildings, while to the northwest, Woodlawn Cemetery and Mary Mount Cemetery lie on drumlin slopes. South of the city, the University of Guelph, including the Ontario


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BROOKSTON LOAM
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GUELPH LOAM
LONDON LOAM
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MEMORANDUM

DATE	November 28, 2024
TO	Lucy Stocco Steve Deveaux Trevor Mackenzie
SUBJECT	**Tribute Fergus Oaks Water and Wastewater Servicing Expansion of the Fergus Wastewater Treatment Plant and Expansion of the Groundwater Supply System In the Town of Centre Wellington, Wellington County**
FROM	Stephen O'Brien, P.Eng.
PROJECT NUMBER	TRB-002

DLW Engineering Services Limited was retained by Tribute Communities to provide consulting engineering services related to the conceptual design of the water and wastewater servicing of the Fergus Oaks Residential Development in the Town of Centre Wellington. This memorandum has been prepared to establish the viability of expanding the existing Fergus Water Supply and Wastewater Treatment Plant (WWTP) to accommodate the developments from Tribute Fergus Oaks, Keating, and Brubacher lands. This memorandum will evaluate and discuss the viable water and wastewater servicing options for the proposed developments.

1. WATER SERVICING

1.1. Existing Fergus water supply

The water system in Centre Wellington services two areas, the Elora-Salem Area and the Fergus Area. As per the Water Supply Master Plan (WSMP), the interconnected Fergus-Elora Water Supply System (FEWSS) is supplied by nine groundwater well sources. The system includes 6 wells in Fergus and 3 wells in Elora. According to the February 2023 Annual Water Report, Fergus Well 2 is offline and does not contribute to the system at this time. Additionally, Fergus Well 5 was offline throughout 2022 and did not contribute water to the distribution system. The replacement of Fergus Well 2 and Fergus Well 5 was planned to be completed by the end of 2022. Crozier has determined that well construction and testing has now been completed. Long term testing and subsequent permitting and approvals were to be completed under the Wellfield Capacity Assessment project that was awarded to AECOM in late 2022. Crozier does not believe that these replacement wells have been added to the FEWSS system at this time. We have assumed that these two well capacities are now reinstated. Based on the June 2019 AECOM Water Supply Master Plan, the Fergus water supply system includes the following Table 1.

Table 1. Existing water supply wells information

Well No.	Year Constructed	Total Capacity (L/s)	Total Online Capacity (L/s)
Fergus Municipal Wells			
F1	1935	21.2	21.2
F2	1945	19.0	19.0
F4	1972	22.7	22.7
F5*	1975	20.0	20.0
F6	1989	22.7	22.7
F7	1999	22.7	22.7
Elora Municipal Wells			
E1	1949	24	24
E3	1991	24	24
E4	2002	15	15
Total Capacity		191.3	191.3
Total Firm Capacity		167.3	167.3

* - Formerly this well had a rated capacity of 30.3 L/s

Wells F2 and F5 were taken offline line due to water quality issues but we understand that they have since been replaced and we further understand that each well can produce 20 L/s. The firm water supply capacity for the Fergus-Elora Water Supply System, assuming one of the largest wells is taken out of service and placed on standby, is approximately 167.3 L/s (14,455 m^3/d). The Water Supply Master Plan states that the Fergus-Elora Water Supply system currently has an average day demand of approximately 76 L/s or 6,600 m^3/d. This is equivalent to a maximum day flow of approximately 144.4 L/s or 12,476 m^3/d based on a maximum day factor of 1.9. Thus, the water supply system has a reserve capacity of approximately 22.9 L/s (1,979 m^3/d). The 25 September 2023 Council Report entitled "Uncommitted Reserve Capacity for the Township's Water and Wastewater Systems" by Adam Gilmore stated that the uncommitted reserve capacity for the combined Fergus and Elora water system is 1,191 m^3/d (13.78 L/s) or approximately 1,283 residential development units.

The distribution system covers the Village of Elora and the Town of Fergus and is connected by a booster station. It serves a population of approximately 23,000 people. The well water quality is good and requires only chlorination. The wells are equipped with chlorine gas systems and re- chlorination facilities exist at the booster station and two of the four existing elevated tanks using sodium hypochlorite

1.2. Fergus Water Supply Expansion

As noted above, the existing Fergus-Elora Water supply system services a population of approximately 22,906. With the addition of the proposed Fergus Oaks, Brubacher, and Keating developments, the water supply service population adds a further 11,216 persons which will increase

the total population to approximately 34,122. Based on a water consumption rate of 350 Lpcd for the Fergus Oaks development and also the Water Supply Master Plan in which the water consumption rate in Elora is listed as 281 Lpcd. In 2021 the Fergus serviced population was 15,980 persons and that of Elora was 6,926 persons. Based on this population the Fergus-Elora water supply system will have the following water supply requirements:

- Average Day Flow 107 L/s
- Maximum Day flow 192 L/s
- Peak Hour Flow 288 L/s
- Fire Flow 353 L/s for 5 hours
- Maximum Day + Fire Flow 545 L/s

The well system will need to be expanded to supply the existing four water storage tanks, the proposed new water storage tank for the proposed Fergus Oaks and adjacent developments, and the water distribution system with flows based on maximum day flows of 192 L/s. The balance of equalization and fire flows will be provided through the elevated tank storage and the booster pumping station. Based on the existing well capacities listed above, an additional well supply of 24.8 L/s (2,143 m^3/d) will be required to service the existing development plus the proposed Fergus Oaks and adjacent developments. Based on the foregoing, there is an existing water supply capacity to provide water service for an initial phase of the proposed Fergus Oaks and adjacent developments. However at least one additional well will be required to service the proposed Fergus Oaks and surrounding development.

As noted above, each well is disinfected with chlorine to control bacteria, algae, and viruses by the provincial Procedures for Disinfection for Drinking Water in Ontario guidelines. We assume that any new water supply well will provide water of similar quality to the existing ones and will not require any treatment other than chlorine disinfection. The treatment plant for the proposed well(s) will require a small building structure to house the discharge piping, valves, and flowmeter, chlorination system, MCC's, instrumentation system to monitor water quality, a chlorine contact tank to ensure that the water receives a sufficient amount of chlorine contact before reaching the first consumer. The treatment plant will also include a generator to provide uninterrupted power for the pumps to ensure an uninterrupted water supply to the distribution system.

The Fergus Oaks and adjacent developments will require a new reservoir to meet their storage demands. The water storage tank for the Fergus Oaks and adjacent developments sized strictly for the proposed developments would require 3.63 ML of storage. However, given that the fire storage for the Fergus-Elora water distribution network is shared, the required storage would be somewhat reduced when considering the storage requirement for this proposed development in the context of the entire water supply system. The reservoir configuration at the Fergus Oaks and adjacent developments could be either of the following:

- Inground Concrete Reservoir with associated Booster Pumping Station, all located on the Fergus

Oaks/adjacent developments site with jockey, duty and fire pumps.

- Elevated Storage Tank located on the Fergus Oaks/adjacent developments site fed directly from the wells.

2. WASTEWATER SERVICING

2.1. Existing Fergus Wastewater treatment infrastructure

The Community of Fergus is serviced by the Fergus Wastewater Treatment Plant having a rated capacity (at ADF) of 8,000 m³/day. Based on the design sewage generation rate of 250 Lpcd, and an average inflow and infiltration allowance of 90 Lpcd we estimate that this plant has been designed to service a population of 23,529 persons. The WWTP is serviced by the two sewage pumping stations (SPS) i.e., the Tower Street SPS and the Union Street SPS which are located in in South Fergus. The Tower Street SPS receives and pumps wastewater from a large area in South Fergus through a force main that discharges to a maintenance hole south of the intersection of Tower Street and Elora Street. The Union Street SPS service area is limited to the properties west of Tower Street and north of Wellington Street (except Albert Street). The Union Street SPS pumps wastewater through a force main that discharges to a maintenance hole at the intersection of Union Street and Anthol Street. The wastewater flows by gravity from these maintenance holes to the Fergus WWTP.

According to the uncommitted Reserve Capacity for the Township's Water and Wastewater Systems report to the council dated 25 September 2023, the ADF to the existing WWTP is 4,516 m^3/day, resulting in a reserve capacity of 3,484 m^3/day. The committed capacity was reported as 1,790 m^3/day whereas the available uncommitted reserve capacity was 1,694 m^3/day. This uncommitted reserve capacity is translated into 2,274 equivalent residential units (ERUs) based on flow per unit of 0.745. However, it is worth noting that the reported uncommitted reserve capacity was calculated based on the residential flow rate of 241 Lpcd instead of the revised flow rate of 350 Lpcd (Township of CW design guidelines specify to use of 350 Lpcd for new developments). In addition, inflow and infiltration allowance, which is normally included in WWTP designs, seemed to be excluded. Hence, to calculate an actual reserve capacity, it is important to add an inflow and infiltration flow allowance of 90 Lpcd which corresponds to the revised flow rate of 440 Lpcd.

Table 2: Showing the available reserve capacity in the existing Fergus WWTP

Item No.	Description	Values in the WSP Memo	Calculated Values Including I&I
1	The existing capacity of the WWTP (m^3/day)	8,000	8,000
2	Average ADF (m^3/day)	4,516	4,516

2.3. Fergus WWTP capacity expansion

The Tribute Oak, Keating, and Brubacher project lands are located at the northwest corner of the intersection of Beatty Line North and Sideroad 15, with an approximate area of 190.4 ha, 35.6 ha, and 43.5 ha. The total population for the Fergus Oaks land is 8,368 including 6,856 for residential, 312 for commercial, and 1,200 for Schools. In addition, the residential population projections for Keating and Brubacher lands are 1,282 and 1,566, respectively. This resulted in a total population from the three developmental lands is 11,216. The residential population is calculated based on 36 persons/ha. The design flow rate assumed for residential sewage generation calculation is 350 Lpcd plus 90 Lpcd for infiltration flows. On the other hand, the commercial flow rate and sewage flow from schools are calculated as 28 m^3/ha/day and 140 Lpcd. The detailed wastewater flow for future developments is given in the table 3 below:

Table 3: Design flows for the Proposed Tribute Oaks and Adjacent Developments

		Fergus Oak	Keating	Brubacher	Total
Total Proposed Additional Population		8,368	1,282	1,566	11,216.00
Peaking Factor		3.03	3.73	3.67	2.91
Maximum Day Factor		2	2	2	2.00
Average Dry Weather Flow[1]	m^3/d	2,677	449	548	3,674.00
	L/s	30.98	5.19	6.34	42.51
Average Wet Weather Flow or Average Day Flow (ADF)[2]	m^3/d	**3,430**	**564**	**689**	**4,683.00**
	L/s	**39.70**	**6.53**	**7.98**	**54.21**
Maximum Day Flow	m^3/d	6,860	1,128	1,378	9,366.00
	L/s	79.40	13.06	15.95	108.41
Peak Dry Weather Flow	m^3/d	8,113	1,673	2,009	10,672.00
	L/s	93.91	19.36	23.26	123.52
Peak Wet Weather Flow	m^3/d	10,013	1,964	2,364	13,217
	L/s	115.9	22.73	27.37	145.00
Peak Instantaneous Flow	m^3/d	11,126	2,182	2,628	14,687
	L/s	128.8	25.25	30.41	170.00
ADWF = Population x 350 (Lpcd) ADF = AWDF + Population x infiltration flow					

The existing Fergus wastewater treatment plant does not have sufficient treatment capacity to handle the full projected wastewater flow from the proposed Tribute Oaks and adjacent developments. A facility expansion to increase the capacity will be required. The available uncommitted reserve capacity of 629 m^3/day can be used for the initial phase of the development. Until the sanitary trunk sewer is constructed, the Tower Street Sewage Pumping Station (SPS) has sufficient capacity to accommodate wastewater for the initial phase of development at the northeast portion of the development Area. Wastewater will be directed to the existing maintenance hole at the intersection of McQueen Boulevard and Millburn Boulevard, where it will then be conveyed to the Tower Street SPS. At such time that the Tower Street SPS is decommissioned, flows will be redirected to a future sanitary sewer on Guelph Street.

The existing Fergus WWTP is a conventional activated sludge plant with tertiary sand filtration and ultraviolet disinfection before discharge to the Grand River. The ECA compliance limits for the effluent discharge to the Grand River are as follows:

- BOD_5 15 mg/L
- Total Suspended Solids 15 mg/L
- Total Phosphorus 0.38 mg/L
- Total Ammonia Nitrogen 5.0 mg/L (Dec 1 – Apr 30) and 2.0 mg/L (May 1 – Nov 30)

Plant operating data from 2021 when the plant was processing an ADF of 3,738 m^3/d shows that the plant achieved the following treatment:

- BOD_5 3.8 mg/L
- Total Suspended Solids 5.9 mg/L
- Total Phosphorus 0.18 mg/L
- Total Ammonia Nitrogen 0.44 mg/L

Thus, the plant is operating well within its ECA operating limits.

The expanded Fergus WWTP, assuming the additional Fergus Oaks and adjacent development flows are added to the existing Fergus WWTP, will be as follows Table 4.

Table 4. Combined flow from the existing and proposed developments

		Existing WWTP flows	Proposed Fergus Oaks, Brubacher and Keating Development flows	Total
Total Proposed Additional Population		23,529	11,216.00	34745.00
Peaking Factor		2.58	2.91	2.75
Maximum Day Factor		2.0	2.00	2.00
Average Dry Weather Flow	m^3/d	5,882	3,674.00	9,556.00
	L/s	68.08	42.51	110.59
Average Wet Weather Flow	m^3/d	**8,000**	**4,683.00**	**12,683.00**

3. CONCLUSION AND RECOMMENDATIONS

Based on the foregoing we are confident that that there are viable water and wastewater servicing options for the proposed Fergus Oaks and adjacent lands developments based on the expansion of the well water supply system and expansion of the existing Fergus Wastewater Treatment Plant.

3.1. Water supply system

The interconnected Fergus-Elora water supply system has a firm capacity of approximately 167.3 L/s with a current demand of approximately 144 L/s. Thus, there is a reserve capacity of approximately 22.9 L/s (1,979 m^3/d) to service the proposed development. The proposed Fergus Oaks and adjacent developments will increase the water supply demand for Fergus-Elora to 192 L/s, resulting in the requirement for approximately 24.8 L/s water supply system expansion.

Each well in the Fergus-Elora water system is disinfected with chlorine to control bacteria, algae, and viruses by the provincial Procedures for Disinfection for Drinking Water in Ontario guidelines. We assume that any new water supply well will provide water of similar quality to the existing ones and will not require any treatment other than chlorine disinfection.

The proposed Fergus Oaks and adjacent developments would require 3.63 ML of storage if the existing development and existing storage are ignored. This storage volume will likely be significantly reduced in consideration of the shared fire storage and uncommitted reserve capacity in the existing Centre Wellington water storage system. The storage tank could be an elevated storage tank or an inground tank with an associated booster pumping station.

3.2. Wastewater treatment systems

The Fergus WWTP has a rated capacity of 8,000 m^3/day with an uncommitted reserve capacity of 765 m^3/d. Thus, there is some ability to service the proposed development with the uncommitted reserve capacity of the WWTP. The proposed Fergus Oaks and adjacent developments will increase the required capacity of the Fergus WWTP to 12,683 m^3/d (8,000 m^3/day + 4,683 m^3/day). It is worth noting that recent Google Earth images of the existing WWTP plant suggest that there is sufficient land available for the proposed plant expansion to accommodate the Fergus Oaks and adjacent developments. However, existing Fergus WWTP contract drawings, design reports, and site plans are required to ascertain the actual availability of space for the proposed expansion. The increased design flow for the WWTP can continue to meet the effluent requirements of the Assimilative Capacity Assessment using the same treatment technologies as are currently being used in the plant. For the future flow of 4,683 m^3/day, it is proposed to expand the WWTP by either following the same existing

conventional ASP process (Option A) or extended aeration technology (Option B). The key features of both options are given below:

Table 10. process train comparison between the option A and B

No.	Treatment Units	Option A (Existing conventional activated sludge process)	Option B (Extended aeration technology)
1	Screen	Required	Required
2	Grit removal system	Required	Required
3	Primary settling tanks	Required	Not required
4	Aeration Tanks	Required but of smaller HRT of 9.56 hours and low aeration demand of 1 g of O_2/g of BOD_5	Required but of higher HRT of 26.5 hours and higher aeration demand of 1.5 g of O_2/g of BOD_5
5	Secondary clarifier	Required	Required
6	Tertiary filters	Required	Required
7	UV-disinfection system	Required	Required
8	Sludge production	10 to 15% more	Less
9	Primary sludge digestion	Required	Not required
10	Secondary sludge digestion	Required	Required
11	Digested sludge storage tank volume	Required (large volume)	Required (small volume)

New Well Exploration Program Feasibility Assessment Report

FINAL REPORT

February 12, 2024

Prepared for:
The Township of Centre Wellington
1 Macdonald Square
Elora, ON N0B 1S0

Prepared by:
Stantec Consulting Ltd.
300W-675 Cochrane Drive
Markham, ON L3R 0B8

Project Number:
160951289

Limitations and Sign-off

The conclusions in the Report entitled New Well Exploration Program Feasibility Assessment Report are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

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Prepared by: PROFESSIONAL GEOSCIENTIST STEPHEN M. DI BIASE PRACTISING MEMBER 1203 ONTARIO Di Biase, Stephen 2024.02.13 16:13:39 -05'00'

Signature

Stephen Di Biase, P.Geo.
Senior Hydrogeologist

Printed Name and Title

Reviewed by: Digitally signed by Veale, Lesley Date: 2024.02.13 16:05:21 -05'00'

Signature

Lesley Veale, P.Geo.
Senior Hydrogeologist

Printed Name and Title

Executive Summary

To satisfy its predicted 2041 water demand, the Township of Centre Wellington (Township) 2019 Water Supply Master Plan (WSMP) recommended developing 7,023 m^3/day (81 L/s) of additional groundwater supply. A total of eight potential new well areas were identified in the WSMP and subjected to a multi-criteria evaluation in accordance with the Municipal Class Environmental Assessment process, which also included public consultation. The evaluation identified four preferred well areas (Areas 3, 5, 7, and 8) and recommended that they be investigated for possible development as new well sites. In accordance with the direction provided by the WSMP, Stantec carried out a hydrogeological field study within the targeted areas. The field study program, referred to as the New Well Exploration Program (NWEP) included:

- Installation of bedrock cored holes in each area, including geophysical logging, packer testing water quality sampling, and completion of the cored holes as multi-level monitoring wells.
- Installation and performance testing of pilot test wells in Areas 3 and 7, to assess potential well yields and conduct further groundwater sampling at these locations.
- Baseline water resources monitoring over a 4-month period.

The field study results have improved the understanding of hydrogeological conditions within the NWEP Study Area, which remains consistent with the Township's hydrogeological conceptual model (Matrix, 2017). The overburden and bedrock stratigraphy reflect a multi-layered sequence of aquifers and aquitards. These stratigraphic layers can be organized into two active groundwater flow systems (shallow and deep), which are each underlain by regionally extensive confining layers (i.e., aquitards).

Formation	Stratigraphic Member	Composition / Lithology	Flow System
Overburden		Predominantly stratified or glaciofluvial sands and gravels. Thick sequences of glacial till in some areas.	shallow bedrock aquifer. local groundwater flow system
Salina Group	A-2, A-1, A-0	porous, dolomudstone	
Guelph Formation	Hanlon	porous, lagoonal dolostone	
	Wellington	porous, reefal dolostone	
Goat Island Formation	Ancaster	fine-grained, low porosity dolostone	regional confining layer (aquitard)
	Niagara Falls	fine-grained, porous dolostone	deep bedrock aquifer. regional groundwater flow system
Gasport Formation		porous, crinoidal dolostone	
Irondequoit / Rockway / Merritton Formations		crystalline dolostones	
Cabot Head Formation		fine-grained, non-calcareous shale	regional confining layer (aquitard)

Packer testing and pumping test results indicate good groundwater supply potential at Areas 3, 5 and 7. Municipal test wells (i.e., 300 mm diameter wells) that are open to both shallow and deep bedrock at these locations, could be capable of producing yields as high as 30 L/s (2,600 m^3/day).

The groundwater samples collected during performance testing of the NWEP pilot test wells met all health parameters of the Ontario Drinking Water Quality Standards (ODWQS; O. Reg. 169/03). Groundwater samples also complied with the aesthetic objectives of iron, manganese, sodium and chloride for the ODWS. No significant concentrations of hydrocarbons or pesticides were detected within the pumped groundwater. The turbidity of pumped groundwater predominantly remained below 0.5 NTU and there were no detections of fecal coliforms, Escherichia, cryptosporidium oocysts, giardia cysts or pigment bearing algae and diatoms. Applying these preliminary performance testing results to the Ontario Ministry of Environment, Conservation and Parks' (MECP) Groundwater Under the Direct Influence (GUDI) guidance document (MECP, 2019), pumped groundwater from the NWEP pilot test wells is not considered to be GUDI.

Within a 500 m radius of each NWEP well location, there are less than 5 private wells. The long-term operation of new municipal wells in these locations therefore reflect a low risk to groundwater users within the Township. The are no source protection concerns regarding the operation of municipal wells at the NWEP locations.

Pumped groundwater from new municipal wells at Areas 3, 5 and 7 would have ultimately reported to the Grand River. An additional 81 L/s of municipal groundwater pumping would reflect approximately 3% of the local Grand River baseflow rate. The potential for operation of new municipal wells, at NWEP locations, to adversely impact the normal flow conditions or temperature of the Grand river is therefore considered to be a low risk. Further field investigation, as recommended below, should be undertaken to identify any potential effects to Cascade and Carrol Creeks.

Recommendations for further study are provided to support regulatory permitting of municipal test wells installed at NWEP locations. They include:

- Installation of municipal test wells at two to three locations (Areas 3, 5 and 7). Long term operation of these municipal test wells requires that a Class Environmental Assessment (Schedule B or C) be undertaken.
- Establishment of new surface water and groundwater monitoring locations surrounding and within the up-gradient capture area of NWEP pilot test well locations. This includes executing a long-term water quantity and quality monitoring program.
- Commissioning of a long-term (30 day) pumping test at municipal test well locations, during seasonally low water table periods (between June 15 and September 15). During the test period, groundwater samples from municipal test wells should be collected and analyzed in accordance with Ontario Drinking Water Quality Standards and the 2019 MECP draft terms of reference for "*Determination of Minimum Treatment for Municipal Residential Drinking Water Systems Using Subsurface Raw Water Supplies*".
- Surveying and instrumenting additional private domestic wells within the capture area of the NWEP pilot test wells.

- Updating the Township's Tier 3 Water Budget Assessment groundwater flow model based on the additional field study results. This model could then be used to support capture area delineation and horizontal groundwater travel times from future operation of the NWEP municipal test wells in accordance with the 2021 Technical Rules: Assessment Report (EBRO 019-2219) and develop further source protection recommendations.

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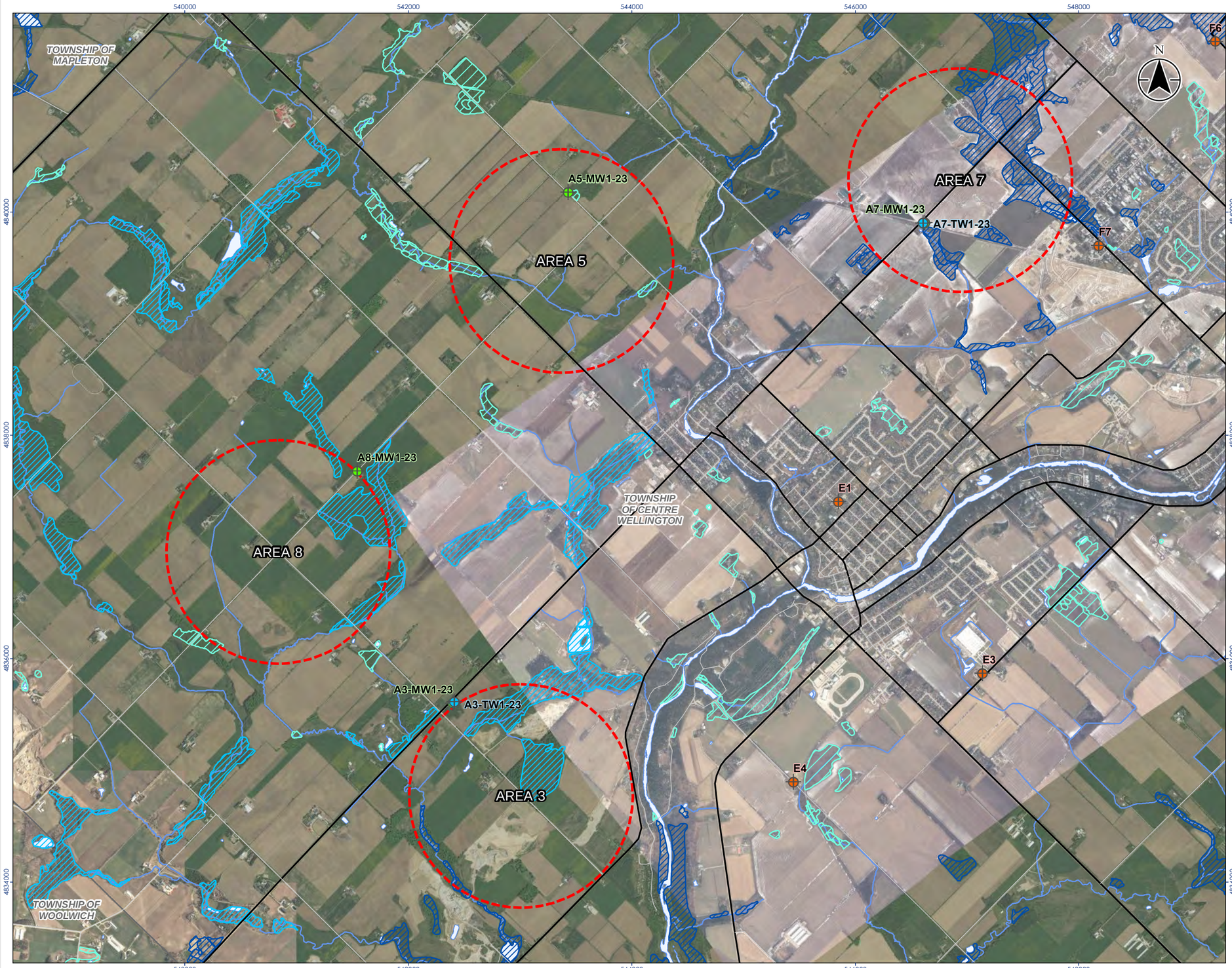
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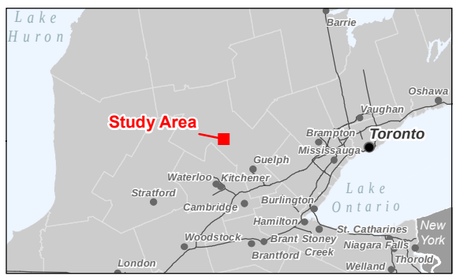
- NWEP Target Area
- NWEP Monitoring Well (Stantec, 2024)
- NWEP Pilot Test Well (Stantec, 2024)
- Municipal Water Well
- Major Road
- Minor Road
- Watercourse
- Waterbody
- Wetland - Evaluated (Provincial)
- Wetland - Evaluated (Other)
- Wetland - Not evaluated per Ontario Wetland Evaluation System
- Municipal Boundary - Lower Tier

0 1 2 km

1:35,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2021.



Project Location
Township of Centre Wellington

160951289 REVA
Prepared by PRM on 2024-01-11
Technical Review by SMD on 2024-01-11

Client/Project
TOWNSHIP OF CENTRE WELLINGTON
NEW WELL EXPLORATION PROGRAM
FEASIBILITY ASSESSMENT REPORT

Figure No.
C-1

Title
NWEP Study Area

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\\cd1004-f01\work_group\01609\active\160951289\01_data\gis_cad\gis\mxds\Hydrogeology\report_figures\Hydrog_Assess\Appendix\C\160951289_HG_Assmt_FigC-1_NWEP_Study_Area.mxd Revised: 2024-01-11 By: pmosier

Appendix D New Well Implementation Strategy

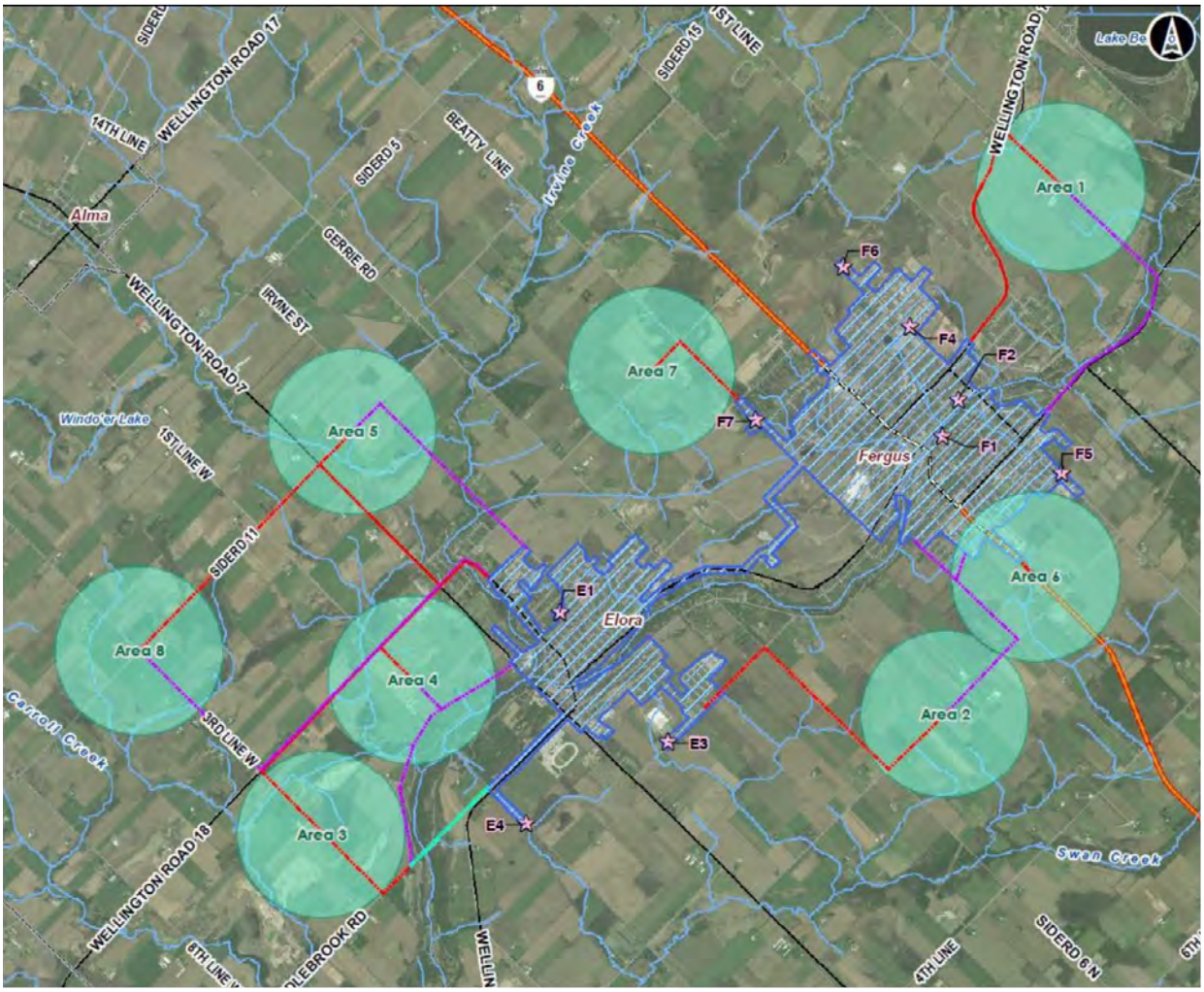


Figure 1: Ariel map of the Township's existing wells and proposed areas of exploration.

Preliminary assessments of daily pumping rates from Area 3, 5 and 7 were completed by Stantec. The results from the field pumping study are summarized in Table 1.

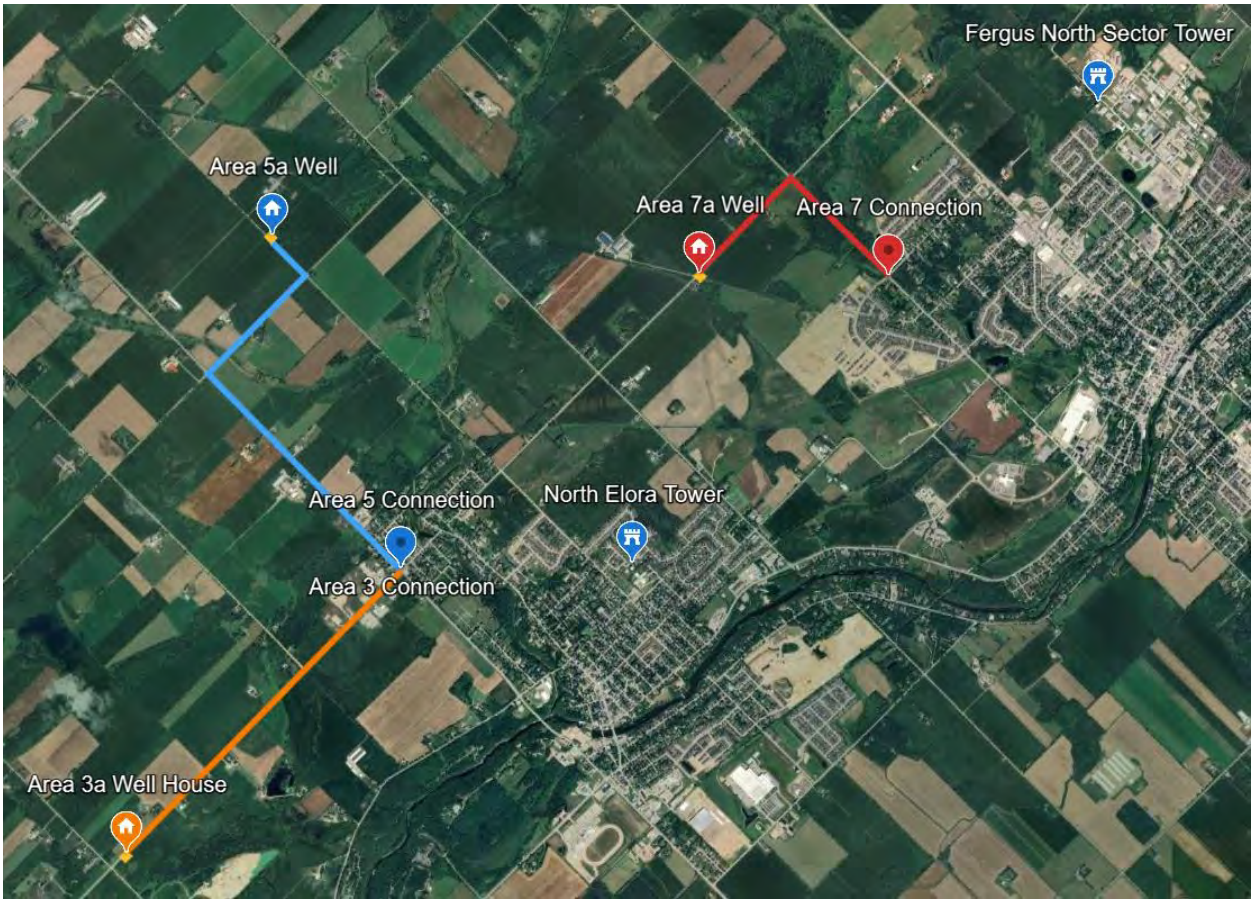


Figure 2: New Watermain Connections for Areas 3, 5 and 7.

4.1 TARGET AREA NO. 3

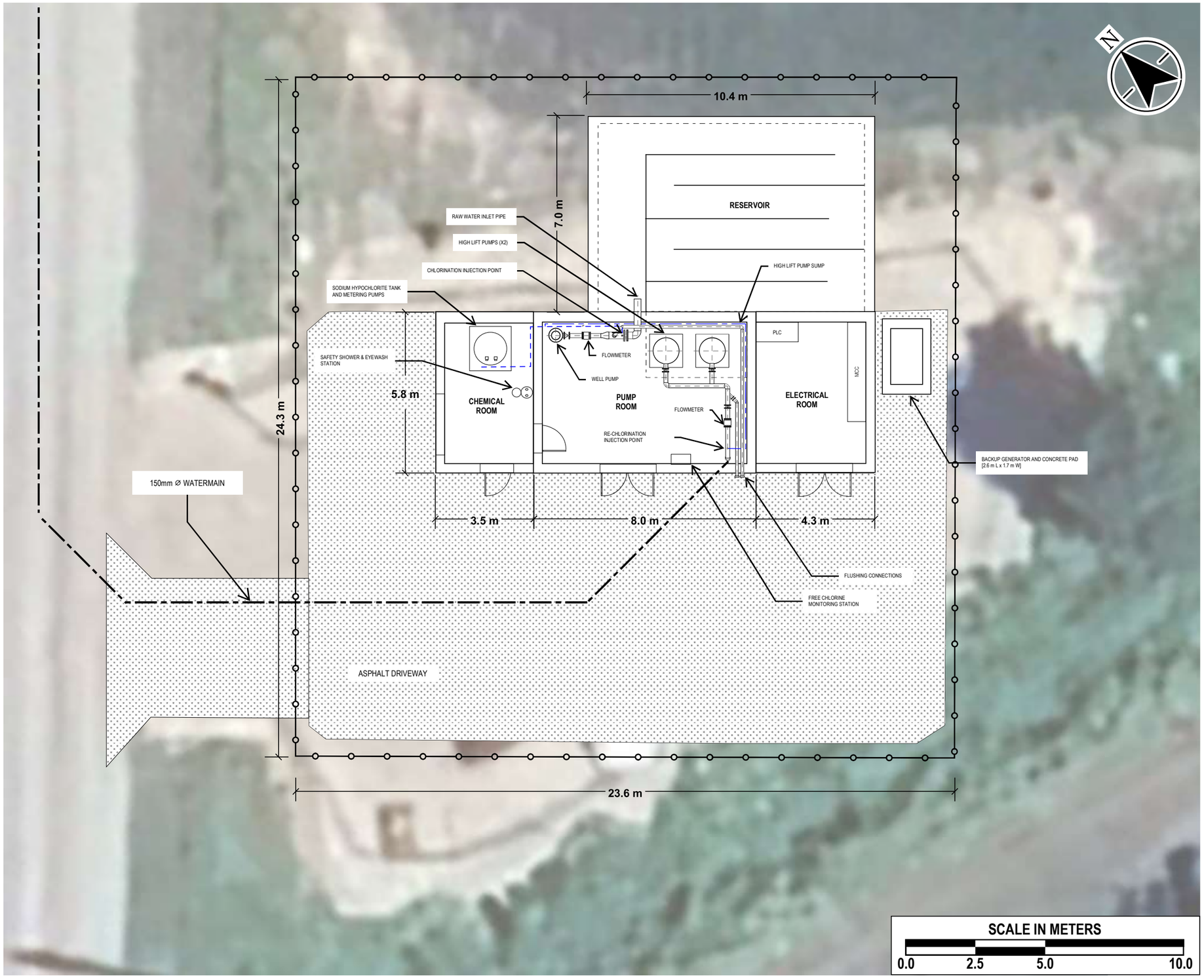
4.1.1 Well Building

The Area 3 well house will be located near the intersection of Line 3 West and Wellington Rd 18, Centre Wellington. The wellhouse. The building for area 3 sits within the edge of the northwestern side of the land parcel and it is privately owned. The well house parcel is relatively flat with an elevation of approximately 385m.

The preliminary wellhouse building design is separated into three separate rooms: a chemical storage room, a process room, an electrical equipment room and water reservoir. The pumping room also poses hazards due to the high-pressure piping within the building. Therefore, it is recommended that these rooms are kept separate from the electrical equipment.

ATTACHMENT B

General Arrangement Drawings





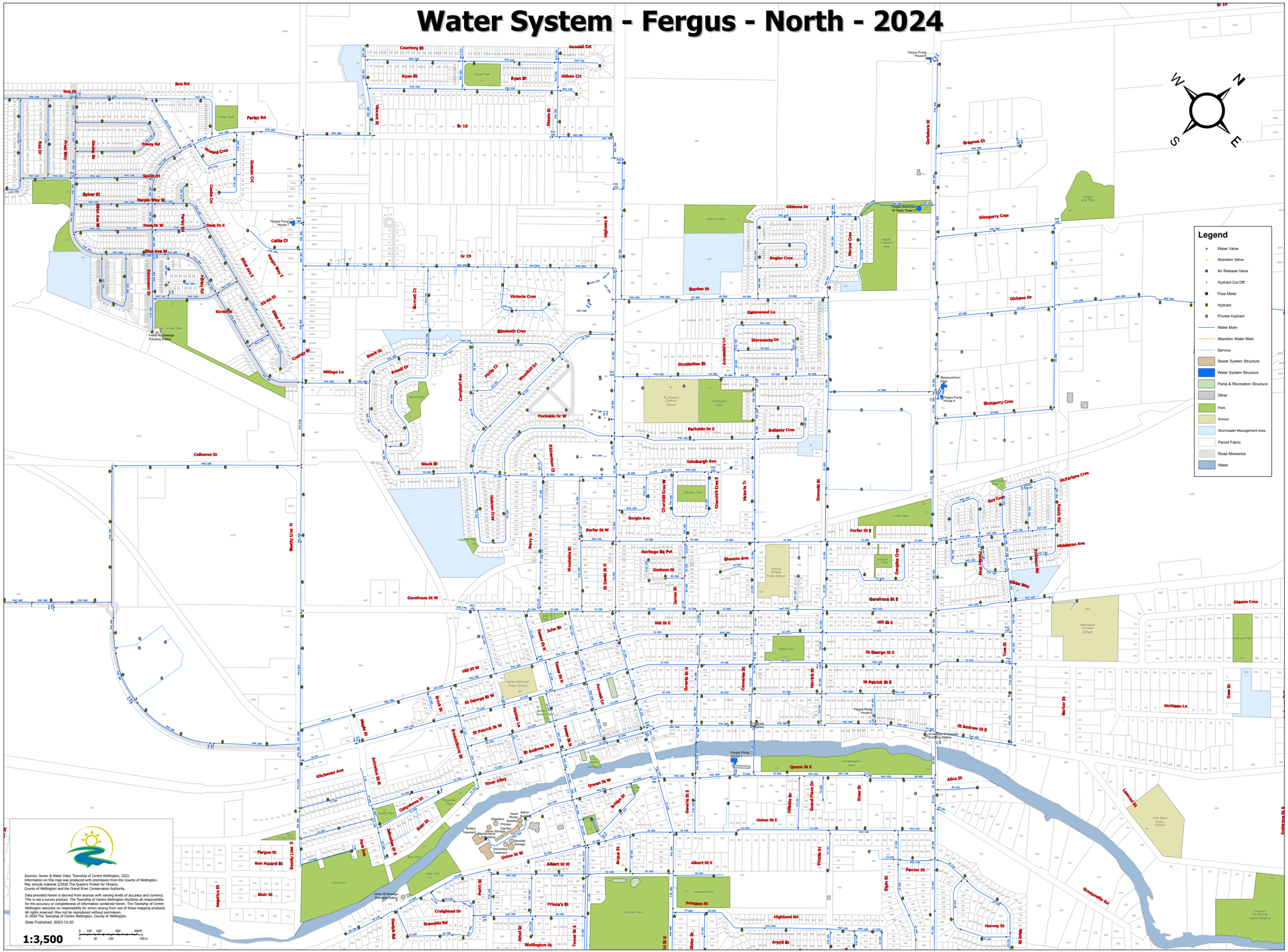
CENTRE WELLINGTON WELL SITE NO.7

PUMP HOUSE GENERAL LAYOUT

REV	DESC.	DATE:	SCALE: NTS
0	FOR REVIEW	8/21/2023	DRAWN BY: CNH
1	FOR REVIEW	11/7/2023	CHECKED BY: BW
2	FINAL ISSUE	2/1/2024	REV: 2 SHT 3 OF 3

Stantec

Water System - Fergus - North - 2024



Sanitary and Storm Sewer Systems
Fergus North
2024

Sanitary System
- LPSS Air Release Valve
- LPSS Cleanout Valve
- LPSS Flow Meter
- Maintenance Hole
- Private Maintenance Hole
- Low Pressure Main
- Forced Main
- Overflow
- Private Gravity Main
- Service

Stormwater System
- Outfall
- Oil-Grit Separator
- Storm Maintenance Hole
- Inlet/Outlet
- Catch Basin
- Conveyance Channel
- GWCS
- Storm Main
- Retention Chamber
- Retention Pond
- Stormwater Management Area

- Sewer System Structure
- Water System Structure
- Parks & Recreation Structure
- Park
- School

Sources: Sewer & Water Data: Township of Centre Wellington, 2023.
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County of Wellington and the Grand River Conservation Authority.

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Wellington assumes no responsibility for errors arising from use of these mapping products.
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Date Published: 2023-12-20

1:3,750

0 100 200 400 600 ft
0 50 100 200 m

James Fletcher

From: James Fletcher
Sent: November 19, 2024 10:52 AM
To: James Warren; Katelyn Gillis
Cc: Edward John; Matt Britton; Heaven Lin; Brendan Hummelen; Justin Soldo; Stephen O'Brien; Verinder Singh
Subject: RE: Fergus Oaks - Population

Hi James and Katelyn,

Thank you for the call this morning! As discussed, we will proceed with the assumed density of **36 persons per ha** in our calculations to estimate the population for the Fergus Oaks, Keating, and Brubacher properties. This population density on a per ha basis is loosely based on the approximately 2.5 ppu your team proposed for Fergus Oaks but has been rounded to a whole number to be appropriate for this level of study.

Please feel free to add any notes if you feel that I missed any.

Kind regards,

James

James Fletcher
Engineering Intern, Land Development
Office: 905.876.7132
Collingwood | Milton | Toronto | Bradford | Guelph

Celebrating 20 years and another year as one of Canada's Top Growing Companies.

CROZIER

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TATHAM ENGINEERING

Enhancing our communities



South Fergus MESP & Secondary Plan

FUNCTIONAL SERVICING REPORT

South Fergus Landowners Group

File 120157 March 5, 2024

5 Water Servicing

5.1 EXISTING INFRASTRUCTURE

The Centre Wellington Drinking Water System is supplied by nine groundwater wells (five in operation in Fergus and four in Elora). Chlorinated water from these wells supplies the combined Elora-Fergus water distribution system that is comprised of three pressure zones. The Study Area is within the Fergus South pressure zone. The closest production well to the Study Area is Fergus Well 5 (Well F5) located at 886 Scotland Street. The Elora-Fergus water distribution system is comprised of approximately 121 km of watermains and four elevated storage tanks. Water is pumped from Elora to Fergus by the Aboyne Booster Pumping Station (BPS).

There are no known existing constraints that currently limit the capacity of the existing water network to meet the water demands. The water distribution system is shown on Drawing WM-1 in Appendix D.

5.2 DESIGN CRITERIA

Water servicing criteria for the Study Area were developed based on the *Township of Centre Wellington Development Manual Draft*, the *Design Guidelines for Drinking-Water Systems* (MECP, 2008), and guidelines used in other municipalities. The criteria used for this FSR are as follows:

- Residential per capita average day demand 300 L/person/day
- Industrial, commercial and institutional (ICI) demand 20,000 L/ha/day
- Maximum day factor (MDF) 1.9
- Suggested fire flows based on land use:
  - Low density residential 100 L/s
  - Medium density residential 120 L/s
  - Mixed use 200 L/s
  - Industrial, commercial, institutional 200 L/s

5.3 PROJECTED DEMANDS

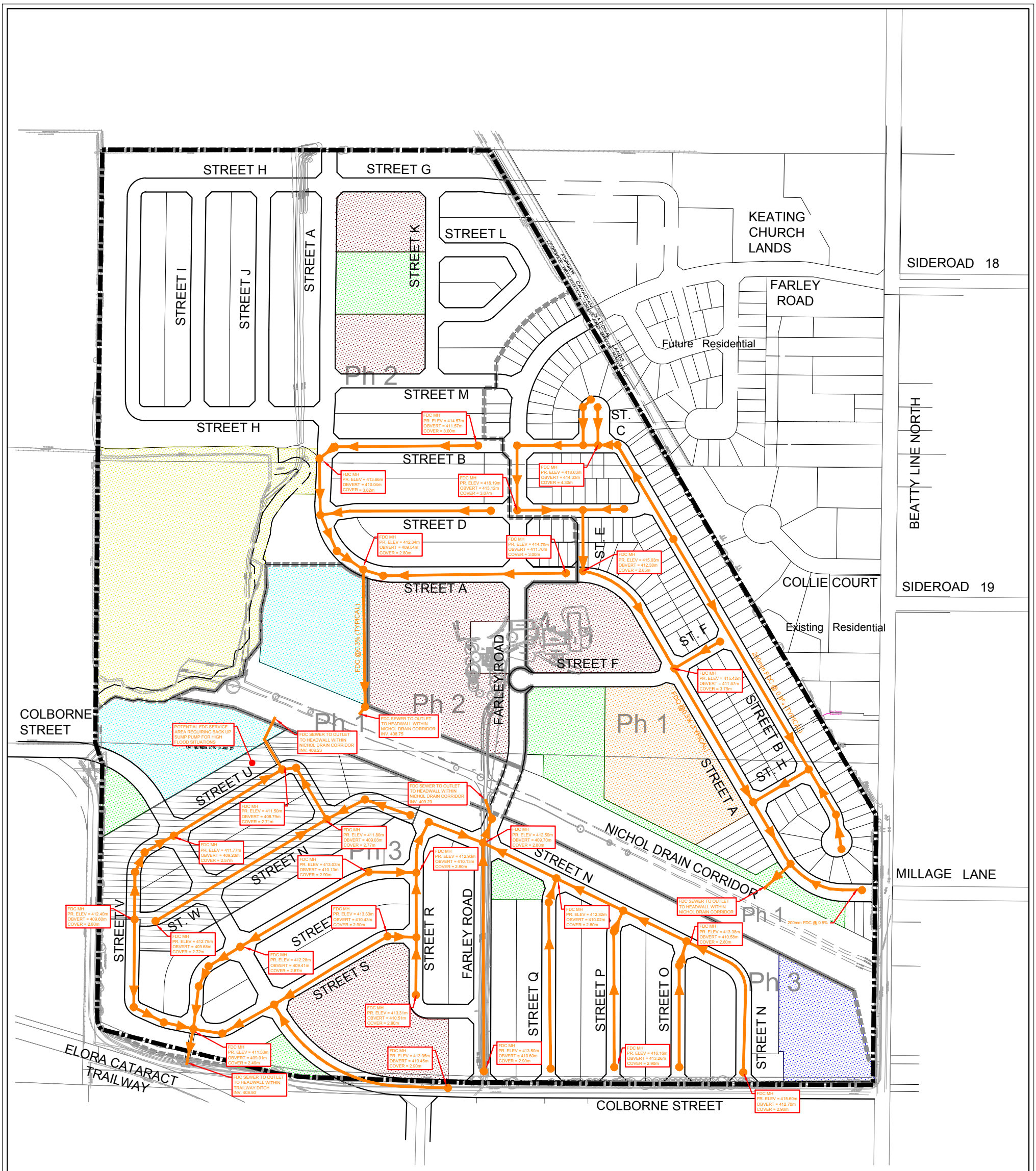
Water demands for the Study Area were calculated using the design criteria outlined above and based on the Preferred Land Use Plan. The projected average day demand (ADD) is 2,244 m^3/day and the maximum day demand (MDD) is 4,263 m^3/day, as summarized by land use area in Table 5. Detailed calculations for the water demands are included in Appendix B.

Functional Servicing and Stormwater Management Report, Storybrook Subdivision

Township of Centre Wellington, North West Fergus Secondary Planning Area

R.J. Burnside & Associates Limited
6990 Creditview Road, Unit 2
Mississauga ON L5N 8R9 CANADA

December 2016 - Revised February 2018
300031145.5389



LEGEND:

- NORTH WEST FERGUS SECONDARY PLANNING AREA BOUNDARY
- PROPOSED PHASING LIMITS
- PROPOSED FDC SEWER
- PROPOSED PARK BLOCK
- PROPOSED MEDIUM DENSITY BLOCK
- EXISTING WOODLOT
- PROPOSED SCHOOL BLOCK
- PROPOSED COMMERCIAL BLOCK
- PROPOSED SWM FACILITY
- AREA REQUIRING BACK UP SUMP PUMPS

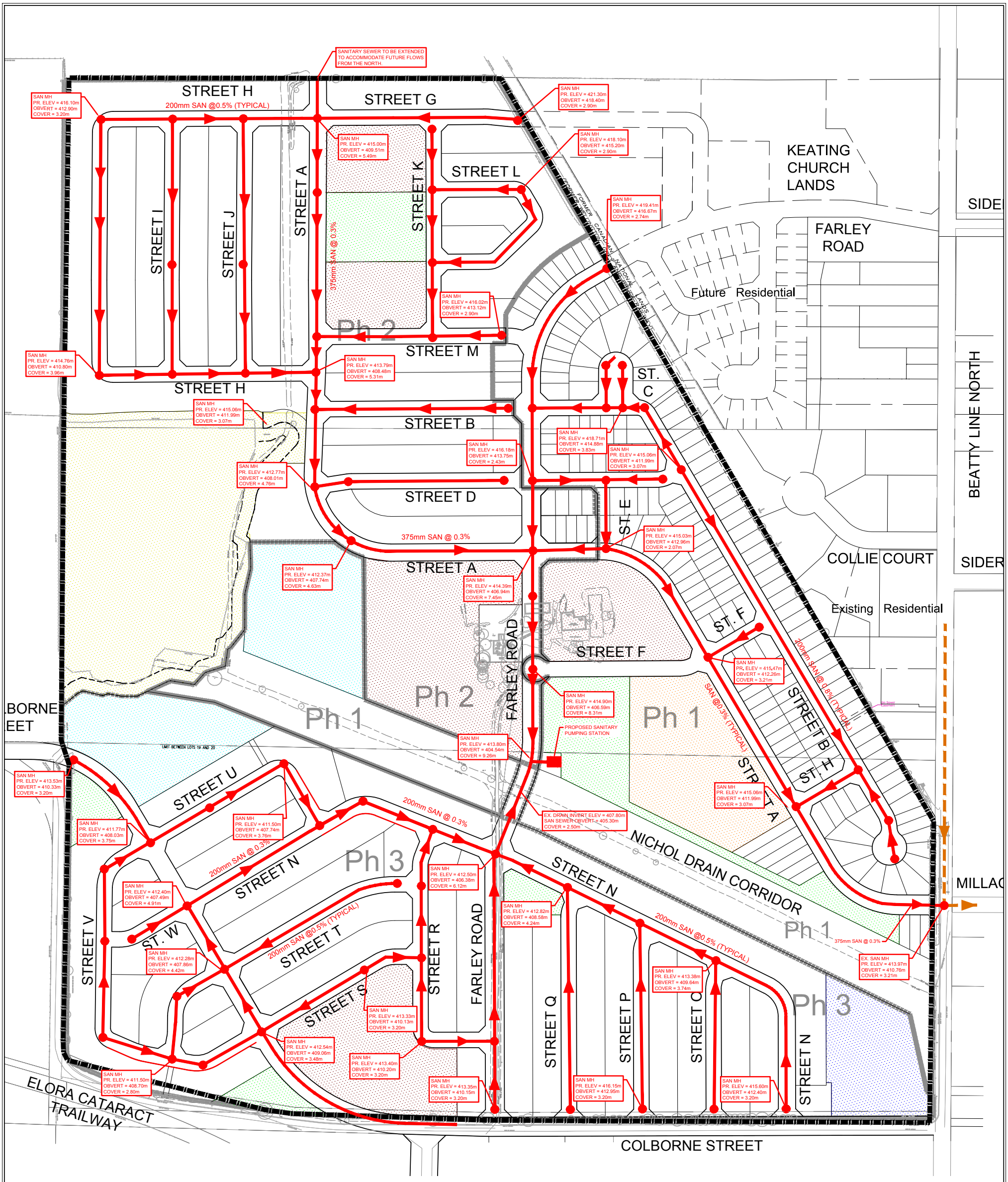
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Metres

BURNSIDE

Client
NIGUS FERGUS JOINT VENTURE INC.

Figure Title
NW FERGUS SECONDARY PLANNING AREA DRAFT PLAN APPLICATION
PROPOSED FOUNDATION DRAINAGE COLLECTOR (FDC) SERVICING

Drawn	Checked	Date	Figure No.
PAG	LN	2016-11-30	**FDC1**
Scale		Project No.	
1:5000		300031145	



LEGEND:

- NORTH WEST FERGUS SECONDARY PLANNING AREA BOUNDARY
- PROPOSED PHASING LIMITS
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY FORCEMAIN
- PHASE 1 GRAVITY SERVICING BOUNDARY
- PROPOSED PARK BLOCK
- PROPOSED MEDIUM DENSITY BLOCK
- EXISTING WOODLOT
- PROPOSED SANITARY PUMPING STATION
- PROPOSED SCHOOL BLOCK
- PROPOSED COMMERCIAL BLOCK
- PROPOSED SWM FACILITY

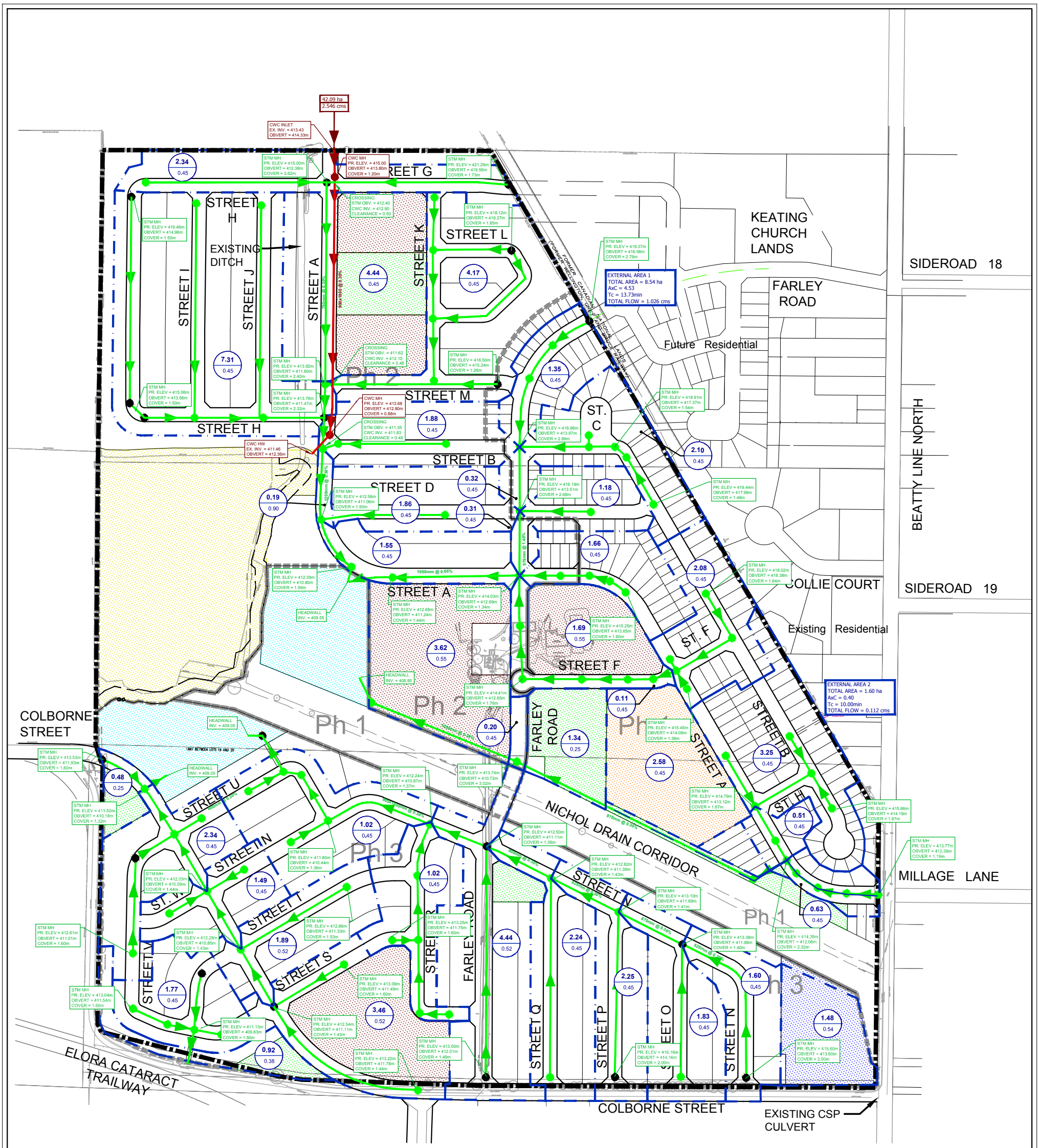
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BURNSIDE

Figure Title: NW FERGUS SECONDARY PLANNING AREA
CONCEPTUAL SANITARY SERVICING

Client: SORBARA GROUP OF COMPANIES

Drawn	Checked	Date	Figure No.
PAG	LN	2015-04-08	SAN1
Scale: 1:2000		Project No.: 300031145	



LEGEND:

- NORTH WEST FERGUS SECONDARY PLANNING AREA BOUNDARY
- PROPOSED PHASING LIMITS
- PROPOSED STORM SEWER
- PROPOSED DEDICATED CLEAN WATER SEWER FOR EXTERNAL FLOWS TO WOODLOT
- NEIGHBOURING SUBDIVISION STORM SEWER LAYOUT
- PROPOSED PARK BLOCK
- PROPOSED MEDIUM DENSITY BLOCK
- EXISTING WOODLOT
- STORM DRAINAGE AREA
- PROPOSED SCHOOL BLOCK
- PROPOSED COMMERCIAL BLOCK
- PROPOSED SWM FACILITY
- STORM DRAINAGE AREA (HA) / RUN-OFF COEFFICIENT / 100-YEAR CAPTURE

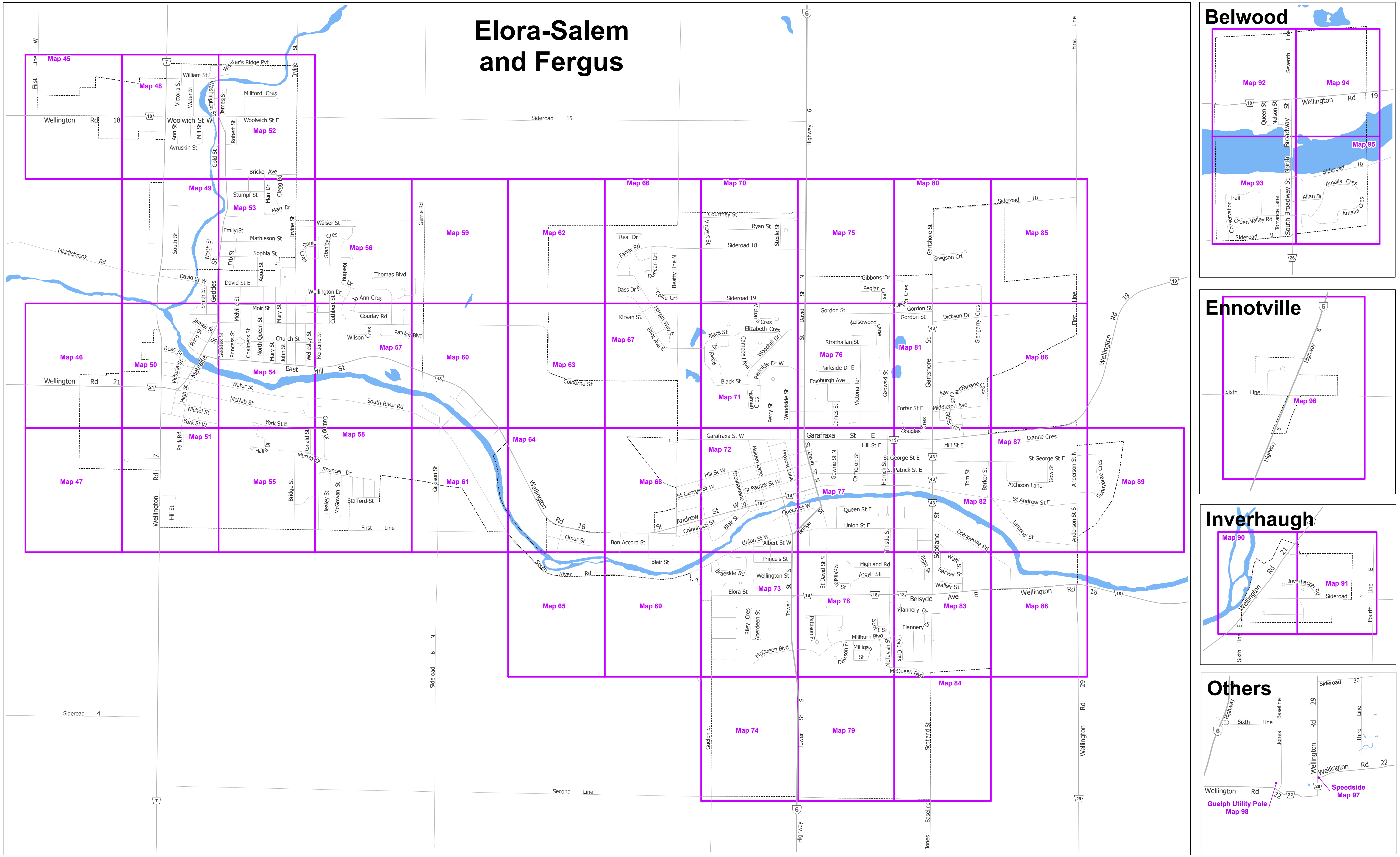
0 50 100 200 300 400
Metres

BURNSIDE

Client
NIGUS FERGUS JOINT VENTURE INC.

Figure Title
NW FERGUS SECONDARY PLANNING AREA DRAFT PLAN APPLICATION
PROPOSED STORM SERVICING

Drawn	Checked	Date	Figure No.
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Scale		Project No.	
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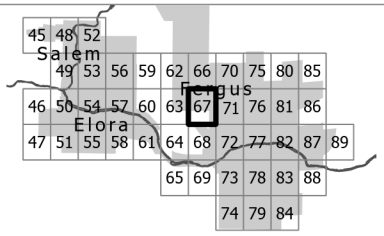


Urban Zoning Map Index

Urban and Hamlet Zoning Map Index



Zone Boundary
Environmental Protection
Environmental Protection Overlay
Heritage Area Overlay
Parcel Fabric
Floodplain
Flood Fringe
Waterbody
Watercourse
Road



Township of Centre Wellington
Zoning By-Law
Schedule "A"

Map 67

Fergus

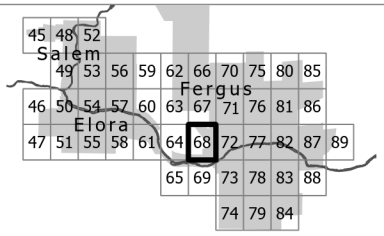
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Path: O:\DATA_ENTERPRISE\ZONING\ARPX\Zoning_ByLaw_Maps\Zoning_ByLaw_Maps.aprx

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Author: GWolowich
Date Saved: 2023-09



Zone Boundary
Environmental Protection
Environmental Protection Overlay
Heritage Area Overlay
Parcel Fabric
Floodplain
Flood Fringe
Waterbody
Watercourse
Road



Township of Centre Wellington
Zoning By-Law
Schedule "A"

Map 68

Fergus

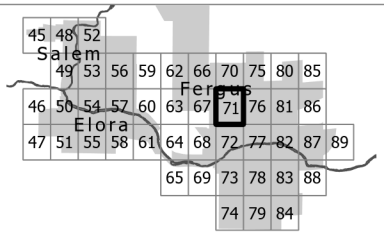
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Author: GWolowich
Date Saved: 2023-09



Zone Boundary
Environmental Protection
Environmental Protection Overlay
Heritage Area Overlay
Parcel Fabric
Floodplain
Flood Fringe
Waterbody
Watercourse
Road



Township of Centre Wellington
Zoning By-Law
Schedule "A"

Map 71

Fergus

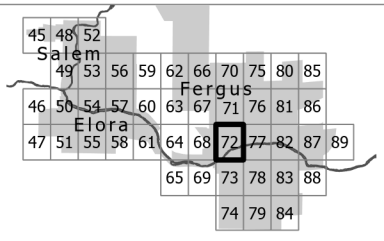
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Author: GWolowich
Date Saved: 2023-09



Zone Boundary
Environmental Protection
Environmental Protection Overlay
Heritage Area Overlay
Parcel Fabric
Floodplain
Flood Fringe
Waterbody
Watercourse
Road



Township of Centre Wellington
Zoning By-Law
Schedule "A"

Map 72

Fergus

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Author: GWolowich
Date Saved: 2023-09

APPENDIX B

Water Demand Calculations

Project Name: Fergus Oaks Residential
Project No.: 1000 - 6897
Date: 2024.11.29
Prepared by: HL/JKF
Checked by: BH/MB

Water Demand Flows - Fergus Oaks Residential

Total Site Area:	+/- 190.43	ha
Area without SWM Block and Parks:	132.79	ha
Low Density Residential:	77.55	ha
Medium Density Residential:	29.83	ha
Institutional (School):	5.37	ha
Commercial Area:	3.89	ha
Collectors Road R.O.W:	16.15	ha

to revise to just be per 36 ppha

Residential Development	**Units/ha**		**Population**
Low Density Residential	36		6,856
Instituional Development	**# of school**	**Students/School**	**Population**
School	2	600	1,200
Commercial Development	**Minimum Allowance** (m3/ha/day)		**Population**
Commercial	28		312
Total			**8,368**

Design Parameters

Average Demand (L/capita/d)	
Residential & Commercial	350
Institutional (School)	140

Water Demand Flow:

Average Daily Flow =	2,676,800	L/d
=	**31.0**	**L/s**

Peaking Factor

Max Day Peaking Factor =	2.00	
Peak Hour Peaking Factor =	3.00	
Max Day Demand =	62.0	L/s
Peak Hourly Demand =	92.9	L/s

Summary Table

Average Daily Water Demand (L/s)	**Max Day Demand** (L/s)	**Peak Hourly Demand** (L/s)
31.0	62.0	92.9

Notes & References

Based on Concept Plan prepared by Landwise Group dated November 2024

36 people per ha is based on email correspondence with Landwise dated November 19, 2024. Number of students per school is assumed to be 600 students.
The residential population is based on 36 pph and the total site area, additional population from institutional and commercial developments are included for total population calculations to be conservative.

Commercial Population = Area * 28 m^3/ha/day * 1000 / Average Demand

Average Demand from Section D.1.1.2 of Centre Wellington Development Manual (June 2024).

Average Daily Flow = Average Daily Flow (L/cap./day) * population / 86400

Peaking factor collectected for population ranged between 3001 and 10000

Max Day Demand = Average Daily Flow x Max Day PF
Peak Hour Demand = Average Daily Flow x Peak Hour PF

APPENDIX C

Sanitary Flow Calculations

- Sanitary Design Flows
- Land Use Summary – External Sewer Analysis
- Population Summary – External Sewer Analysis
- External Sanitary Sewer Flow Calculations – Existing Conditions
- External Sanitary Sewer Flow Calculations – Existing Conditions
- External Sanitary Sewer Flow Calculations – Proposed Option 1
- External Sanitary Sewer Flow Calculations – Proposed Option 2
- External Sanitary Sewer Flow Calculations – Proposed Option 3

Project Name: Fergus Oaks Residential
Project No.: 1000 - 6897
Date: 2024.11.29
Prepared by: HL/JKF
Checked by: BH/MB

Sanitary Design Flows - Site - Fergus Oaks Residential

Total Site Area:	+/- 190.43	ha
Developable Area without SWM Block and Parks:	132.79	ha
Low Density Residential:	77.55	ha
Medium Density Residential:	29.83	ha
Institutional (School):	5.37	ha
Commercial Area:	3.89	ha
Collectors Road R.O.W:	16.15	ha

to revise to just be per 36 ppha

Residential Development	**Persons Per Ha**		**Population**
Residential	36		6,856
Institutional Development	**# of schools**	**Students/School**	**Population**
School	2	600	1,200
Commercial Development	**Minimum Allowance** (m3/ha/day)		**Population**
Commercial	28		312
Total			**8,368**

Design Parameters

Average Demand (L/capita/d)	
Residential & Commercial	350
Institutional (School)	140

Sanitary Design Flow:

Average Dry Weather Daily Flow =	2,676,800	L/capita/d	
=	**31.0**	**L/s**	Average Daily Flow = Average Daily Flow (L/cap./day) * population / 86400

Harmon Peak Factor:

M =	3.03		M = 1 + 14 / (4 + (p/1000)^.5)
Peak Dry Weather Flow =	**93.9**	**L/s**	Peak Flow = Average Daily Residential Flow * M

Infiltration Flow:

Infiltration =	0.15	L/s/ha	Infiltration Allowance from Section D.1.1.2 of Wellington Development Manual (June 2024).
Total Infiltration =	**19.9**	**L/s**	
Total Peak Design Flow =	**113.8**	**L/s**	Total Design Flow = Peak Flow + Total Infiltration

Summary Table

Average Dry Weather Daily Flow (L/s)	**Infiltration Flow** (L/s)	**Average Wet Weather Daily Flow** (L/s)	**Peaking Factor**	**Total Peak Design Flow** (L/s)
31.0	19.9	50.9	3.03	113.8

Notes & References

Based on Concept Plan prepared by Landwise Group dated November 2024

36 people per ha is based on email correspondence with Landwise dated November 19, 2024. Number of students per school is assumed to be 600 students.
The residential population is based on 36 pph and the total site area, additional population from institutional and commercial developments are included for total population calculations to be conservative.

Commercial Population = Area * 28 m^3/ha/day * 1000 / Average Demand

Average Demand from Section D.1.1.2 of Centre Wellington Development Manual (June 2024).

Project Name: Fergus Oaks Residential
Project No.: 1000-6897
Date: 2024.11.29
Prepared by: HL/JKF
Checked by: BH

Land Use Summary - External Sewer Analysis

MH ID		MH ID	Area ID	Total Area (ha)	Residential Area (ha)				Commercial Area (ha)	Industrial Area (ha)	Institutional Area (ha)			Open Space (ha)
					Apartment	Townhouse	Single (HD)	Single (LD)			Place of Worship	Hospitals	School	
124	to	20	A2	41.52		2.43	14.85	20.74			2.71			0.79
20	to	34	A3	19.17			2.14	17.03						
34	to	167	A5	4.67				4.67						
A1	to	167	A1	47.27	3.92	2.27	25.20	13.30					2.59	
167	to	165	A6	4.04				4.04						
165	to	154	A7	6.67				6.67						
Area A4	to	154	A4	83.78	2.47	1.81	29.41	30.25	16.00	0.51	0.96		2.39	
154	to	147	A8	10.81				8.95	1.86					
147	to	146												
146	to	143	A9	17.27	1.47			12.04	2.67	1.09				
143	to	142	A11	3.49				3.33						0.16
142	to	141												
141	to	138	A12	7.55	0.27		5.18		0.42		0.62		1.06	
138	to	137	A13	3.69			1.81		1.11		0.61			0.16
137	to	133	A10	43.35	0.13	0.35		31.39	8.54		2.85		0.09	
133	to	132	A14	65.39				15.99	9.21	26.65		12.38		1.16
132	to	127												
127	to	126												
126	to	WWTP												

Note: Landuse identification is based on Township of Centre Wellington Zoning By-law Schedule "A" dated September 2023.

Project Name: Fergus Oaks Residential
Project No.: 1000 - 6897
Date: 2024.11.29
Prepared by: HL/JKF
Checked by: BH

Population Summary - External Sewer Analysis

MH ID		MH ID	Area ID	Total Area (ha)	Total Population	Residential Population				Commercial Population	Industrial Population	Institutional Population		
						Apartment	Townhouse	Single (HD)	Single (LD)			Place of Worship	Hospitals	School
124	to	20	A2	41.52	1222		73	445	622			81		
20	to	34	A3	19.17	575			64	511					
34	to	167	A5	4.67	140				140					
A1	to	167	A1	47.27	1418	118	68	756	399					78
167	to	165	A6	4.04	121				121					
165	to	154	A7	6.67	200				200					
Area A4	to	154	A4	83.78	2513	74	54	882	907	480	15	29		72
154	to	147	A8	10.81	324				268	56				
147	to	146												
146	to	143	A9	17.27	518	44			361	80	33			
143	to	142	A11	3.49	100				100					
142	to	141												
141	to	138	A12	7.55	227	8		155		13		19		32
138	to	137	A13	3.69	106			54		33		18		
137	to	133	A10	43.35	1301	4	11		942	256		86		3
133	to	132	A14	65.39	1927				480	276	799		372	
132	to	127												
127	to	126												
126	to	WWTP												
Total				**358.67**	**10692**	248	206	2357	5052	1194	847	233	372	184

Developable Area of Fergus in 2021	945	ha	*Approximate area based on Google Satellite view
Population of Fergus in 2021	23209	persons	*Based on Statistics Canada Census of Population 2021
Population per ha in 2021	24.57	persons/ha	
Population per ha in 2024	28.44	persons/ha	*Assume 5% increase in population per year

To be conservative, equivalent population of 30 persons/ha is used to calculation the total population for the external sanitary sewer analysis in 2024.

External Sanitary Sewer Analysis Area	358.67	ha	
Open Space Area	2.27	ha	*No population is assigned to Open Space landuse.
Assumed Population Equivalent	30.00	persons/ha	
Total Population	**10692**	**persons**	*Population has been rounded up.

Project: Fergus Oaks Residential
Project No.: 1000-6897
Date: 2024.11.29
Prepared by: HL/JKF
Checked by: BH

EXTERNAL SANITARY SEWER FLOW CALCULATIONS - EXISTING CONDITIONS
FERGUS, TOWNSHIP OF CENTRE WELLINGTON

Location							Peaking Factor	Pop. Flow	Extraneous Flow	Design Flow	Proposed Sewer							
Catchment ID	From MH	To MH	Area	Population	Cumulative						Length	Pipe Size	Material	Manning's Roughness	Slope	Capacity	FULL FLOW	Q (d) / Q (full)
					Population	Area (A) (ha)	M (min =2, max 4)	Q (p) L/s	Q (i) L/s	Q (d) L/s	m	D mm		n	S %	Q (full) L/sec	VEL. m/sec	Ratio
A2	124	00404	41.52	1222	1222	42	3.74	18.52	6.23	**24.75**	7.8	250	PVC	0.013	0.5%	42.0	0.9	58.9%
A3	00404	00473	19.17	575	1797	61	3.62	26.36	9.10	**35.47**	410.8	250	PVC	0.013	0.5%	42.0	0.9	84.3%
A5	00473	00477	4.67	140	1937	65	3.60	28.22	9.80	**38.03**	375.5	300	PVC	0.013	0.5%	68.4	1.0	55.6%
A1	Area A1	00477	47.27	1418	1418	47	3.70	21.24	7.09	**28.33**	-	-	-	-	-	-	-	-
A6	00477	00481	4.04	121	3476	117	3.39	47.70	17.50	**65.20**	215.5	375	PVC	0.013	0.5%	124.0	1.1	52.6%
A7	00481	00408	6.67	200	3676	123	3.37	50.13	18.50	**68.63**	569.6	450	PVC	0.013	0.5%	201.6	1.3	34.0%
A4	Area A4	00408	83.78	2513	2513	84	3.51	35.70	12.57	**48.27**	-	-	-	-	-	-	-	-
A8	00408	00538	10.81	324	6514	218	3.14	82.77	32.69	**115.46**	343.8	600	PVC	0.013	0.5%	434.2	1.5	26.6%
A9	00538	00597	17.27	518	7032	235	3.10	88.44	35.28	**123.72**	236.9	600	CONC	0.013	0.5%	434.2	1.5	28.5%
A11	00597	00605	3.49	100	7132	239	3.10	89.53	35.80	**125.33**	22.1	450	CONC	0.013	0.5%	201.6	1.3	62.2%
	00605	00620			7132	239	3.10	89.53	35.80	**125.33**	74.7	450	PVC	0.013	2.5%	450.8	2.8	27.8%
A12	00620	00694	7.55	227	7359	246	3.09	91.98	36.94	**128.92**	217.0	450	CONC	0.013	0.5%	201.6	1.3	63.9%
A13	00694	00718	3.69	106	7465	250	3.08	93.12	37.49	**130.61**	99.1	450	CONC	0.013	0.5%	201.6	1.3	64.8%
A10	00718	00737	43.35	1301	8765	293	3.01	106.92	43.99	**150.92**	56.9	450	CONC	0.013	0.5%	201.6	1.3	74.9%
	00737	00743			8765	293	3.01	106.92	43.99	**150.92**	69.4	525	CONC	0.013	0.5%	304.1	1.4	49.6%
A14	00743	00728	65.39	1927	10692	359	2.93	126.72	53.80	**180.52**	104.7	600	CONC	0.013	0.5%	434.2	1.5	41.6%
	00728	00731			10692	359	2.93	126.72	53.80	**180.52**	10.5	525	CONC	0.013	0.5%	304.1	1.4	59.4%
	00731	00773			10692	359	2.93	126.72	53.80	**180.52**	134	750	CONC	0.013	0.5%	787.2	1.8	22.9%
	00773	WWTP			10692	359	2.93	126.72	53.80	**180.52**	182	1050	CONC	0.013	0.5%	1930.9	2.2	9.3%

Note: 1. An average flow of 350 L/capita/day is used for this calculation.
2. Extraneous flow of 0.15 L/s/day is usede to calculate the infiltration flow for the sanitary sewers.

q = Ave. daily per capita flow - residential
i = Unit of peak extraneous flow
Manning's Roughness Coefficient
Q(p) = peak population flow (L/s)
Q (I) = peak extraneous flow (L/s)
Q(d) = peak design flow (L/s)

Q (p) = P*q*M*(1/86.4)
Q (i) = i*A (A = area in hectares)
Q (d) = Q (p) + Q (i)
F = Peaking Factor
$F = 1+14/(4+\sqrt{P})$ where P = Population / 1000, and F ranges within 2.0 - 4.0

Project: Fergus Oaks Residential
Project No.: 1000-6897
Date: 2024.11.29
Prepared by: HL/JKF
Checked by: BH

EXTERNAL SANITARY SEWER FLOW CALCULATIONS - PROPOSED OPTION 1
FERGUS, TOWNSHIP OF CENTRE WELLINGTON

Location							Peaking Factor	Pop. Flow	Extraneous Flow	Design Flow	Proposed Sewer							
Catchment ID	From MH	To MH	Area (ha)	Population	Cumulative						Length	Pipe Size	Material	Manning's Roughness	Slope	Capacity	FULL FLOW	Q (d) / Q (full)
					Population	Area (A) (ha)	M (min =2, max 4)	Q (p) L/s	Q (i) L/s	Q (d) L/s	m	D mm		n	S %	Q (full) L/sec	VEL. m/sec	Ratio
Site			190.4	8368	8368	190	3.03	102.75	28.56	**131.3**		450	PVC	0.013	0.4%	180.3	1.1	72.8%
Keating Land			35.6	1282	9650	226	2.97	116.10	33.91	**150.0**		450	PVC	0.013	0.4%	180.3	1.1	83.2%
Brubacher Land			43.5	1566	11216	270	2.91	131.99	40.43	**172.4**		450	PVC	0.013	0.4%	180.3	1.1	95.6%
A2	124	00404	41.52	1222	12438	311	2.86	144.10	46.66	**190.76**	7.8	450	PVC	0.013	0.5%	201.6	1.3	94.6%
A3	00404	00473	19.17	575	13013	330	2.84	149.73	49.53	**199.26**	410.8	450	PVC	0.013	0.5%	201.6	1.3	98.8%
A5	00473	00477	4.67	140	13153	335	2.84	151.09	50.23	**201.32**	375.5	450	PVC	0.013	0.5%	201.6	1.3	99.9%
A1	Area A1	00477	47.27	1418	1418	47	3.70	21.24	7.09	**28.33**	-	-	-	-	-	-	-	-
A6	00477	00481	4.04	121	14692	386	2.79	165.89	57.93	**223.82**	215.5	525	PVC	0.013	0.5%	304.1	1.4	73.6%
A7	00481	00408	6.67	200	14892	393	2.78	167.79	58.93	**226.73**	569.6	525	PVC	0.013	0.5%	304.1	1.4	74.6%
A4	Area A4	00408	83.78	2513	2513	84	3.51	35.70	12.57	**48.27**	-	-	-	-	-	-	-	-
A8	00408	00538	10.81	324	17730	487	2.71	194.29	73.12	**267.41**	343.8	600	PVC	0.013	0.5%	434.2	1.5	61.6%
A9	00538	00597	17.27	518	18248	505	2.69	199.03	75.71	**274.75**	236.9	600	CONC	0.013	0.5%	434.2	1.5	63.3%
A11	00597	00605	3.49	100	18348	508	2.69	199.95	76.23	**276.18**	22.1	525	CONC	0.013	0.5%	304.1	1.4	90.8%
	00605	00620			18348	508	2.69	199.95	76.23	**276.18**	74.7	450	PVC	0.013	2.5%	450.8	2.8	61.3%
A12	00620	00694	7.55	227	18575	516	2.68	202.01	77.37	**279.38**	217.0	525	CONC	0.013	0.5%	304.1	1.4	91.9%
A13	00694	00718	3.69	106	18681	519	2.68	202.98	77.92	**280.90**	99.1	525	CONC	0.013	0.5%	304.1	1.4	92.4%
A10	00718	00737	43.35	1301	19981	563	2.65	214.73	84.42	**299.15**	56.9	525	CONC	0.013	0.5%	304.1	1.4	98.4%
	00737	00743			19981	563	2.65	214.73	84.42	**299.15**	69.4	525	CONC	0.013	0.5%	304.1	1.4	98.4%
A14	00743	00728	65.39	1927	21908	628	2.61	231.88	94.23	**326.11**	104.7	600	CONC	0.013	0.5%	434.2	1.5	75.1%
	00728	00731			21908	628	2.61	231.88	94.23	**326.11**	10.5	600	CONC	0.013	0.5%	434.2	1.5	75.1%
	00731	00773			21908	628	2.61	231.88	94.23	**326.11**	134	750	CONC	0.013	0.5%	787.2	1.8	41.4%
	00773	WWTP			21908	628	2.61	231.88	94.23	**326.11**	182	1050	CONC	0.013	0.5%	1930.9	2.2	16.9%

Note: 1. An average flow of 350 L/capita/day is used for this calculation.
2. Extraneous flow of 0.15 L/s/day is usede to calculate the infiltration flow for the sanitary sewers.
3. Population equivalent of 36 persons/ha is applied to residential development area for the expansion lands (Fergus Oaks, Keating, and Brubacher).
4. Please note that the infiltration rates for site-specific sanitary design is calculated by the developable area and the infiltration rates for external sewer analysis is calculated based on the entire site area.

q = Ave. daily per capita flow - residential
i = Unit of peak extraneous flow
Manning's Roughness Coefficient
Q(p) = peak population flow (L/s)
Q (I) = peak extraneous flow (L/s)
Q(d) = peak design flow (L/s)

Q (p) = P*q*M*(1/86.4)
Q (i) = i*A (A = area in hectares)
Q (d) = Q (p) + Q (i)
F = Peaking Factor
F = 1+14/(4+√P) where P = Population / 1000, and F ranges within 2.0 - 4.0

Project: Fergus Oaks Residential
Project No.: 1000-6897
Date: 2024.11.29
Prepared by: HL/JKF
Checked by: BH

EXTERNAL SANITARY SEWER FLOW CALCULATIONS - PROPOSED OPTION 2
FERGUS, TOWNSHIP OF CENTRE WELLINGTON

Location											Proposed Sewer							
Catchment ID	From MH	To MH	Area (ha)	Population	Cumulative		Peaking Factor	Pop. Flow	Extraneous Flow	Design Flow	Length	Pipe Size	Material	Manning's Roughness	Slope	Capacity	FULL FLOW	Q (d) / Q (full)
					Population	Area (A) (ha)	M (min =2, max 4)	Q (p) L/s	Q (i) L/s	Q (d) L/s	m	D mm		n	S %	Q (full) L/sec	VEL. m/sec	Ratio
Site	200A	201A	190.4	8368	8368	190	3.03	102.75	28.56	**131.31**	377.3	450	PVC	0.013	0.4%	180.3	1.1	72.8%
Keating Land	201A	202A	35.6	1282	9650	226	2.97	116.10	33.91	**150.01**	407.0	450	PVC	0.013	0.4%	180.3	1.1	83.2%
Brubacher Land	202A	203A	43.5	1566	11216	270	2.91	131.99	40.43	**172.42**	221.7	450	PVC	0.013	0.4%	180.3	1.1	95.6%
B3			41.52	1222	12438	311	2.86	144.10	46.66	**190.76**								
B2	203A	204A	19.17	575	13013	330	2.84	149.73	49.53	**199.26**	438.5	525	PVC	0.013	0.4%	272.0	1.3	73.3%
B4	204A	205A	4.67	140	13153	335	2.84	151.09	50.23	**201.32**	363.6	525	PVC	0.013	0.4%	272.0	1.3	74.0%
B1	B1	205A	47.27	1418	1418	47	3.70	21.24	7.09	**28.33**								
B5	205A	206A	49.72	1492	16063	432	2.75	178.83	64.78	**243.61**	718.1	525	PVC	0.013	0.4%	272.0	1.3	89.6%
B6	206A	207A	44.73	121	16184	477	2.74	179.97	71.49	**251.46**	483.8	525	PVC	0.013	0.4%	272.0	1.3	92.4%
B7	207A	208A	29.33	200	16384	506	2.74	181.83	75.89	**257.73**	364.0	600	CONC	0.013	0.3%	336.3	1.2	76.6%
	208A	209A			16384	506	2.74	181.83	75.89	**257.73**	283.4	600	CONC	0.013	0.4%	388.3	1.4	66.4%
	209A	Union Street Pumping Station			16384	506	2.74	181.83	75.89	**257.73**	136.0	600	CONC	0.013	0.4%	388.3	1.4	66.4%

Note: 1. An average flow of 350 L/capita/day is used for this calculation for all developments.
2. Extraneous flow of 0.15 L/s/day is usede to calculate the infiltration flow for the sanitary sewers.
3. The Site developable area and population calculations refers to the internal sanitary design flow calculations.
4. Population equivalent of 36 persons/ha is applied to residential development area for the expansion lands (Fergus Oaks, Keating, and Brubacher).
5. The site area and the proposed population for Brubacher Land refers to Proposed Site Servicing for 6586 Beatty Line N - Brubacher Property, prepared by SCS Consulting Group Ltd dated April 19, 2024.
6. The sanitary sewer downstream of Union Street Pumping Station depends on the upgraded pumping station design pump rates.

q = Ave. daily per capita flow - residential
i = Unit of peak extraneous flow
Manning's Roughness Coefficient
Q(p) = peak population flow (L/s)
Q (I) = peak extraneous flow (L/s)
Q(d) = peak design flow (L/s)

Q (p) = P*q*M*(1/86.4)
Q (i) = i*A (A = area in hectares)
Q (d) = Q (p) + Q (i)
F = Peaking Factor
$F = 1+14/(4+\sqrt{P})$ where P = Population / 1000, and F ranges within 2.0 - 4.0

CROZIER CONSULTING ENGINEERS

Project: Fergus Oaks Residential
Project No.: 1000-6897
Date: 2024.11.29
Prepared by: HL/JKF
Checked by: BH

EXTERNAL SANITARY SEWER FLOW CALCULATIONS - PROPOSED OPTION 3
FERGUS, TOWNSHIP OF CENTRE WELLINGTON

Location											Proposed Sewer							
Catchment ID	From MH	To MH	Area (ha)	Population	Cumulative		Peaking Factor	Pop. Flow	Extraneous Flow	Design Flow	Length	Pipe Size	Material	Manning's Roughness	Slope	Capacity	FULL FLOW	Q (d) / Q (full)
					Population	Area (A) (ha)	M (min =2, max 4)	Q (p) L/s	Q (i) L/s	Q (d) L/s	m	D mm		n	S %	Q (full) L/sec	VEL. m/sec	Ratio
Site	300A	301A	190	8368	8368	190	3.03	102.75	28.56	**131.31**	377.3	450	PVC	0.013	0.4%	180.3	1.1	72.8%
Keating Land	301A	302A	36	1282	9650	226	2.97	116.10	33.91	**150.01**	407.0	450	PVC	0.013	0.4%	180.3	1.1	83.2%
Brubacher Land	302A	303A	43.50	1566	11216	270	2.91	131.99	40.43	**172.42**	221.7	450	PVC	0.013	0.4%	180.3	1.1	95.6%
C3			41.52	1222	12438	311	2.86	144.10	46.66	**190.76**								
C2	303A	304A	19.17	575	13013	330	2.84	149.73	49.53	**199.26**	438.5	525	PVC	0.013	0.4%	272.0	1.3	73.3%
C4	304A	305A	4.67	140	13153	335	2.84	151.09	50.23	**201.32**	363.6	525	PVC	0.013	0.4%	272.0	1.3	74.0%
C1	Area C1	305A	47.27	1418	1418	47	3.70	21.24	7.09	**28.33**								
C5	305A	306A	49.72	1492	16063	432	2.75	178.83	64.78	**243.61**	718.1	525	PVC	0.013	0.4%	272.0	1.3	89.6%
C6	306A	307A	44.73	121	16184	477	2.74	179.97	71.49	**251.46**	483.8	525	PVC	0.013	0.4%	272.0	1.3	92.4%
C7	307A	308A	29.33	200	16384	506	2.74	181.83	75.89	**257.73**	364.0	600	CONC	0.013	0.3%	336.3	1.2	76.6%
C0	308A	00728	196.86	5906	5906	197	3.18	76.01	29.53	**105.54**	104.7	600	CONC	0.013	0.5%	434.2	1.5	24.3%
	00728	00731			5906	197	3.18	76.01	29.53	**105.54**	10.5	600	CONC	0.013	0.5%	434.2	1.5	24.3%
	00731	00773			5906	197	3.18	76.01	29.53	**105.54**	134	750	CONC	0.013	0.5%	787.2	1.8	13.4%
	00773	142			5906	197	3.18	76.01	29.53	**105.54**	182	1050	CONC	0.013	0.5%	1930.9	2.2	5.5%

Note: 1. An average flow of 350 L/capita/day is used for this calculation for all developments.
2. Extraneous flow of 0.15 L/s/day is usede to calculate the infiltration flow for the sanitary sewers.
3. The Site developable area and population calculations refers to the internal sanitary design flow calculations.
4. Population equivalent of 36 persons/ha is applied to residential development area for the expansion lands (Fergus Oaks, Keating, and Brubacher).
5. The site area and the proposed population for Brubacher Land refers to Proposed Site Servicing for 6586 Beatty Line N - Brubacher Property, prepared by SCS Consulting Group Ltd dated April 19, 2024.

q = Ave. daily per capita flow - residential
i = Unit of peak extraneous flow
Manning's Roughness Coefficient

Q(p) = peak population flow (L/s)
Q (I) = peak extraneous flow (L/s)
Q(d) = peak design flow (L/s)

Q (p) = P*q*M*(1/86.4)
Q (i) = i*A (A = area in hectares)
Q (d) = Q (p) + Q (i)

F = Peaking Factor
$F = 1+14/(4+\sqrt{P})$ where P = Population / 1000, and F ranges within 2.0 - 4.0

APPENDIX D

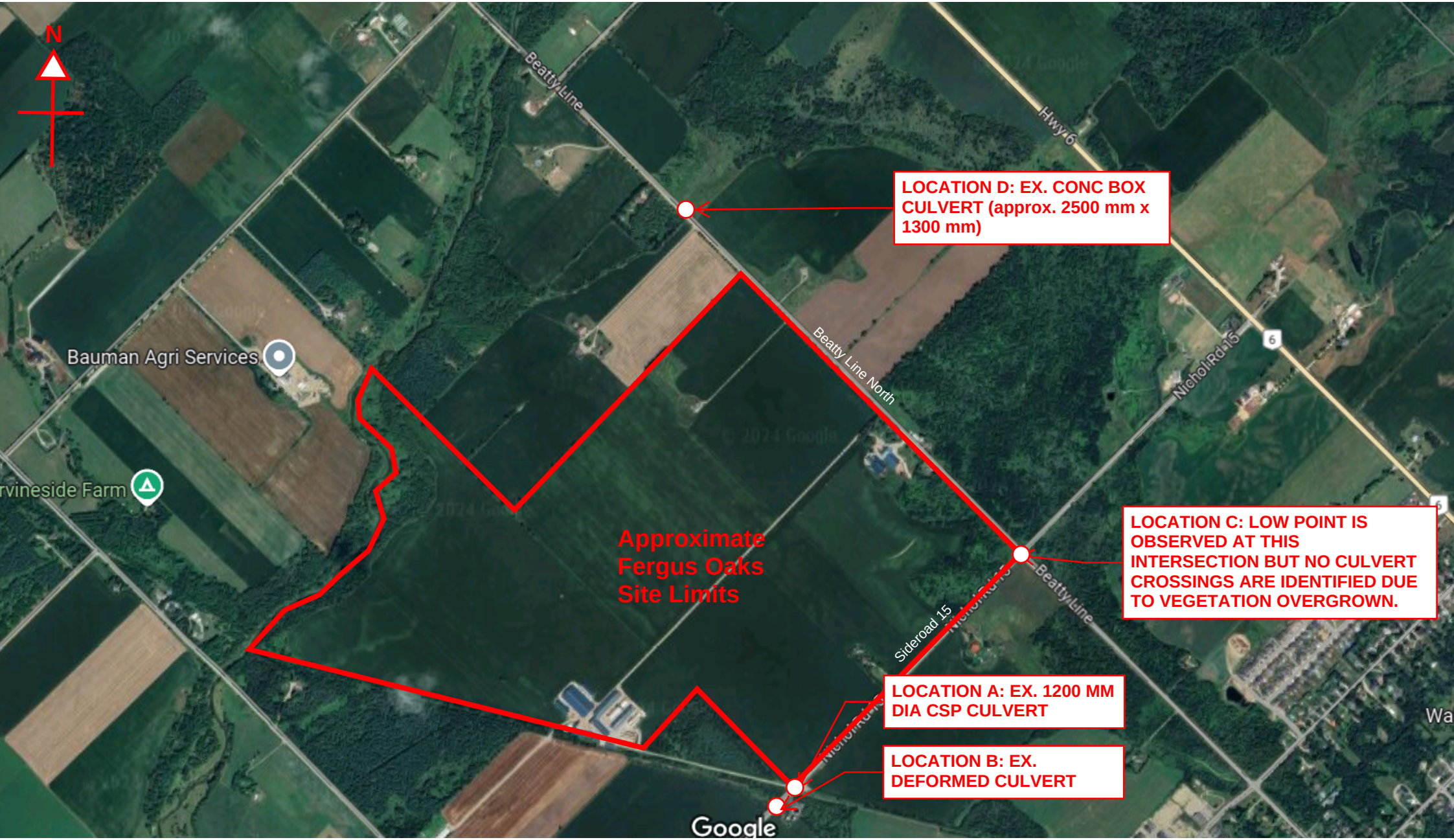
Stormwater Management Calculations

- Preliminary Culvert Inventory Site Report
- Preliminary SWM Criteria Correspondence with the GRCA (Warner to Britton, May 11, 2023)
- IDF Parameters (Township of Centre Wellington's Development Manual, June 2024)
- Pre-Development Hydrologic Input Parameters
- Post-Development Area Weighting Calculations
- Post-Development Hydrologic Input Parameters
- Stormwater Management Ponds Preliminary Water Quality Calculations
- Pre-Development VO Modelling Results
- Post-Development VO Modelling Results

Date of Site Visit: September 5, 2024
Attendees: Heaven Lin, Hillary Wilkinson
Note: These field notes follows true north.

Photo	Description
	Location: A (South corner of the Site) Direction: Facing South Description: - There is an existing 1200 mm diameter CSP culvert draining from northwest to southeast, crossing Sideroad 15. - Clean culvert with minimum debris. Positive drainage observed from northwest to southeast. - Photo taken upstream of the culvert. - This location is a low point.
	Location: A (South corner of the Site) Direction: Facing North Description: - There is an existing 1200 mm diameter CSP culvert draining from northwest to southeast, crossing Sideroad 15. - Clean culvert with minimum debris. Positive drainage observed from northwest to southeast. - Photo taken downstream of the culvert. - This location is a low point.
	Location: B (South of Site) Direction: Facing northwest Description: - Rural ditches are observed along Sideroad 15. - An existing deformed CSP culvert with measured dimension of 1350 mm in height and 1670 mm in width. - The discharge from the culvert will drain southeast towards the private pond within the property at 7677 Sideroad 15.

	Location: C (Intersection of Beatty Line North and Sideroad 15) Direction: Facing southeast Description: - Sideroad 15 and Beatty Line North are both crowned road with ditches for drainage. - The intersection is the low point. - Due to the overgrown vegetation in the ditches, culverts were not observed or measured in this Site Visit. - North of the Beatty Line North turned into gravel road pass this intersection.
	Location: D (East of the Site) Direction: Facing northwest Description: - Existing concrete box Culvert under Beatty Line North with approximately 2500 mm width x 1300 mm height with no wing walls. - Positive but slow-moving water observed traveling from northeast to southwest. - Photo is taken on the upstream of the culvert. Downstream photo is not available due to steep slope.



PREPARED BY C.F. CROZIER & ASSOCIATES
DATED: SEPTEMBER 2024

NOTE: BASED ON SITE VISIT DATED SEPTEMBER 5, 2024

From: Laura Warner <lwarner@grandriver.ca>
Sent: Thursday, May 11, 2023 9:38 AM
To: Matt Britton <mbritton@cfcrozier.ca>
Subject: FW: Stormwater Management Criteria - Irvine Creek

HI Matt,

See below. I had typed your email wrong initially.

Kind regards,
Laura

Laura Warner
Assistant Supervisor of Resource Planning
Grand River Conservation Authority

From: Laura Warner
Sent: Thursday, May 11, 2023 9:32 AM
To: mbritton@cfcrozier.c
Cc: hraza@cfcrozier.ca
Subject: RE: Stormwater Management Criteria - Irvine Creek

HI Matt,

Without knowing the site, we can only provide the basics - controlling post-development peak flows to pre-development levels and matching pre to post water balance. Water quality criteria would be deferred to the municipality, though GRCA would always recommend an enhanced level of treatment. I will note that there is no subwatershed study for the Irvine Creek area.

Once you are at liberty to share the site and proposal, we would be happy to further scope the SWM criteria.

Kind regards,
Laura

Laura Warner
Assistant Supervisor of Resource Planning
Grand River Conservation Authority

400 Clyde Road, PO Box 729
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From: Vahid Taleban <vtaleban@grandriver.ca>
Sent: Wednesday, May 10, 2023 1:29 PM
To: Laura Warner <lwarner@grandriver.ca>
Subject: FW: Stormwater Management Criteria - Irvine Creek

FYI

From: Matt Britton <mbritton@cfcrozier.ca>
Sent: Wednesday, May 10, 2023 11:36 AM
To: Vahid Taleban <vtaleban@grandriver.ca>
Cc: Hasnain Raza <hraza@cfcrozier.ca>
Subject: FW: Stormwater Management Criteria - Irvine Creek

Hi Vahid!

I am wondering if you can help us out with a small request for a potential development site within GRCA jurisdiction.

The site is located in Centre Wellington and drains to Irvine Creek. We would like to know the stormwater management criteria for Irvine creek (i.e. quantity/flood control, quality control, water balance, and erosion control).

Laura Warner informed us (see below) that SWM criteria cannot be provided unless we provide the site address and proposed land use information. Is this correct for GRCA? Right now everything is confidential and I cannot share site information. We are not submitting a development application anytime soon, we just want to use this information to help us layout proposed site features.

Let me know if it's at all possible for you to provide the SWM criteria.

Thanks,

Matt Britton, P.Eng.
Manager, Land Development
2800 High Point Drive, Suite 100 | Milton, ON L9T 6P4
T: 905.875.0026

Centre Wellington

DEVELOPMENT MANUAL

JUNE 2024

component (overland, open channel, gutter and/or pipe) and the associated characteristics (length, slope, area, and/or Manning's roughness coefficient) utilized in the inlet time calculation.

E.1.1.5 Rainfall Intensity

The intensity of rainfall shall be determined based on Township of Centre Wellington IDF Curve data (Fergus Shand Dam) using the following information derived from the Ministry of Transportation IDF Lookup:

Data Year: 2010

IDF Curve Year: 2010

Return Period	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
A	25.39	32.79	37.71	43.85	48.46	52.97
B	-0.682	-0.686	0.687	-0.690	-0.691	-0.691

Rainfall Intensity (mm/hr)

Duration	Rainfall Intensity (mm/hr) By Return Period (Years)					
	2-Yr	**5-Yr**	**10-Yr**	**25-Yr**	**50-Yr**	**100-Yr**
5 min	138.2	180.3	207.8	243.4	269.6	295.0
10 min	86.2	112.1	129.1	150.9	167.1	182.7
15 min	65.3	84.9	97.7	114.1	126.3	138.1
30 min	40.7	52.7	60.7	70.7	78.2	85.5
1 hr	25.4	32.8	37.7	43.9	48.5	53.0
2 hr	15.8	20.4	23.4	27.2	30.0	32.8
6 hr	7.5	9.6	11.0	12.7	14.1	15.4
12 hr	4.7	6.0	6.8	7.9	8.7	9.5
24 hr	2.9	3.7	4.3	4.9	5.4	5.9

The initial time of concentration (td) shall be 10 minutes in all cases. Bransby-Williams formula to be used for large areas.

E.1.1.5 Minimum Pipe Size

The minimum pipe size diameter for main lines shall be 300mm.

Project Name: Fergus Oaks
Project Number: 1000-6897
Created By: JKF
Reviewed By: NO
Date: 2024.11.29

D.A. NAME 101
D.A. AREA 22.02 ha

Hydrologic Parameters: CALIB NASHYD Command
Pre Development Drainage Area: Catchment 101

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Harriston and Listowell Loam	B	B	100	22.02
Total Area Check				22.02

Impervious Landuses Present:												
	Roadway		Sidewalk		Driveway		Building		SWMF		Subtotals	
Soils	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area	CN	Area	A*CN
B					0.10	98	0.93	98			1.03	100.94
Subtotal Area					0.10		0.93					

Pervious Landuses Present:												
	Woodland		Pasture/ Unimproved		Wetland		Lawn		Cultivated		Subtotals	
Soils	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area	CN	Area	A*CN
B									20.99	78	20.99	1637.22
Subtotal Area									20.99			

	Composite Area Calculations	Total Pervious Area	20.99
		Total Impervious Area	1.03
		% Impervious	4.68%
		Composite Curve Number	78.9
		Total Area Check	22.02

Initial Abstraction and Tp Calculations

Initial Abstraction				Composite Runoff Coefficient								
Landuse	IA (mm)	Area (ha)	A * IA	Harriston and Listowell Loam		/		/		/		
				RC	Area	RC	Area	RC	Area	RC	Area	A*RC
Woodland	10	0	0		0		0		0		0	0
Pasture/	8	0	0		0		0		0		0	0
Wetland	16	0	0		0		0		0		0	0
Lawn	5	0	0		0		0		0		0	0
Cultivated	7	20.99	146.93	0.35	20.99		0		0		0	7.35
Impervious	2	1.03	2.06	0.90	1.03		0		0		0	0.93
Composite IA		22.02	6.77	Composite Runoff Coefficient								0.38

Time to Peak Inputs						Uplands			Bransby Williams		Airport	
Flow Path Description	Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
Overland	437	5.4	1.24%	2.3	0.26	0.47	0.32	0.32	0.29	0.20	0.77	0.51

Appropriate calculated time to peak:	0.51	Appropriate Method:	Airport

Project Name: Fergus Oaks
Project Number: 1000-6897
Created By: JKF
Reviewed By: NO
Date: 2024.11.29

D.A. NAME 102
D.A. AREA 58.69 ha

Hydrologic Parameters: CALIB NASHYD Command
Pre Development Drainage Area: Catchment 102

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Harriston and Listowell Loam	B	B	100	58.69
Total Area Check				58.69

Impervious Landuses Present:

	Roadway		Sidewalk		Driveway		Building		SWMF		Subtotals	
Soils	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area	CN	Area	A*CN
B					0.60	98	1.85	98			2.45	240.10
Subtotal Area					0.60		1.85					

Pervious Landuses Present:

	Woodland		Pasture/ Unimproved		Wetland		Lawn		Cultivated		Subtotals	
Soils	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area	CN	Area	A*CN
B									56.24	78	56.24	4386.72
Subtotal Area									56.24			

Composite Area Calculations		
	Total Pervious Area	56.24
	Total Impervious Area	2.45
	% Impervious	4.17%
	Composite Curve Number	78.8
	Total Area Check	58.69

Initial Abstraction and Tp Calculations

Initial Abstraction				Composite Runoff Coefficient								
Landuse	IA (mm)	Area (ha)	A * IA	Harriston and Listowell Loam		/		/		/		
				RC	Area	RC	Area	RC	Area	RC	Area	A*RC
Woodland	10	0	0		0		0		0		0	0
Pasture/	8	0	0		0		0		0		0	0
Wetland	16	0	0		0		0		0		0	0
Lawn	5	0	0		0		0		0		0	0
Cultivated	7	56.24	393.68	0.35	56.24		0		0		0	19.68
Impervious	2	2.45	4.90	0.90	2.45		0		0		0	2.21
Composite IA		58.69	6.79	Composite Runoff Coefficient								0.37

Time to Peak Inputs						Uplands			Bransby Williams		Airport	
Flow Path Description	Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
Overland	1029	7.3	0.71%	2.3	0.19	1.48	0.99	0.99	0.70	0.47	1.42	0.95

Appropriate calculated time to peak:	0.95	Appropriate Method:	Airport

Project Name: Fergus Oaks
Project Number: 1000-6897
Created By: JKF
Reviewed By: NO
Date: 2024.11.29

D.A. NAME 103
D.A. AREA 31.63 ha

Hydrologic Parameters: CALIB NASHYD Command
Pre Development Drainage Area: Catchment 103

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Harriston and Listowell Loam	B	B	100	31.63
Total Area Check				31.63

Impervious Landuses Present:												
	Roadway		Sidewalk		Driveway		Building		SWMF		Subtotals	
Soils	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area	CN	Area	A*CN
B					0.14	98					0.14	13.43
Subtotal Area					0.14							

Pervious Landuses Present:												
	Woodland		Pasture/ Unimproved		Wetland		Lawn		Cultivated		Subtotals	
Soils	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area	CN	Area	A*CN
B			1.56	65					29.93	78	31.49	2436.17
Subtotal Area			1.56						29.93			

Composite Area Calculations		
	Total Pervious Area	31.49
	Total Impervious Area	0.14
	% Impervious	0.43%
	Composite Curve Number	77.4
	Total Area Check	31.63

Initial Abstraction and Tp Calculations

Initial Abstraction				Composite Runoff Coefficient								
Landuse	IA (mm)	Area (ha)	A * IA	Harriston and Listowell Loam		/		/		/		
				RC	Area	RC	Area	RC	Area	RC	Area	A*RC
Woodland	10	0	0		0		0		0		0	0
Pasture/	8	1.56	12.48	0.28	2		0		0		0	0.44
Wetland	16	0	0		0		0		0		0	0
Lawn	5	0	0		0		0		0		0	0
Cultivated	7	29.93	209.53	0.35	29.93		0		0		0	10.48
Impervious	2	0.14	0.27	0.90	0.14		0		0		0	0.12
Composite IA		31.63	7.03	Composite Runoff Coefficient								0.35

Time to Peak Inputs						Uplands			Bransby Williams		Airport	
Flow Path Description	Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
Overland	975	3.6	0.37%	2.3	0.14	1.94	1.30	1.30	0.80	0.54	1.77	1.19

Appropriate calculated time to peak:	1.19	Appropriate Method:	Airport

Project Name: Fergus Oaks
Project Number: 1000-6897
Created By: JKF
Reviewed By: NO
Date: 2024.11.29

D.A. NAME 104
D.A. AREA 42.80 ha

Hydrologic Parameters: CALIB NASHYD Command
Pre Development Drainage Area: Catchment 104

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Harriston and Listowell Loam	B	B	100	42.80
Total Area Check				42.80

Impervious Landuses Present:												
	Roadway		Sidewalk		Driveway		Building		SWMF		Subtotals	
Soils	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area	CN	Area	A*CN
B							0.98	98			0.98	95.75
Subtotal Area							0.98					

Pervious Landuses Present:												
	Woodland		Pasture/ Unimproved		Wetland		Lawn		Cultivated		Subtotals	
Soils	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area	CN	Area	A*CN
B									41.82	78	41.82	3262.19
Subtotal Area									41.82			

Composite Area Calculations		
	Total Pervious Area	41.82
	Total Impervious Area	0.98
	% Impervious	2.28%
	Composite Curve Number	78.5
	Total Area Check	42.80

Initial Abstraction and Tp Calculations

Initial Abstraction				Composite Runoff Coefficient								
Landuse	IA (mm)	Area (ha)	A * IA	Harriston and Listowell Loam		/		/		/		
				RC	Area	RC	Area	RC	Area	RC	Area	A*RC
Woodland	10	0	0		0		0		0		0	0
Pasture/	8	0	0		0		0		0		0	0
Wetland	16	0	0		0		0		0		0	0
Lawn	5	0	0		0		0		0		0	0
Cultivated	7	41.82	292.76	0.35	41.82		0		0		0	14.64
Impervious	2	0.98	1.95	0.90	0.98		0		0		0	0.88
Composite IA		42.80	6.89	Composite Runoff Coefficient								0.36

Time to Peak Inputs						Uplands			Bransby Williams		Airport	
Flow Path Description	Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
Overland	968	8.2	0.85%	2.3	0.21	1.27	0.85	0.85	0.65	0.44	1.32	0.88

Appropriate calculated time to peak:	0.88	Appropriate Method:	Airport

Project Name: Fergus Oaks
Project Number: 1000-6897
Created By: JKF
Reviewed By: NO
Date: 2024.11.29

D.A. NAME 105
D.A. AREA 9.10 ha

Hydrologic Parameters: CALIB NASHYD Command
Pre Development Drainage Area: Catchment 105

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Harriston and Listowell Loam	B	B	100	9.10
Total Area Check				9.10

Impervious Landuses Present:												
	Roadway		Sidewalk		Driveway		Building		SWMF		Subtotals	
Soils	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area	CN	Area	A*CN
B											0	0
Subtotal Area												

Pervious Landuses Present:												
	Woodland		Pasture/ Unimproved		Wetland		Lawn		Cultivated		Subtotals	
Soils	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area	CN	Area	A*CN
B									9.10	78	9.10	709.80
Subtotal Area									9.10			

	Composite Area Calculations	Total Pervious Area	9.10
		Total Impervious Area	0.00
		% Impervious	0.00%
		Composite Curve Number	78.0
		Total Area Check	9.10

Initial Abstraction and Tp Calculations

Initial Abstraction				Composite Runoff Coefficient								
Landuse	IA (mm)	Area (ha)	A * IA	Harriston and Listowell Loam		/		/		/		
				RC	Area	RC	Area	RC	Area	RC	Area	A*RC
Woodland	10	0	0		0		0		0		0	0
Pasture/	8	0	0		0		0		0		0	0
Wetland	16	0	0		0		0		0		0	0
Lawn	5	0	0		0		0		0		0	0
Cultivated	7	9.10	63.70	0.35	9.10		0		0		0	3.19
Impervious	2	0	0		0		0		0		0	0
Composite IA		9.10	7.00	Composite Runoff Coefficient								0.35

Time to Peak Inputs						Uplands			Bransby Williams		Airport	
Flow Path Description	Length (m)	Drop (m)	Slope (%)	$V/S^{0.5}$	Velocity (m/s)	Tc (hr)	Tp(hr)	TOTAL Tp (hr)	Tc (hr)	Tp(hr)	Tc (hr)	Tp(hr)
Overland	180	2	1.11%	2.3	0.24	0.21	0.14	0.14	0.13	0.09	0.53	0.35

Appropriate calculated time to peak:	0.35	Appropriate Method:	Airport

Project Name: Fergus Oaks
Project Number: 1000-6897
Created By: JKF
Reviewed By: NO
Date: 2024.11.29

Post-Development Area Weighting Calculations

Catchment 201					
Land Use	**Area (ha)**	**% Imperviousness[1]**	**Weighted % Imperviousness**	**Directly Connected Imperviousness % (XIMP)[2]**	**Weighted XIMP**
Medium Density	21.71	80%	57%	50%	36%
Secondary School	2.67	80%	7%	55%	5%
Commercial	0.70	85%	2%	85%	2%
Collectors Road R.O.W.	5.44	70%	12%	70%	12%
Total =	**30.52**	**Catchment 201 % Imperviousness =**	**78%**	**Catchment 201 XIMP =**	**55%**

Catchment 202					
Land Use	**Area (ha)**	**% Imperviousness[1]**	**Weighted % Imperviousness**	**Directly Connected Imperviousness % (XIMP)[2]**	**Weighted XIMP**
Low Density	2.62	65%	6%	45%	4%
Medium Density	8.12	80%	23%	50%	14%
Commercial	3.19	85%	10%	85%	10%
Town Park, Recreational Facilities, Well & Reservoir	8.72	50%	16%	50%	16%
Collectors Road R.O.W.	5.41	70%	13%	70%	13%
Total =	**28.06**	**Catchment 202 % Imperviousness =**	**68%**	**Catchment 202 XIMP =**	**57%**

Catchment 203					
Land Use	**Area (ha)**	**% Imperviousness[1]**	**Weighted % Imperviousness**	**Directly Connected Imperviousness % (XIMP)[2]**	**Weighted XIMP**
Low Density	74.93	65%	54%	45%	38%
Elementary School	2.70	80%	2%	55%	2%
Neighbourhood Parks & Sanitary Pumping Station	6.69	7%	0.5%	7%	0.5%
Collectors Road R.O.W.	5.30	70%	4%	70%	4%
Total =	**89.62**	**Catchment 203 % Imperviousness =**	**61%**	**Catchment 203 XIMP =**	**44%**

Notes:

1. % Imperviousness obtained from Section F.3 - Analytical Methods of the Township of Centre Wellington Development Manual (June 2024)

2. Directly Connected Impervious (XIMP) assumptions obtained from Section 2 of Visual OTTHYMO Reference Guide (Version 6.0) or Section 13.0 Table 1 of the LSRCA Technical Guidelines for Stormwater Management Submissions (April 2022)

3. Land use areas are based on the Concept Plan prepared by Landwise (November 2024).

Project Name: Fergus Oaks
Project Number: 1000-6897
Created By: JKF
Reviewed By: NO
Date: 2024.11.29

D.A. NAME **201**
D.A. AREA (ha) **30.52**

Hydrologic Parameters: CALIB STANDHYD Command
Post Development Drainage Area: Catchment 201

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Harriston and Listowell Loam	B	B	100%	30.52
Total Area Check				30.52

Impervious Landuses Present:												
	R.O.W.		Medium Density		Low Density		Commercial		School		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha	CN	Area (ha	CN	Area (ha)	CN	Area	CN
B	Refer to "Post-Development Area Weighting Calculations" design sheet for % Impervious Area Calculations. CN for impervious areas = 98.										23.91	98
Pervious Landuses Present:												
	Woodland		Pasture/ Unimproved		Wetland		Lawn		Cultivated		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha	CN	Area (ha	CN	Area (ha)	CN	Area	CN
B	Refer to "Post-Development Area Weighting Calculations" design sheet for % Impervious Area Calculations. Assumed all pervious areas will be "Lawn" and modelled with a corresponding CN value of 69.										6.61	69

	Pervious Area Calculations	Total Pervious Area	6.61
		Composite Pervious Curve Number	69
	Impervious Area Calculations	Total Directly Connected Area	13.10
		Total Indirectly Connected Area	10.80
		Total Impervious Area	23.91
		% X imp	55%
		% T imp	78%
		Total Area Check	30.52

Initial Abstraction and Tp Calculations

Landuse	IA (mm)	Area (ha)	A * IA
Woodland	10	/	/
Pasture/Unimproved	8	/	/
Wetland	16	/	/
Lawn	5	6.61	33.07
Cultivated	7	/	/

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	2%	40	0.25
Impervious	2.0	1%	Auto Calculated in VO	0.013

Project Name: Fergus Oaks
Project Number: 1000-6897
Created By: JKF
Reviewed By: NO
Date: 2024.11.29

D.A. NAME 1
D.A. AREA (ha) 4.21

Hydrologic Parameters: CALIB STANDHYD Command
Post Development Drainage Area: Catchment 1 (SWM-1)

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Harriston and Listowell Loam	B	B	100%	4.21
Total Area Check				4.21

Impervious Landuses Present:

Soils	R.O.W. Area (ha)	CN	Medium Density Area (ha)	CN	Low Density Area (ha	CN	Commercial Area (ha	CN	School Area (ha)	CN	Subtotals Area	CN
B	N/A for SWM Block. Imperviousness assumed to be 50% of Block Area.										2.11	100

Pervious Landuses Present:

Soils	Woodland Area (ha)	CN	Pasture/ Unimproved Area (ha)	CN	Wetland Area (ha	CN	Lawn Area (ha	CN	Cultivated Area (ha)	CN	Subtotals Area	CN
B	All pervious areas assumed in SWM Block to be "Lawn" and modelled with a corresponding CN value of 69.										2.11	69

	Pervious Area Calculations	Total Pervious Area	2.11
		Composite Pervious Curve Number	69
	Impervious Area Calculations	Total Directly Connected Area	2.11
		Total Indirectly Connected Area	0
		Total Impervious Area	2.11
		% X imp	50%
		% T imp	50%
		Total Area Check	4.21

Initial Abstraction and Tp Calculations

Landuse	IA (mm)	Area (ha)	A * IA
Woodland	10	/	/
Pasture/Unimproved	8	/	/
Wetland	16	/	/
Lawn	5	2.11	10.53
Cultivated	7	/	/

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	2%	40	0.25
Impervious	2.0	1%	Auto Calculated in VO	0.013

Project Name: Fergus Oaks
Project Number: 1000-6897
Created By: JKF
Reviewed By: NO
Date: 2024.11.29

D.A. NAME **202**
D.A. AREA (ha) **28.06**

Hydrologic Parameters: CALIB STANDHYD Command
Post Development Drainage Area: Catchment 202

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Harriston and Listowell Loam	B	B	100%	28.06
Total Area Check				28.06

Impervious Landuses Present:												
	R.O.W.		Medium Density		Low Density		Commercial		School		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha	CN	Area (ha	CN	Area (ha)	CN	Area	CN
B	Refer to "Post-Development Area Weighting Calculations" design sheet for % Impervious Area Calculations. CN for impervious areas = 98.										19.06	98
Pervious Landuses Present:												
	Woodland		Pasture/ Unimproved		Wetland		Lawn		Cultivated		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha	CN	Area (ha	CN	Area (ha)	CN	Area	CN
B	Refer to "Post-Development Area Weighting Calculations" design sheet for % Impervious Area Calculations. Assumed all pervious areas will be "Lawn" and modelled with a corresponding CN value of 69.										9.00	69

	Pervious Area Calculations	Total Pervious Area	9.00
		Composite Pervious Curve Number	69
	Impervious Area Calculations	Total Directly Connected Area	10.93
		Total Indirectly Connected Area	8.12
		Total Impervious Area	19.06
		% X imp	57%
		% T imp	68%
		Total Area Check	28.06

Initial Abstraction and Tp Calculations

Landuse	IA (mm)	Area (ha)	A * IA
Woodland	10	/	/
Pasture/Unimproved	8	/	/
Wetland	16	/	/
Lawn	5	9.00	45.01
Cultivated	7	/	/

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	2%	40	0.25
Impervious	2.0	1%	Auto Calculated in VO	0.013

Project Name: Fergus Oaks
Project Number: 1000-6897
Created By: JKF
Reviewed By: NO
Date: 2024.11.29

D.A. NAME **2**
D.A. AREA (ha) **3.95**

Hydrologic Parameters: CALIB STANDHYD Command
Post Development Drainage Area: Catchment 2 (SWM-2)

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Harriston and Listowell Loam	B	B	100%	3.95
Total Area Check				3.95

Impervious Landuses Present:												
	R.O.W.		Medium Density		Low Density		Commercial		School		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha	CN	Area (ha	CN	Area (ha)	CN	Area	CN
B	N/A for SWM Block. Imperviousness assumed to be 50% of Block Area.										1.98	100

Pervious Landuses Present:												
	Woodland		Pasture/ Unimproved		Wetland		Lawn		Cultivated		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha	CN	Area (ha	CN	Area (ha)	CN	Area	CN
B	All pervious areas assumed in SWM Block to be "Lawn" and modelled with a corresponding CN value of 69.										1.98	69

	Pervious Area Calculations	Total Pervious Area	1.98
		Composite Pervious Curve Number	69
	Impervious Area Calculations	Total Directly Connected Area	1.98
		Total Indirectly Connected Area	0
		Total Impervious Area	1.98
		% X imp	50%
		% T imp	50%
		Total Area Check	3.95

Initial Abstraction and Tp Calculations

Landuse	IA (mm)	Area (ha)	A * IA
Woodland	10	/	/
Pasture/Unimproved	8	/	/
Wetland	16	/	/
Lawn	5	1.98	9.88
Cultivated	7	/	/

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	2%	40	0.25
Impervious	2.0	1%	Auto Calculated in VO	0.013

Project Name: Fergus Oaks
Project Number: 1000-6897
Created By: JKF
Reviewed By: NO
Date: 2024.11.29

D.A. NAME **203**
D.A. AREA (ha) **89.62**

Hydrologic Parameters: CALIB STANDHYD Command
Post Development Drainage Area: Catchment 203

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Harriston and Listowell Loam	B	B	100%	89.62
Total Area Check				89.62

Impervious Landuses Present:												
	R.O.W.		Medium Density		Low Density		Commercial		School		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha	CN	Area (ha	CN	Area (ha)	CN	Area	CN
B	Refer to "Post-Development Area Weighting Calculations" design sheet for % Impervious Area Calculations. CN for impervious areas = 98.										55.04	98
Pervious Landuses Present:												
	Woodland		Pasture/ Unimproved		Wetland		Lawn		Cultivated		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha	CN	Area (ha	CN	Area (ha)	CN	Area	CN
B	Refer to "Post-Development Area Weighting Calculations" design sheet for % Impervious Area Calculations. Assumed all pervious areas will be "Lawn" and modelled with a corresponding CN value of 69.										34.58	69

	Pervious Area Calculations	Total Pervious Area	34.58
		Composite Pervious Curve Number	69
	Impervious Area Calculations	Total Directly Connected Area	24.19
		Total Indirectly Connected Area	30.85
		Total Impervious Area	55.04
		% X imp	44%
		% T imp	61%
		Total Area Check	89.62

Initial Abstraction and Tp Calculations

Landuse	IA (mm)	Area (ha)	A * IA
Woodland	10	/	/
Pasture/Unimproved	8	/	/
Wetland	16	/	/
Lawn	5	34.58	172.89
Cultivated	7	/	/

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	3%	40	0.25
Impervious	2.0	2%	Auto Calculated in VO	0.013

Project Name: Fergus Oaks
Project Number: 1000-6897
Created By: JKF
Reviewed By: NO
Date: 2024.11.29

D.A. NAME **3**
D.A. AREA (ha) **7.88**

Hydrologic Parameters: CALIB STANDHYD Command
Post Development Drainage Area: Catchment 3 (SWM-3)

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Harriston and Listowell Loam	B	B	100%	7.88
Total Area Check				7.88

Impervious Landuses Present:												
	R.O.W.		Medium Density		Low Density		Commercial		School		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha	CN	Area (ha	CN	Area (ha)	CN	Area	CN
B	N/A for SWM Block. Imperviousness assumed to be 50% of Block Area.										3.94	100

Pervious Landuses Present:												
	Woodland		Pasture/ Unimproved		Wetland		Lawn		Cultivated		Subtotals	
Soils	Area (ha)	CN	Area (ha)	CN	Area (ha	CN	Area (ha	CN	Area (ha)	CN	Area	CN
B	All pervious areas assumed in SWM Block to be "Lawn" and modelled with a corresponding CN value of 69.										3.94	69

	Pervious Area Calculations	Total Pervious Area	3.94
		Composite Pervious Curve Number	69
	Impervious Area Calculations	Total Directly Connected Area	3.94
		Total Indirectly Connected Area	0
		Total Impervious Area	3.94
		% X imp	50%
		% T imp	50%
		Total Area Check	7.88

Initial Abstraction and Tp Calculations

Landuse	IA (mm)	Area (ha)	A * IA
Woodland	10	/	/
Pasture/Unimproved	8	/	/
Wetland	16	/	/
Lawn	5	3.94	19.70
Cultivated	7	/	/

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	2%	40	0.25
Impervious	2.0	1%	Auto Calculated in VO	0.013

Project Name: Fergus Oaks
Project Number: 1000-6897
Created By: JKF
Reviewed By: NO
Date: 2024.11.29

Preliminary Water Quality Calculations for SWM-1

Areas Contributing	Area (ha)	% Imp	25mm RV (mm)	25mm RV (m^3)
201	30.52	78	13.73	4,192
SWM-1	4.21	50	11.37	479
Total	**34.73**	**75**		**4,670**

MOE Total WQ Volume (m^3/ha)	233
MOE ED Volume (m^3/ha)	40
MOE ED Volume (m^3)	1,389
MOE PP Volume (m^3/ha)	193
MOE PP Volume (m^3)	6,692
Pond Required PP Volume (m^3)	6,692
Pond Required ED Volume (m^3)	4,670
Pond Required 100Yr AS Volume (m^3)	19,022
Provided PP Volume (m^3)	13,450
Provided 100Yr AS Volume (m^3)	26,550

Preliminary Water Quality Calculations for SWM-2

Areas Contributing	Area (ha)	% Imp	25mm RV (mm)	25mm RV (m^3)
202	28.06	68	13.10	3,676
SWM-2	3.95	50	11.37	449
Total	**32.01**	**66**		**4,126**

MOE Total WQ Volume (m^3/ha)	215
MOE ED Volume (m^3/ha)	40
MOE ED Volume (m^3)	1,280
MOE PP Volume (m^3/ha)	175
MOE PP Volume (m^3)	5,607
Pond Required PP Volume (m^3)	5,607
Pond Required ED Volume (m^3)	4,126
Pond Required 100Yr AS Volume (m^3)	11,941
Provided PP Volume (m^3)	11,775
Provided 100Yr AS Volume (m^3)	26,650

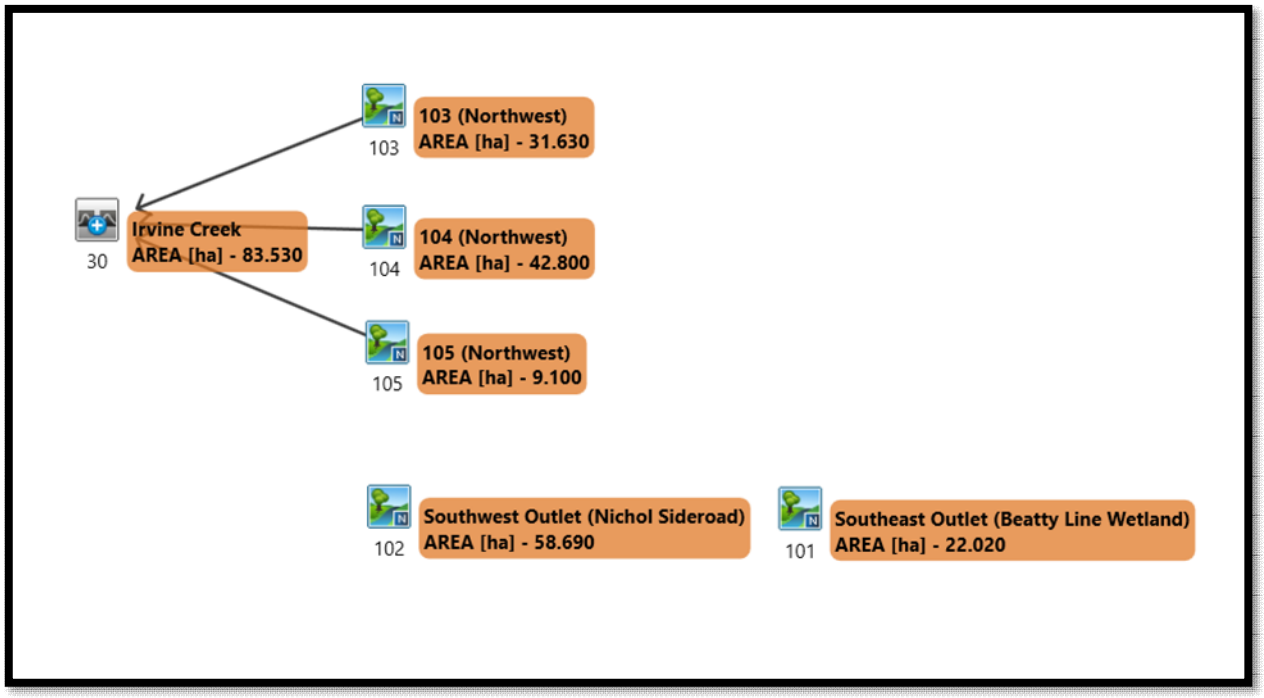
Project Name: Fergus Oaks
Project Number: 1000-6897
Created By: JKF
Reviewed By: NO
Date: 2024.11.29

Preliminary Water Quality Calculations for SWM-3

Areas Contributing	Area (ha)	% Imp	25mm RV (mm)	25mm RV (m^3)
203	89.62	61	11.19	10,025
SWM-3	7.88	50	11.38	896
Total	**97.50**	**60**		**10,922**

MOE Total WQ Volume (m^3/ha)	202
MOE ED Volume (m^3/ha)	40
MOE ED Volume (m^3)	3,900
MOE PP Volume (m^3/ha)	162
MOE PP Volume (m^3)	15,788
Pond Required PP Volume (m^3)	15,788
Pond Required ED Volume (m^3)	10,922
Pond Required 100Yr AS Volume (m^3)	48,799
Provided PP Volume (m^3)	27,600
Provided 100Yr AS Volume (m^3)	55,350

Pre-Development VO Modelling Results



```
================================================================================
========================

       V    V   I    SSSSS  U   U    A    L                (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
        V  V    I    SS     U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D    O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
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cf54c6-1844-42f7-a7e1-f2ad421a1188\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\6b
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DATE: 11-27-2024                          TIME: 08:40:18

USER:


COMMENTS: _____________________________________________________

--------------------------------------------------------------------------------
-------------------
 ************************************************
 ** SIMULATION : 1A - 2yr 4hr 10min Chicago    **
 ************************************************

-------------------
| CHICAGO STORM   |    IDF curve parameters: A= 414.345
| Ptotal= 39.44 mm |                          B=   0.000
-------------------                          C=   0.682
```

```
                      used in:   INTENSITY =  A / (t + B)^C

                      Duration of storm  =  4.00 hrs
                      Storm time step    = 10.00 min
                      Time to peak ratio =  0.33

      TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
      0.00    3.49 |  1.00   15.91 |  2.00    6.80 |  3.00    4.01
      0.17    3.89 |  1.17   86.17 |  2.17    6.02 |  3.17    3.78
      0.33    4.43 |  1.33   19.44 |  2.33    5.43 |  3.33    3.58
      0.50    5.19 |  1.50   12.40 |  2.50    4.97 |  3.50    3.41
      0.67    6.40 |  1.67    9.52 |  2.67    4.59 |  3.67    3.26
      0.83    8.69 |  1.83    7.88 |  2.83    4.28 |  3.83    3.12

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD  (  0102)|   Area    (ha)=  58.69   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.79   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.95

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
      0.083   3.49 |  1.083  15.91 |  2.083   6.80 |  3.08    4.01
      0.167   3.49 |  1.167  15.91 |  2.167   6.80 |  3.17    4.01
      0.250   3.89 |  1.250  86.17 |  2.250   6.02 |  3.25    3.78
      0.333   3.89 |  1.333  86.17 |  2.333   6.02 |  3.33    3.78
      0.417   4.43 |  1.417  19.44 |  2.417   5.43 |  3.42    3.58
      0.500   4.43 |  1.500  19.44 |  2.500   5.43 |  3.50    3.58
      0.583   5.19 |  1.583  12.40 |  2.583   4.97 |  3.58    3.41
      0.667   5.19 |  1.667  12.40 |  2.667   4.97 |  3.67    3.41
      0.750   6.40 |  1.750   9.52 |  2.750   4.59 |  3.75    3.26
      0.833   6.40 |  1.833   9.52 |  2.833   4.59 |  3.83    3.26
      0.917   8.69 |  1.917   7.88 |  2.917   4.28 |  3.92    3.12
      1.000   8.69 |  2.000   7.88 |  3.000   4.28 |  4.00    3.12

    Unit Hyd Qpeak  (cms)=   2.360

    PEAK FLOW       (cms)=   0.655 (i)
    TIME TO PEAK    (hrs)=   2.667
    RUNOFF VOLUME    (mm)=  11.559
    TOTAL RAINFALL   (mm)=  39.442
    RUNOFF COEFFICIENT   =   0.293

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD  (  0103)|   Area    (ha)=  31.63   Curve Number   (CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.03   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.19

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
      0.083   3.49 |  1.083  15.91 |  2.083   6.80 |  3.08    4.01
      0.167   3.49 |  1.167  15.91 |  2.167   6.80 |  3.17    4.01
      0.250   3.89 |  1.250  86.17 |  2.250   6.02 |  3.25    3.78
      0.333   3.89 |  1.333  86.17 |  2.333   6.02 |  3.33    3.78
      0.417   4.43 |  1.417  19.44 |  2.417   5.43 |  3.42    3.58
      0.500   4.43 |  1.500  19.44 |  2.500   5.43 |  3.50    3.58
      0.583   5.19 |  1.583  12.40 |  2.583   4.97 |  3.58    3.41
      0.667   5.19 |  1.667  12.40 |  2.667   4.97 |  3.67    3.41
      0.750   6.40 |  1.750   9.52 |  2.750   4.59 |  3.75    3.26
      0.833   6.40 |  1.833   9.52 |  2.833   4.59 |  3.83    3.26
      0.917   8.69 |  1.917   7.88 |  2.917   4.28 |  3.92    3.12
      1.000   8.69 |  2.000   7.88 |  3.000   4.28 |  4.00    3.12

    Unit Hyd Qpeak  (cms)=   1.858

    PEAK FLOW       (cms)=   0.475 (i)
    TIME TO PEAK    (hrs)=   2.583
    RUNOFF VOLUME    (mm)=  11.032
    TOTAL RAINFALL   (mm)=  39.442
    RUNOFF COEFFICIENT   =   0.280

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD  (  0105)|   Area    (ha)=   9.10   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.35

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
      0.083   3.49 |  1.083  15.91 |  2.083   6.80 |  3.08    4.01
      0.167   3.49 |  1.167  15.91 |  2.167   6.80 |  3.17    4.01
      0.250   3.89 |  1.250  86.17 |  2.250   6.02 |  3.25    3.78
      0.333   3.89 |  1.333  86.17 |  2.333   6.02 |  3.33    3.78
      0.417   4.43 |  1.417  19.44 |  2.417   5.43 |  3.42    3.58
      0.500   4.43 |  1.500  19.44 |  2.500   5.43 |  3.50    3.58
      0.583   5.19 |  1.583  12.40 |  2.583   4.97 |  3.58    3.41
      0.667   5.19 |  1.667  12.40 |  2.667   4.97 |  3.67    3.41
      0.750   6.40 |  1.750   9.52 |  2.750   4.59 |  3.75    3.26
      0.833   6.40 |  1.833   9.52 |  2.833   4.59 |  3.83    3.26
      0.917   8.69 |  1.917   7.88 |  2.917   4.28 |  3.92    3.12
      1.000   8.69 |  2.000   7.88 |  3.000   4.28 |  4.00    3.12

    Unit Hyd Qpeak  (cms)=   0.993

    PEAK FLOW       (cms)=   0.173 (i)
    TIME TO PEAK    (hrs)=   1.750
    RUNOFF VOLUME    (mm)=  10.967
    TOTAL RAINFALL   (mm)=  39.442
    RUNOFF COEFFICIENT   =   0.278

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| ADD HYD  (  0030)|
|  1 +  2 =  3     |        AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)    (mm)
      ID1= 1 (  0103):    31.63   0.280     3.08    10.51
    + ID2= 2 (  0104):    42.80   0.475     2.58    11.03
      ========================================================
      ID = 3 (  0030):    74.43   0.739     2.75    10.81

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD  (  0101)|   Area    (ha)=  22.02   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.77   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.51

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
      0.083   3.49 |  1.083  15.91 |  2.083   6.80 |  3.08    4.01
      0.167   3.49 |  1.167  15.91 |  2.167   6.80 |  3.17    4.01
      0.250   3.89 |  1.250  86.17 |  2.250   6.02 |  3.25    3.78
      0.333   3.89 |  1.333  86.17 |  2.333   6.02 |  3.33    3.78
      0.417   4.43 |  1.417  19.44 |  2.417   5.43 |  3.42    3.58
      0.500   4.43 |  1.500  19.44 |  2.500   5.43 |  3.50    3.58
      0.583   5.19 |  1.583  12.40 |  2.583   4.97 |  3.58    3.41
      0.667   5.19 |  1.667  12.40 |  2.667   4.97 |  3.67    3.41
      0.750   6.40 |  1.750   9.52 |  2.750   4.59 |  3.75    3.26
      0.833   6.40 |  1.833   9.52 |  2.833   4.59 |  3.83    3.26
      0.917   8.69 |  1.917   7.88 |  2.917   4.28 |  3.92    3.12
      1.000   8.69 |  2.000   7.88 |  3.000   4.28 |  4.00    3.12

    Unit Hyd Qpeak  (cms)=   1.649

    PEAK FLOW       (cms)=   0.356 (i)
    TIME TO PEAK    (hrs)=   2.000
    RUNOFF VOLUME    (mm)=  11.570
    TOTAL RAINFALL   (mm)=  39.442
    RUNOFF COEFFICIENT   =   0.293

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| ADD HYD  (  0030)|
|  3 +  2 =  1     |        AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)    (mm)
      ID1= 3 (  0030):    74.43   0.739     2.75    10.81
    + ID2= 2 (  0105):     9.10   0.173     1.75    10.97
      ========================================================
      ID = 1 (  0030):    83.53   0.820     2.67    10.83

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD  (  0101)|   Area    (ha)=  22.02   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.77   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.51

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
      0.083   3.49 |  1.083  15.91 |  2.083   6.80 |  3.08    4.01
      0.167   3.49 |  1.167  15.91 |  2.167   6.80 |  3.17    4.01
      0.250   3.89 |  1.250  86.17 |  2.250   6.02 |  3.25    3.78
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```
      0.333   3.89 |  1.333  86.17 |  2.333   6.02 |  3.33    3.78
      0.417   4.43 |  1.417  19.44 |  2.417   5.43 |  3.42    3.58
      0.500   4.43 |  1.500  19.44 |  2.500   5.43 |  3.50    3.58
      0.583   5.19 |  1.583  12.40 |  2.583   4.97 |  3.58    3.41
      0.667   5.19 |  1.667  12.40 |  2.667   4.97 |  3.67    3.41
      0.750   6.40 |  1.750   9.52 |  2.750   4.59 |  3.75    3.26
      0.833   6.40 |  1.833   9.52 |  2.833   4.59 |  3.83    3.26
      0.917   8.69 |  1.917   7.88 |  2.917   4.28 |  3.92    3.12
      1.000   8.69 |  2.000   7.88 |  3.000   4.28 |  4.00    3.12

    Unit Hyd Qpeak  (cms)=   1.858

    PEAK FLOW       (cms)=   0.794 (i)
    TIME TO PEAK    (hrs)=   2.500
    RUNOFF VOLUME    (mm)=  17.857
    TOTAL RAINFALL   (mm)=  50.655
    RUNOFF COEFFICIENT   =   0.353

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD  (  0105)|   Area    (ha)=   9.10   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
```

```
================================================================================
========================

       V    V   I    SSSSS  U   U    A    L                (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
        V  V    I    SS     U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D    O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
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ffee3e-e0c2-46e7-b8ec-77c726750cc0\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\a5
ffee3e-e0c2-46e7-b8ec-77c726750cc0\sc

DATE: 11-27-2024                          TIME: 08:40:18

USER:


COMMENTS: _____________________________________________________

--------------------------------------------------------------------------------
-------------------
 ************************************************
 ** SIMULATION : 1B - 5yr 4hr 10min Chicago    **
 ************************************************

-------------------
| CHICAGO STORM   |    IDF curve parameters: A= 543.943
| Ptotal= 50.66 mm |                          B=   0.000
-------------------                          C=   0.686
                      used in:   INTENSITY =  A / (t + B)^C

                      Duration of storm  =  4.00 hrs
                      Storm time step    = 10.00 min
                      Time to peak ratio =  0.33

      TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
      0.00    4.43 |  1.00   20.37 |  2.00    8.66 |  3.00    5.09
      0.17    4.94 |  1.17  112.09 |  2.17    7.66 |  3.17    4.80
      0.33    5.63 |  1.33   24.91 |  2.33    6.91 |  3.33    4.55
      0.50    6.61 |  1.50   15.85 |  2.50    6.32 |  3.50    4.33
      0.67    8.15 |  1.67   12.15 |  2.67    5.83 |  3.67    4.13
      0.83   11.09 |  1.83   10.04 |  2.83    5.43 |  3.83    3.95

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD  (  0102)|   Area    (ha)=  58.69   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.79   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.95

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
```

```
      0.083   4.43 |  1.083  20.37 |  2.083   8.66 |  3.08    5.09
      0.167   4.43 |  1.167  20.37 |  2.167   8.66 |  3.17    5.09
      0.250   4.94 |  1.250 112.09 |  2.250   7.66 |  3.25    4.80
      0.333   4.94 |  1.333 112.09 |  2.333   7.66 |  3.33    4.80
      0.417   5.63 |  1.417  24.91 |  2.417   6.91 |  3.42    4.55
      0.500   5.63 |  1.500  24.91 |  2.500   6.91 |  3.50    4.55
      0.583   6.61 |  1.583  15.85 |  2.583   6.32 |  3.58    4.33
      0.667   6.61 |  1.667  15.85 |  2.667   6.32 |  3.67    4.33
      0.750   8.15 |  1.750  12.15 |  2.750   5.83 |  3.75    4.13
      0.833   8.15 |  1.833  12.15 |  2.833   5.83 |  3.83    4.13
      0.917  11.09 |  1.917  10.04 |  2.917   5.43 |  3.92    3.95
      1.000  11.09 |  2.000  10.04 |  3.000   5.43 |  4.00    3.95

    Unit Hyd Qpeak  (cms)=   2.360

    PEAK FLOW       (cms)=   1.085 (i)
    TIME TO PEAK    (hrs)=   2.583
    RUNOFF VOLUME    (mm)=  18.601
    TOTAL RAINFALL   (mm)=  50.655
    RUNOFF COEFFICIENT   =   0.367

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD  (  0103)|   Area    (ha)=  31.63   Curve Number   (CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.03   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.19

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
      0.083   4.43 |  1.083  20.37 |  2.083   8.66 |  3.08    5.09
      0.167   4.43 |  1.167  20.37 |  2.167   8.66 |  3.17    5.09
      0.250   4.94 |  1.250 112.09 |  2.250   7.66 |  3.25    4.80
      0.333   4.94 |  1.333 112.09 |  2.333   7.66 |  3.33    4.80
      0.417   5.63 |  1.417  24.91 |  2.417   6.91 |  3.42    4.55
      0.500   5.63 |  1.500  24.91 |  2.500   6.91 |  3.50    4.55
      0.583   6.61 |  1.583  15.85 |  2.583   6.32 |  3.58    4.33
      0.667   6.61 |  1.667  15.85 |  2.667   6.32 |  3.67    4.33
      0.750   8.15 |  1.750  12.15 |  2.750   5.83 |  3.75    4.13
      0.833   8.15 |  1.833  12.15 |  2.833   5.83 |  3.83    4.13
      0.917  11.09 |  1.917  10.04 |  2.917   5.43 |  3.92    3.95
      1.000  11.09 |  2.000  10.04 |  3.000   5.43 |  4.00    3.95

    Unit Hyd Qpeak  (cms)=   1.015

    PEAK FLOW       (cms)=   0.465 (i)
    TIME TO PEAK    (hrs)=   3.000
    RUNOFF VOLUME    (mm)=  17.123
    TOTAL RAINFALL   (mm)=  50.655
    RUNOFF COEFFICIENT   =   0.338

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD  (  0104)|   Area    (ha)=  42.80   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.89   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.88

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
      0.083   4.43 |  1.083  20.37 |  2.083   8.66 |  3.08    5.09
      0.167   4.43 |  1.167  20.37 |  2.167   8.66 |  3.17    5.09
      0.250   4.94 |  1.250 112.09 |  2.250   7.66 |  3.25    4.80
      0.333   4.94 |  1.333 112.09 |  2.333   7.66 |  3.33    4.80
      0.417   5.63 |  1.417  24.91 |  2.417   6.91 |  3.42    4.55
      0.500   5.63 |  1.500  24.91 |  2.500   6.91 |  3.50    4.55
      0.583   6.61 |  1.583  15.85 |  2.583   6.32 |  3.58    4.33
      0.667   6.61 |  1.667  15.85 |  2.667   6.32 |  3.67    4.33
      0.750   8.15 |  1.750  12.15 |  2.750   5.83 |  3.75    4.13
      0.833   8.15 |  1.833  12.15 |  2.833   5.83 |  3.83    4.13
      0.917  11.09 |  1.917  10.04 |  2.917   5.43 |  3.92    3.95
      1.000  11.09 |  2.000  10.04 |  3.000   5.43 |  4.00    3.95

    Unit Hyd Qpeak  (cms)=   1.015

    PEAK FLOW       (cms)=   0.860 (i)
    TIME TO PEAK    (hrs)=   2.500
    RUNOFF VOLUME    (mm)=  19.697
    TOTAL RAINFALL   (mm)=  50.655
    RUNOFF COEFFICIENT   =   0.389

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD  (  0105)|   Area    (ha)=   9.10   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
```

```
------------------   U.H. Tp(hrs)=   0.35

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    4.43 | 1.083   20.37 | 2.083    8.66 |  3.08    5.09
0.167    4.43 | 1.167   20.37 | 2.167    8.66 |  3.17    5.09
0.250    4.94 | 1.250  112.09 | 2.250    7.66 |  3.25    4.80
0.333    4.94 | 1.333  112.09 | 2.333    7.66 |  3.33    4.80
0.417    5.63 | 1.417   24.91 | 2.417    6.91 |  3.42    4.55
0.500    5.63 | 1.500   24.91 | 2.500    6.91 |  3.50    4.55
0.583    6.61 | 1.583   15.85 | 2.583    6.32 |  3.58    4.33
0.667    6.61 | 1.667   15.85 | 2.667    6.32 |  3.67    4.33
0.750    8.15 | 1.750   12.15 | 2.750    5.83 |  3.75    4.13
0.833    8.15 | 1.833   12.15 | 2.833    5.83 |  3.83    4.13
0.917   11.09 | 1.917   10.04 | 2.917    5.43 |  3.92    3.95
1.000   11.09 | 2.000   10.04 | 3.000    5.43 |  4.00    3.95

    Unit Hyd Qpeak  (cms)=   0.993

    PEAK FLOW       (cms)=   0.300 (i)
    TIME TO PEAK    (hrs)=   1.750
    RUNOFF VOLUME    (mm)=  17.781
    TOTAL RAINFALL   (mm)=  50.655
    RUNOFF COEFFICIENT   =   0.351

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------

------------------
| ADD HYD  (  0030)|
|  1 +  2 =  3     |        AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0103):    31.63   0.465     3.00    17.12
     + ID2= 2 (  0104):    42.80   0.794     2.50    17.86
       ==========================================================
       ID = 3 (  0030):    74.43   1.234     2.67    17.54

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

------------------
| ADD HYD  (  0030)|
|  3 +  2 =  1     |        AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):    74.43   1.234     2.67    17.54
```

```
      + ID2= 2 (  0105):     9.10   0.300     1.75    17.78
        ==========================================================
        ID = 1 (  0030):    83.53   1.367     2.58    17.57

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
------------------
| CALIB            |
| NASHYD   (  0101)|   Area     (ha)=  22.02   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   6.77   # of Linear Res.(N)= 3.00
------------------   U.H. Tp(hrs)=   0.51

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    4.43 | 1.083   20.37 | 2.083    8.66 |  3.08    5.09
0.167    4.43 | 1.167   20.37 | 2.167    8.66 |  3.17    5.09
0.250    4.94 | 1.250  112.09 | 2.250    7.66 |  3.25    4.80
0.333    4.94 | 1.333  112.09 | 2.333    7.66 |  3.33    4.80
0.417    5.63 | 1.417   24.91 | 2.417    6.91 |  3.42    4.55
0.500    5.63 | 1.500   24.91 | 2.500    6.91 |  3.50    4.55
0.583    6.61 | 1.583   15.85 | 2.583    6.32 |  3.58    4.33
0.667    6.61 | 1.667   15.85 | 2.667    6.32 |  3.67    4.33
0.750    8.15 | 1.750   12.15 | 2.750    5.83 |  3.75    4.13
0.833    8.15 | 1.833   12.15 | 2.833    5.83 |  3.83    4.13
0.917   11.09 | 1.917   10.04 | 2.917    5.43 |  3.92    3.95
1.000   11.09 | 2.000   10.04 | 3.000    5.43 |  4.00    3.95

    Unit Hyd Qpeak  (cms)=   1.649

    PEAK FLOW       (cms)=   0.605 (i)
    TIME TO PEAK    (hrs)=   1.917
    RUNOFF VOLUME    (mm)=  18.613
    TOTAL RAINFALL   (mm)=  50.655
    RUNOFF COEFFICIENT   =   0.367

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
==============================================================================
======================

     V    V   I   SSSSS  U   U    A     L              (v 6.2.2015)
     V    V   I   SS     U   U   A A    L
      V  V    I     SS   U   U  AAAAA   L
       V V    I     SS   U   U  A   A   L
        VV    I   SSSSS  UUUUU  A   A  LLLLL
```

```
     OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
    O   O    T      T    H   H   Y Y   MM MM  O   O
    O   O    T      T    H   H    Y    M M M  O   O
     OOO     T      T    H   H    Y    M   M   OOO
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                *****  D E T A I L E D   O U T P U T  *****

  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\a8
8990ba-a3a6-445c-b577-093222865ab2\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\a8
8990ba-a3a6-445c-b577-093222865ab2\sc

DATE: 11-27-2024                          TIME: 08:40:18

USER:


COMMENTS: _____

------------------------------------------------------------------------------
------------------
  **********************************************
  ** SIMULATION : 1C - 10yr 4hr 10min Chicago   **
  **********************************************

---------------------
| CHICAGO STORM    |    IDF curve parameters: A= 628.126
| Ptotal= 58.18 mm |                          B=   0.000
------------------                          C=   0.687
                          used in:   INTENSITY =  A / (t + B)^C

                          Duration of storm  =  4.00 hrs
                          Storm time step    = 10.00 min
                          Time to peak ratio =  0.33

                    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
```

```
                  0.00    5.08 |  1.00   23.38 |  2.00    9.92 |  3.00    5.83
                  0.17    5.66 |  1.17  129.14 |  2.17    8.78 |  3.17    5.50
                  0.33    6.45 |  1.33   28.60 |  2.33    7.92 |  3.33    5.21
                  0.50    7.57 |  1.50   18.18 |  2.50    7.24 |  3.50    4.95
                  0.67    9.34 |  1.67   13.93 |  2.67    6.68 |  3.67    4.73
                  0.83   12.71 |  1.83   11.51 |  2.83    6.22 |  3.83    4.52

------------------------------------------------------------------------------
------------------
| CALIB            |
| NASHYD   (  0102)|   Area     (ha)=  58.69   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   6.79   # of Linear Res.(N)= 3.00
------------------   U.H. Tp(hrs)=   0.95

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    5.08 | 1.083   23.38 | 2.083    9.92 |  3.08    5.83
0.167    5.08 | 1.167   23.38 | 2.167    9.92 |  3.17    5.83
0.250    5.66 | 1.250  129.14 | 2.250    8.78 |  3.25    5.50
0.333    5.66 | 1.333  129.14 | 2.333    8.78 |  3.33    5.50
0.417    6.45 | 1.417   28.60 | 2.417    7.92 |  3.42    5.21
0.500    6.45 | 1.500   28.60 | 2.500    7.92 |  3.50    5.21
0.583    7.57 | 1.583   18.18 | 2.583    7.24 |  3.58    4.95
0.667    7.57 | 1.667   18.18 | 2.667    7.24 |  3.67    4.95
0.750    9.34 | 1.750   13.93 | 2.750    6.68 |  3.75    4.73
0.833    9.34 | 1.833   13.93 | 2.833    6.68 |  3.83    4.73
0.917   12.71 | 1.917   11.51 | 2.917    6.22 |  3.92    4.52
1.000   12.71 | 2.000   11.51 | 3.000    6.22 |  4.00    4.52

    Unit Hyd Qpeak  (cms)=   2.360

    PEAK FLOW       (cms)=   1.409 (i)
    TIME TO PEAK    (hrs)=   2.583
    RUNOFF VOLUME    (mm)=  23.795
    TOTAL RAINFALL   (mm)=  58.175
    RUNOFF COEFFICIENT   =   0.409

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
------------------
| CALIB            |
| NASHYD   (  0103)|   Area     (ha)=  31.63   Curve Number   (CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   7.03   # of Linear Res.(N)= 3.00
------------------   U.H. Tp(hrs)=   1.19
```

```
        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    5.08 | 1.083   23.38 | 2.083    9.92 |  3.08    5.83
0.167    5.08 | 1.167   23.38 | 2.167    9.92 |  3.17    5.83
0.250    5.66 | 1.250  129.14 | 2.250    8.78 |  3.25    5.50
0.333    5.66 | 1.333  129.14 | 2.333    8.78 |  3.33    5.50
0.417    6.45 | 1.417   28.60 | 2.417    7.92 |  3.42    5.21
0.500    6.45 | 1.500   28.60 | 2.500    7.92 |  3.50    5.21
0.583    7.57 | 1.583   18.18 | 2.583    7.24 |  3.58    4.95
0.667    7.57 | 1.667   18.18 | 2.667    7.24 |  3.67    4.95
0.750    9.34 | 1.750   13.93 | 2.750    6.68 |  3.75    4.73
0.833    9.34 | 1.833   13.93 | 2.833    6.68 |  3.83    4.73
0.917   12.71 | 1.917   11.51 | 2.917    6.22 |  3.92    4.52
1.000   12.71 | 2.000   11.51 | 3.000    6.22 |  4.00    4.52

    Unit Hyd Qpeak  (cms)=   1.015

    PEAK FLOW       (cms)=   0.605 (i)
    TIME TO PEAK    (hrs)=   3.000
    RUNOFF VOLUME    (mm)=  22.044
    TOTAL RAINFALL   (mm)=  58.175
    RUNOFF COEFFICIENT   =   0.379

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
------------------
| CALIB            |
| NASHYD   (  0104)|   Area     (ha)=  42.80   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   6.89   # of Linear Res.(N)= 3.00
------------------   U.H. Tp(hrs)=   0.88

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    5.08 | 1.083   23.38 | 2.083    9.92 |  3.08    5.83
0.167    5.08 | 1.167   23.38 | 2.167    9.92 |  3.17    5.83
0.250    5.66 | 1.250  129.14 | 2.250    8.78 |  3.25    5.50
0.333    5.66 | 1.333  129.14 | 2.333    8.78 |  3.33    5.50
0.417    6.45 | 1.417   28.60 | 2.417    7.92 |  3.42    5.21
0.500    6.45 | 1.500   28.60 | 2.500    7.92 |  3.50    5.21
0.583    7.57 | 1.583   18.18 | 2.583    7.24 |  3.58    4.95
```

```
                  0.667    7.57 | 1.667   18.18 | 2.667    7.24 |  3.67    4.95
                  0.750    9.34 | 1.750   13.93 | 2.750    6.68 |  3.75    4.73
                  0.833    9.34 | 1.833   13.93 | 2.833    6.68 |  3.83    4.73
                  0.917   12.71 | 1.917   11.51 | 2.917    6.22 |  3.92    4.52
                  1.000   12.71 | 2.000   11.51 | 3.000    6.22 |  4.00    4.52

    Unit Hyd Qpeak  (cms)=   1.858

    PEAK FLOW       (cms)=   1.035 (i)
    TIME TO PEAK    (hrs)=   2.500
    RUNOFF VOLUME    (mm)=  22.914
    TOTAL RAINFALL   (mm)=  58.175
    RUNOFF COEFFICIENT   =   0.394

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
------------------
| CALIB            |
| NASHYD   (  0105)|   Area     (ha)=   9.10   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   7.00   # of Linear Res.(N)= 3.00
------------------   U.H. Tp(hrs)=   0.35

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    5.08 | 1.083   23.38 | 2.083    9.92 |  3.08    5.83
0.167    5.08 | 1.167   23.38 | 2.167    9.92 |  3.17    5.83
0.250    5.66 | 1.250  129.14 | 2.250    8.78 |  3.25    5.50
0.333    5.66 | 1.333  129.14 | 2.333    8.78 |  3.33    5.50
0.417    6.45 | 1.417   28.60 | 2.417    7.92 |  3.42    5.21
0.500    6.45 | 1.500   28.60 | 2.500    7.92 |  3.50    5.21
0.583    7.57 | 1.583   18.18 | 2.583    7.24 |  3.58    4.95
0.667    7.57 | 1.667   18.18 | 2.667    7.24 |  3.67    4.95
0.750    9.34 | 1.750   13.93 | 2.750    6.68 |  3.75    4.73
0.833    9.34 | 1.833   13.93 | 2.833    6.68 |  3.83    4.73
0.917   12.71 | 1.917   11.51 | 2.917    6.22 |  3.92    4.52
1.000   12.71 | 2.000   11.51 | 3.000    6.22 |  4.00    4.52

    Unit Hyd Qpeak  (cms)=   0.993

    PEAK FLOW       (cms)=   0.398 (i)
    TIME TO PEAK    (hrs)=   1.667
    RUNOFF VOLUME    (mm)=  22.833
    TOTAL RAINFALL   (mm)=  58.175
    RUNOFF COEFFICIENT   =   0.392
```

```
    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------

------------------
| ADD HYD  (  0030)|
|  1 +  2 =  3     |        AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0103):    31.63   0.605     3.00    22.04
     + ID2= 2 (  0104):    42.80   1.035     2.50    22.91
       ==========================================================
       ID = 3 (  0030):    74.43   1.606     2.67    22.54

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------

------------------
| ADD HYD  (  0030)|
|  3 +  2 =  1     |        AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):    74.43   1.606     2.67    22.54
     + ID2= 2 (  0105):     9.10   0.398     1.67    22.83
       ==========================================================
       ID = 1 (  0030):    83.53   1.779     2.50    22.58

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
------------------
| CALIB            |
| NASHYD   (  0101)|   Area     (ha)=  22.02   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   6.77   # of Linear Res.(N)= 3.00
------------------   U.H. Tp(hrs)=   0.51

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    5.08 | 1.083   23.38 | 2.083    9.92 |  3.08    5.83
0.167    5.08 | 1.167   23.38 | 2.167    9.92 |  3.17    5.83
0.250    5.66 | 1.250  129.14 | 2.250    8.78 |  3.25    5.50
0.333    5.66 | 1.333  129.14 | 2.333    8.78 |  3.33    5.50
0.417    6.45 | 1.417   28.60 | 2.417    7.92 |  3.42    5.21
0.500    6.45 | 1.500   28.60 | 2.500    7.92 |  3.50    5.21
0.583    7.57 | 1.583   18.18 | 2.583    7.24 |  3.58    4.95
0.667    7.57 | 1.667   18.18 | 2.667    7.24 |  3.67    4.95
0.750    9.34 | 1.750   13.93 | 2.750    6.68 |  3.75    4.73
0.833    9.34 | 1.833   13.93 | 2.833    6.68 |  3.83    4.73
0.917   12.71 | 1.917   11.51 | 2.917    6.22 |  3.92    4.52
1.000   12.71 | 2.000   11.51 | 3.000    6.22 |  4.00    4.52

    Unit Hyd Qpeak  (cms)=   1.649

    PEAK FLOW       (cms)=   0.794 (i)
    TIME TO PEAK    (hrs)=   1.917
    RUNOFF VOLUME    (mm)=  23.808
    TOTAL RAINFALL   (mm)=  58.175
    RUNOFF COEFFICIENT   =   0.409

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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     V    V   I   SSSSS  U   U    A     L              (v 6.2.2015)
     V    V   I   SS     U   U   A A    L
      V  V    I     SS   U   U  AAAAA   L
       V V    I     SS   U   U  A   A   L
        VV    I   SSSSS  UUUUU  A   A  LLLLL

     OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
    O   O    T      T    H   H   Y Y   MM MM  O   O
    O   O    T      T    H   H    Y    M M M  O   O
     OOO     T      T    H   H    Y    M   M   OOO
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                *****  D E T A I L E D   O U T P U T  *****

  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\73
e67945-04e0-44d6-bc31-80f3efa2b7b0\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\73
e67945-04e0-44d6-bc31-80f3efa2b7b0\sc

DATE: 11-27-2024                          TIME: 08:40:18

USER:
```

```
                  1.000   12.71 | 2.000   11.51 | 3.000    6.22 |  4.00    4.52

    Unit Hyd Qpeak  (cms)=   1.649

    PEAK FLOW       (cms)=   0.794 (i)
    TIME TO PEAK    (hrs)=   1.917
    RUNOFF VOLUME    (mm)=  23.808
    TOTAL RAINFALL   (mm)=  58.175
    RUNOFF COEFFICIENT   =   0.409

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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     V    V   I   SSSSS  U   U    A     L              (v 6.2.2015)
     V    V   I   SS     U   U   A A    L
      V  V    I     SS   U   U  AAAAA   L
       V V    I     SS   U   U  A   A   L
        VV    I   SSSSS  UUUUU  A   A  LLLLL

     OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
    O   O    T      T    H   H   Y Y   MM MM  O   O
    O   O    T      T    H   H    Y    M M M  O   O
     OOO     T      T    H   H    Y    M   M   OOO
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                *****  D E T A I L E D   O U T P U T  *****

  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\a8
8990ba-a3a6-445c-b577-093222865ab2\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\a8
8990ba-a3a6-445c-b577-093222865ab2\sc

DATE: 11-27-2024                          TIME: 08:40:18

USER:


COMMENTS: _____

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  **********************************************
  ** SIMULATION : 1D - 25yr 4hr 10min Chicago   **
  **********************************************

---------------------
| CHICAGO STORM    |    IDF curve parameters: A= 739.425
| Ptotal= 67.37 mm |                          B=   0.000
------------------                          C=   0.690
                          used in:   INTENSITY =  A / (t + B)^C

                          Duration of storm  =  4.00 hrs
                          Storm time step    = 10.00 min
                          Time to peak ratio =  0.33

                    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                  0.00    5.83 |  1.00   27.01 |  2.00   11.42 |  3.00    6.70
                  0.17    6.50 |  1.17  150.97 |  2.17   10.10 |  3.17    6.31
                  0.33    7.41 |  1.33   33.07 |  2.33    9.10 |  3.33    5.98
                  0.50    8.70 |  1.50   20.98 |  2.50    8.32 |  3.50    5.68
                  0.67   10.75 |  1.67   16.05 |  2.67    7.68 |  3.67    5.42
                  0.83   14.64 |  1.83   13.26 |  2.83    7.15 |  3.83    5.19

------------------------------------------------------------------------------
------------------
| CALIB            |
| NASHYD   (  0102)|   Area     (ha)=  58.69   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   6.79   # of Linear Res.(N)= 3.00
------------------   U.H. Tp(hrs)=   0.95

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    5.83 | 1.083   27.01 | 2.083   11.42 |  3.08    6.70
0.167    5.83 | 1.167   27.01 | 2.167   11.42 |  3.17    6.70
0.250    6.50 | 1.250  150.97 | 2.250   10.10 |  3.25    6.31
0.333    6.50 | 1.333  150.97 | 2.333   10.10 |  3.33    6.31
0.417    7.41 | 1.417   33.07 | 2.417    9.10 |  3.42    5.98
0.500    7.41 | 1.500   33.07 | 2.500    9.10 |  3.50    5.98
0.583    8.70 | 1.583   20.98 | 2.583    8.32 |  3.58    5.68
0.667    8.70 | 1.667   20.98 | 2.667    8.32 |  3.67    5.68
```

```
  0.750   10.75 | 1.750   16.05 | 2.750    7.68 |  3.75    5.42
  0.833   10.75 | 1.833   16.05 | 2.833    7.68 |  3.83    5.42
  0.917   14.64 | 1.917   13.26 | 2.917    7.15 |  3.92    5.19
  1.000   14.64 | 2.000   13.26 | 3.000    7.15 |  4.00    5.19

 Unit Hyd Qpeak  (cms)=   2.360

 PEAK FLOW       (cms)=   1.836 (i)
 TIME TO PEAK    (hrs)=   2.583
 RUNOFF VOLUME    (mm)=  30.540
 TOTAL RAINFALL   (mm)=  67.367
 RUNOFF COEFFICIENT   =   0.453

 (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD  (  0103)|   Area     (ha)=  31.63   Curve Number    (CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   7.03   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.19

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
   0.083    5.83 |  1.083   27.01 |  2.083   11.42 |  3.08    6.70
   0.167    5.83 |  1.167   27.01 |  2.167   11.42 |  3.17    6.70
   0.250    6.50 |  1.250  150.97 |  2.250   10.10 |  3.25    6.31
   0.333    6.50 |  1.333  150.97 |  2.333   10.10 |  3.33    6.31
   0.417    7.41 |  1.417   33.07 |  2.417    9.10 |  3.42    5.98
   0.500    7.41 |  1.500   33.07 |  2.500    9.10 |  3.50    5.98
   0.583    8.70 |  1.583   20.98 |  2.583    8.32 |  3.58    5.68
   0.667    8.70 |  1.667   20.98 |  2.667    8.32 |  3.67    5.68
   0.750   10.75 |  1.750   16.05 |  2.750    7.68 |  3.75    5.42
   0.833   10.75 |  1.833   16.05 |  2.833    7.68 |  3.83    5.42
   0.917   14.64 |  1.917   13.26 |  2.917    7.15 |  3.92    5.19
   1.000   14.64 |  2.000   13.26 |  3.000    7.15 |  4.00    5.19

 Unit Hyd Qpeak  (cms)=   1.015

 PEAK FLOW       (cms)=   0.791 (i)
 TIME TO PEAK    (hrs)=   2.917
 RUNOFF VOLUME    (mm)=  28.474
 TOTAL RAINFALL   (mm)=  67.367
 RUNOFF COEFFICIENT   =   0.423

 (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

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------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD  (  0104)|   Area     (ha)=  42.80   Curve Number    (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   6.89   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.88

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
   0.083    5.83 |  1.083   27.01 |  2.083   11.42 |  3.08    6.70
   0.167    5.83 |  1.167   27.01 |  2.167   11.42 |  3.17    6.70
   0.250    6.50 |  1.250  150.97 |  2.250   10.10 |  3.25    6.31
   0.333    6.50 |  1.333  150.97 |  2.333   10.10 |  3.33    6.31
   0.417    7.41 |  1.417   33.07 |  2.417    9.10 |  3.42    5.98
   0.500    7.41 |  1.500   33.07 |  2.500    9.10 |  3.50    5.98
   0.583    8.70 |  1.583   20.98 |  2.583    8.32 |  3.58    5.68
   0.667    8.70 |  1.667   20.98 |  2.667    8.32 |  3.67    5.68
   0.750   10.75 |  1.750   16.05 |  2.750    7.68 |  3.75    5.42
   0.833   10.75 |  1.833   16.05 |  2.833    7.68 |  3.83    5.42
   0.917   14.64 |  1.917   13.26 |  2.917    7.15 |  3.92    5.19
   1.000   14.64 |  2.000   13.26 |  3.000    7.15 |  4.00    5.19

 Unit Hyd Qpeak  (cms)=   1.858

 PEAK FLOW       (cms)=   1.356 (i)
 TIME TO PEAK    (hrs)=   2.417
 RUNOFF VOLUME    (mm)=  29.501
 TOTAL RAINFALL   (mm)=  67.367
 RUNOFF COEFFICIENT   =   0.438

 (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD  (  0105)|   Area     (ha)=   9.10   Curve Number    (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.35

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
```

```
  0.083    5.83 |  1.083   27.01 |  2.083   11.42 |  3.08    6.70
  0.167    5.83 |  1.167   27.01 |  2.167   11.42 |  3.17    6.70
  0.250    6.50 |  1.250  150.97 |  2.250   10.10 |  3.25    6.31
  0.333    6.50 |  1.333  150.97 |  2.333   10.10 |  3.33    6.31
  0.417    7.41 |  1.417   33.07 |  2.417    9.10 |  3.42    5.98
  0.500    7.41 |  1.500   33.07 |  2.500    9.10 |  3.50    5.98
  0.583    8.70 |  1.583   20.98 |  2.583    8.32 |  3.58    5.68
  0.667    8.70 |  1.667   20.98 |  2.667    8.32 |  3.67    5.68
  0.750   10.75 |  1.750   16.05 |  2.750    7.68 |  3.75    5.42
  0.833   10.75 |  1.833   16.05 |  2.833    7.68 |  3.83    5.42
  0.917   14.64 |  1.917   13.26 |  2.917    7.15 |  3.92    5.19
  1.000   14.64 |  2.000   13.26 |  3.000    7.15 |  4.00    5.19

 Unit Hyd Qpeak  (cms)=   0.993

 PEAK FLOW       (cms)=   0.532 (i)
 TIME TO PEAK    (hrs)=   1.667
 RUNOFF VOLUME    (mm)=  29.414
 TOTAL RAINFALL   (mm)=  67.367
 RUNOFF COEFFICIENT   =   0.437

 (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
-------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK      R.V.
-------------------          (ha)    (cms)    (hrs)      (mm)
       ID1= 1 (  0103):    31.63    0.791     2.92     28.47
     + ID2= 2 (  0104):    42.80    1.356     2.42     29.50
       ==========================================================
       ID = 3 (  0030):    74.43    2.103     2.58     29.06

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
-------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK      R.V.
-------------------          (ha)    (cms)    (hrs)      (mm)
       ID1= 3 (  0030):    74.43    2.103     2.58     29.06
     + ID2= 2 (  0105):     9.10    0.532     1.67     29.41
       ==========================================================
       ID = 1 (  0030):    83.53    2.327     2.50     29.10

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
-------------------
| CALIB             |
```

```
| NASHYD  (  0101)|   Area     (ha)=  22.02   Curve Number    (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   6.77   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.51

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
   0.083    5.83 |  1.083   27.01 |  2.083   11.42 |  3.08    6.70
   0.167    5.83 |  1.167   27.01 |  2.167   11.42 |  3.17    6.70
   0.250    6.50 |  1.250  150.97 |  2.250   10.10 |  3.25    6.31
   0.333    6.50 |  1.333  150.97 |  2.333   10.10 |  3.33    6.31
   0.417    7.41 |  1.417   33.07 |  2.417    9.10 |  3.42    5.98
   0.500    7.41 |  1.500   33.07 |  2.500    9.10 |  3.50    5.98
   0.583    8.70 |  1.583   20.98 |  2.583    8.32 |  3.58    5.68
   0.667    8.70 |  1.667   20.98 |  2.667    8.32 |  3.67    5.68
   0.750   10.75 |  1.750   16.05 |  2.750    7.68 |  3.75    5.42
   0.833   10.75 |  1.833   16.05 |  2.833    7.68 |  3.83    5.42
   0.917   14.64 |  1.917   13.26 |  2.917    7.15 |  3.92    5.19
   1.000   14.64 |  2.000   13.26 |  3.000    7.15 |  4.00    5.19

 Unit Hyd Qpeak  (cms)=   1.649

 PEAK FLOW       (cms)=   1.047 (i)
 TIME TO PEAK    (hrs)=   1.917
 RUNOFF VOLUME    (mm)=  30.553
 TOTAL RAINFALL   (mm)=  67.367
 RUNOFF COEFFICIENT   =   0.454

 (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
==============================================================================
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      V    V   I    SSSSS  U   U    A     L              (v 6.2.2015)
      V    V   I    SS     U   U   A A    L
       V  V    I      SS   U   U  AAAAA   L
       V  V    I      SS   U   U  A   A   L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
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```

```
*****  D E T A I L E D   O U T P U T *****

  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\55
c4d22f-d94d-4c1f-886f-b6a110d14b8d\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\55
c4d22f-d94d-4c1f-886f-b6a110d14b8d\sc

DATE: 11-27-2024                          TIME: 08:40:18

USER:



COMMENTS: _____

------------------------------------------------------------------------------
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  ********************************************
  ** SIMULATION : 1E - 50yr 4hr 10min Chicago   **
  ********************************************

--------------------
| CHICAGO STORM    |   IDF curve parameters: A= 820.514
| Ptotal= 74.35 mm |                         B=   0.000
--------------------                         C=   0.691
                          used in:   INTENSITY =  A / (t + B)^C

                          Duration of storm  =  4.00 hrs
                          Storm time step    = 10.00 min
                          Time to peak ratio =  0.33

    TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
   0.00    6.41 |  1.00   29.78 |  2.00   12.57 |  3.00    7.37
   0.17    7.15 |  1.17  167.14 |  2.17   11.12 |  3.17    6.95
   0.33    8.15 |  1.33   36.47 |  2.33   10.02 |  3.33    6.58
   0.50    9.58 |  1.50   23.12 |  2.50    9.15 |  3.50    6.25
   0.67   11.84 |  1.67   17.69 |  2.67    8.45 |  3.67    5.96
   0.83   16.13 |  1.83   14.60 |  2.83    7.87 |  3.83    5.71
```

```
------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD  (  0102)|   Area     (ha)=  58.69   Curve Number    (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   6.79   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.95

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
   0.083    6.41 |  1.083   29.78 |  2.083   12.57 |  3.08    7.37
   0.167    6.41 |  1.167   29.78 |  2.167   12.57 |  3.17    7.37
   0.250    7.15 |  1.250  167.14 |  2.250   11.12 |  3.25    6.95
   0.333    7.15 |  1.333  167.14 |  2.333   11.12 |  3.33    6.95
   0.417    8.15 |  1.417   36.47 |  2.417   10.02 |  3.42    6.58
   0.500    8.15 |  1.500   36.47 |  2.500   10.02 |  3.50    6.58
   0.583    9.58 |  1.583   23.12 |  2.583    9.15 |  3.58    6.25
   0.667    9.58 |  1.667   23.12 |  2.667    9.15 |  3.67    6.25
   0.750   11.84 |  1.750   17.69 |  2.750    8.45 |  3.75    5.96
   0.833   11.84 |  1.833   17.69 |  2.833    8.45 |  3.83    5.96
   0.917   16.13 |  1.917   14.60 |  2.917    7.87 |  3.92    5.71
   1.000   16.13 |  2.000   14.60 |  3.000    7.87 |  4.00    5.71

 Unit Hyd Qpeak  (cms)=   2.360

 PEAK FLOW       (cms)=   2.179 (i)
 TIME TO PEAK    (hrs)=   2.500
 RUNOFF VOLUME    (mm)=  35.897
 TOTAL RAINFALL   (mm)=  74.346
 RUNOFF COEFFICIENT   =   0.483

 (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD  (  0103)|   Area     (ha)=  31.63   Curve Number    (CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   7.03   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.19

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
   0.083    6.41 |  1.083   29.78 |  2.083   12.57 |  3.08    7.37
```

```
  0.167    6.41 |  1.167   29.78 |  2.167   12.57 |  3.17    7.37
  0.250    7.15 |  1.250  167.14 |  2.250   11.12 |  3.25    6.95
  0.333    7.15 |  1.333  167.14 |  2.333   11.12 |  3.33    6.95
  0.417    8.15 |  1.417   36.47 |  2.417   10.02 |  3.42    6.58
  0.500    8.15 |  1.500   36.47 |  2.500   10.02 |  3.50    6.58
  0.583    9.58 |  1.583   23.12 |  2.583    9.15 |  3.58    6.25
  0.667    9.58 |  1.667   23.12 |  2.667    9.15 |  3.67    6.25
  0.750   11.84 |  1.750   17.69 |  2.750    8.45 |  3.75    5.96
  0.833   11.84 |  1.833   17.69 |  2.833    8.45 |  3.83    5.96
  0.917   16.13 |  1.917   14.60 |  2.917    7.87 |  3.92    5.71
  1.000   16.13 |  2.000   14.60 |  3.000    7.87 |  4.00    5.71

 Unit Hyd Qpeak  (cms)=   1.015

 PEAK FLOW       (cms)=   0.940 (i)
 TIME TO PEAK    (hrs)=   2.917
 RUNOFF VOLUME    (mm)=  33.607
 TOTAL RAINFALL   (mm)=  74.346
 RUNOFF COEFFICIENT   =   0.452

 (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD  (  0104)|   Area     (ha)=  42.80   Curve Number    (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   6.89   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.88

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
   0.083    6.41 |  1.083   29.78 |  2.083   12.57 |  3.08    7.37
   0.167    6.41 |  1.167   29.78 |  2.167   12.57 |  3.17    7.37
   0.250    7.15 |  1.250  167.14 |  2.250   11.12 |  3.25    6.95
   0.333    7.15 |  1.333  167.14 |  2.333   11.12 |  3.33    6.95
   0.417    8.15 |  1.417   36.47 |  2.417   10.02 |  3.42    6.58
   0.500    8.15 |  1.500   36.47 |  2.500   10.02 |  3.50    6.58
   0.583    9.58 |  1.583   23.12 |  2.583    9.15 |  3.58    6.25
   0.667    9.58 |  1.667   23.12 |  2.667    9.15 |  3.67    6.25
   0.750   11.84 |  1.750   17.69 |  2.750    8.45 |  3.75    5.96
   0.833   11.84 |  1.833   17.69 |  2.833    8.45 |  3.83    5.96
   0.917   16.13 |  1.917   14.60 |  2.917    7.87 |  3.92    5.71
   1.000   16.13 |  2.000   14.60 |  3.000    7.87 |  4.00    5.71

 Unit Hyd Qpeak  (cms)=   1.858

 PEAK FLOW       (cms)=   1.614 (i)
 TIME TO PEAK    (hrs)=   2.417
 RUNOFF VOLUME    (mm)=  34.747
 TOTAL RAINFALL   (mm)=  74.346
 RUNOFF COEFFICIENT   =   0.467

 (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD  (  0105)|   Area     (ha)=   9.10   Curve Number    (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.35

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
   0.083    6.41 |  1.083   29.78 |  2.083   12.57 |  3.08    7.37
   0.167    6.41 |  1.167   29.78 |  2.167   12.57 |  3.17    7.37
   0.250    7.15 |  1.250  167.14 |  2.250   11.12 |  3.25    6.95
   0.333    7.15 |  1.333  167.14 |  2.333   11.12 |  3.33    6.95
   0.417    8.15 |  1.417   36.47 |  2.417   10.02 |  3.42    6.58
   0.500    8.15 |  1.500   36.47 |  2.500   10.02 |  3.50    6.58
   0.583    9.58 |  1.583   23.12 |  2.583    9.15 |  3.58    6.25
   0.667    9.58 |  1.667   23.12 |  2.667    9.15 |  3.67    6.25
   0.750   11.84 |  1.750   17.69 |  2.750    8.45 |  3.75    5.96
   0.833   11.84 |  1.833   17.69 |  2.833    8.45 |  3.83    5.96
   0.917   16.13 |  1.917   14.60 |  2.917    7.87 |  3.92    5.71
   1.000   16.13 |  2.000   14.60 |  3.000    7.87 |  4.00    5.71

 Unit Hyd Qpeak  (cms)=   0.993

 PEAK FLOW       (cms)=   0.639 (i)
 TIME TO PEAK    (hrs)=   1.667
 RUNOFF VOLUME    (mm)=  34.656
 TOTAL RAINFALL   (mm)=  74.346
 RUNOFF COEFFICIENT   =   0.466

 (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
-------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK      R.V.
-------------------          (ha)    (cms)    (hrs)      (mm)
```

```
       ID1= 1 (  0103):    31.63    0.940     2.92     33.61
     + ID2= 2 (  0104):    42.80    1.614     2.42     34.75
       ==========================================================
       ID = 3 (  0030):    74.43    2.501     2.58     34.26

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
-------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK      R.V.
-------------------          (ha)    (cms)    (hrs)      (mm)
       ID1= 3 (  0030):    74.43    2.501     2.58     34.26
     + ID2= 2 (  0105):     9.10    0.639     1.67     34.66
       ==========================================================
       ID = 1 (  0030):    83.53    2.765     2.50     34.31

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD  (  0101)|   Area     (ha)=  22.02   Curve Number    (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   6.77   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.51

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
   0.083    6.41 |  1.083   29.78 |  2.083   12.57 |  3.08    7.37
   0.167    6.41 |  1.167   29.78 |  2.167   12.57 |  3.17    7.37
   0.250    7.15 |  1.250  167.14 |  2.250   11.12 |  3.25    6.95
   0.333    7.15 |  1.333  167.14 |  2.333   11.12 |  3.33    6.95
   0.417    8.15 |  1.417   36.47 |  2.417   10.02 |  3.42    6.58
   0.500    8.15 |  1.500   36.47 |  2.500   10.02 |  3.50    6.58
   0.583    9.58 |  1.583   23.12 |  2.583    9.15 |  3.58    6.25
   0.667    9.58 |  1.667   23.12 |  2.667    9.15 |  3.67    6.25
   0.750   11.84 |  1.750   17.69 |  2.750    8.45 |  3.75    5.96
   0.833   11.84 |  1.833   17.69 |  2.833    8.45 |  3.83    5.96
   0.917   16.13 |  1.917   14.60 |  2.917    7.87 |  3.92    5.71
   1.000   16.13 |  2.000   14.60 |  3.000    7.87 |  4.00    5.71

 Unit Hyd Qpeak  (cms)=   1.649

 PEAK FLOW       (cms)=   1.249 (i)
 TIME TO PEAK    (hrs)=   1.917
 RUNOFF VOLUME    (mm)=  35.911
 TOTAL RAINFALL   (mm)=  74.346
```

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     RUNOFF COEFFICIENT   =   0.483

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
================================================================================
========================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                 *****  D E T A I L E D    O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\d718ca46-220c-4520-a4f0-a1d568d1d355\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\d718ca46-220c-4520-a4f0-a1d568d1d355\sc

DATE: 11-27-2024                          TIME: 08:40:18

USER:


COMMENTS: _____________________________________________________________

--------------------------------------------------------------------------------
--------------------
  **********************************************
  ** SIMULATION : 1F - 100yr 4hr 10min Chicago  **
  **********************************************

--------------------
| CHICAGO STORM   |    IDF curve parameters: A= 896.876
| Ptotal= 81.27 mm |                          B=   0.000
--------------------                          C=   0.691
                          used in:   INTENSITY =  A / (t + B)^C

                          Duration of storm  =  4.00 hrs
                          Storm time step    = 10.00 min
                          Time to peak ratio =  0.33

 TIME   RAIN |  TIME   RAIN |'  TIME   RAIN |  TIME   RAIN
  hrs  mm/hr |   hrs  mm/hr |'   hrs  mm/hr |   hrs  mm/hr
 0.00   7.01 |  1.00  32.55 |  2.00  13.74 |  3.00   8.06
 0.17   7.82 |  1.17 182.70 |  2.17  12.16 |  3.17   7.59
 0.33   8.91 |  1.33  39.87 |  2.33  10.95 |  3.33   7.19
 0.50  10.47 |  1.50  25.27 |  2.50  10.01 |  3.50   6.83
 0.67  12.94 |  1.67  19.33 |  2.67   9.24 |  3.67   6.52
 0.83  17.63 |  1.83  15.96 |  2.83   8.60 |  3.83   6.24

--------------------------------------------------------------------------------
--------------------
| CALIB           |
| NASHYD  (  0102)|   Area    (ha)=  58.69   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.79   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.95

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
 TIME   RAIN |  TIME   RAIN |'  TIME   RAIN |  TIME   RAIN
  hrs  mm/hr |   hrs  mm/hr |'   hrs  mm/hr |   hrs  mm/hr
 0.083   7.01 | 1.083  32.55 |  2.083  13.74 |  3.08   8.06
 0.167   7.01 | 1.167  32.55 |  2.167  13.74 |  3.17   8.06
 0.250   7.82 | 1.250 182.70 |  2.250  12.16 |  3.25   7.59
 0.333   7.82 | 1.333 182.70 |  2.333  12.16 |  3.33   7.59
 0.417   8.91 | 1.417  39.87 |  2.417  10.95 |  3.42   7.19
 0.500   8.91 | 1.500  39.87 |  2.500  10.95 |  3.50   7.19
 0.583  10.47 | 1.583  25.27 |  2.583  10.01 |  3.58   6.83
 0.667  10.47 | 1.667  25.27 |  2.667  10.01 |  3.67   6.83
 0.750  12.94 | 1.750  19.33 |  2.750   9.24 |  3.75   6.52
 0.833  12.94 | 1.833  19.33 |  2.833   9.24 |  3.83   6.52
 0.917  17.63 | 1.917  15.96 |  2.917   8.60 |  3.92   6.24
 1.000  17.63 | 2.000  15.96 |  3.000   8.60 |  4.00   6.24

     Unit Hyd Qpeak  (cms)=   2.360

     PEAK FLOW       (cms)=   2.530 (i)
     TIME TO PEAK    (hrs)=   2.500
     RUNOFF VOLUME    (mm)=  41.375
     TOTAL RAINFALL   (mm)=  81.265
     RUNOFF COEFFICIENT   =   0.509

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB           |
| NASHYD  (  0103)|   Area    (ha)=  31.63   Curve Number   (CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.03   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.19

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
 TIME   RAIN |  TIME   RAIN |'  TIME   RAIN |  TIME   RAIN
  hrs  mm/hr |   hrs  mm/hr |'   hrs  mm/hr |   hrs  mm/hr
 0.083   7.01 | 1.083  32.55 |  2.083  13.74 |  3.08   8.06
 0.167   7.01 | 1.167  32.55 |  2.167  13.74 |  3.17   8.06
 0.250   7.82 | 1.250 182.70 |  2.250  12.16 |  3.25   7.59
 0.333   7.82 | 1.333 182.70 |  2.333  12.16 |  3.33   7.59
 0.417   8.91 | 1.417  39.87 |  2.417  10.95 |  3.42   7.19
 0.500   8.91 | 1.500  39.87 |  2.500  10.95 |  3.50   7.19
 0.583  10.47 | 1.583  25.27 |  2.583  10.01 |  3.58   6.83
 0.667  10.47 | 1.667  25.27 |  2.667  10.01 |  3.67   6.83
 0.750  12.94 | 1.750  19.33 |  2.750   9.24 |  3.75   6.52
 0.833  12.94 | 1.833  19.33 |  2.833   9.24 |  3.83   6.52
 0.917  17.63 | 1.917  15.96 |  2.917   8.60 |  3.92   6.24
 1.000  17.63 | 2.000  15.96 |  3.000   8.60 |  4.00   6.24

     Unit Hyd Qpeak  (cms)=   1.015

     PEAK FLOW       (cms)=   1.092 (i)
     TIME TO PEAK    (hrs)=   2.917
     RUNOFF VOLUME    (mm)=  38.876
     TOTAL RAINFALL   (mm)=  81.265
     RUNOFF COEFFICIENT   =   0.478

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB           |
| NASHYD  (  0104)|   Area    (ha)=  42.80   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.89   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.88

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
 TIME   RAIN |  TIME   RAIN |'  TIME   RAIN |  TIME   RAIN
  hrs  mm/hr |   hrs  mm/hr |'   hrs  mm/hr |   hrs  mm/hr
 0.083   7.01 | 1.083  32.55 |  2.083  13.74 |  3.08   8.06
 0.167   7.01 | 1.167  32.55 |  2.167  13.74 |  3.17   8.06
 0.250   7.82 | 1.250 182.70 |  2.250  12.16 |  3.25   7.59
 0.333   7.82 | 1.333 182.70 |  2.333  12.16 |  3.33   7.59
 0.417   8.91 | 1.417  39.87 |  2.417  10.95 |  3.42   7.19
 0.500   8.91 | 1.500  39.87 |  2.500  10.95 |  3.50   7.19
 0.583  10.47 | 1.583  25.27 |  2.583  10.01 |  3.58   6.83
 0.667  10.47 | 1.667  25.27 |  2.667  10.01 |  3.67   6.83
 0.750  12.94 | 1.750  19.33 |  2.750   9.24 |  3.75   6.52
 0.833  12.94 | 1.833  19.33 |  2.833   9.24 |  3.83   6.52
 0.917  17.63 | 1.917  15.96 |  2.917   8.60 |  3.92   6.24
 1.000  17.63 | 2.000  15.96 |  3.000   8.60 |  4.00   6.24

     Unit Hyd Qpeak  (cms)=   0.993

     PEAK FLOW       (cms)=   0.749 (i)
     TIME TO PEAK    (hrs)=   1.667
     RUNOFF VOLUME    (mm)=  40.026
     TOTAL RAINFALL   (mm)=  81.265
     RUNOFF COEFFICIENT   =   0.493

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0103):    31.63   1.092     2.92     38.88
     + ID2= 2 (  0104):    42.80   1.878     2.42     40.12
       ==========================================================
       ID = 3 (  0030):    74.43   2.909     2.58     39.59

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):    74.43   2.909     2.58     39.59
     + ID2= 2 (  0105):     9.10   0.749     1.67     40.03
       ==========================================================
       ID = 1 (  0030):    83.53   3.217     2.42     39.64

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB           |
| NASHYD  (  0105)|   Area    (ha)=   9.10   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.35

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
 TIME   RAIN |  TIME   RAIN |'  TIME   RAIN |  TIME   RAIN
  hrs  mm/hr |   hrs  mm/hr |'   hrs  mm/hr |   hrs  mm/hr
 0.083   7.01 | 1.083  32.55 |  2.083  13.74 |  3.08   8.06
 0.167   7.01 | 1.167  32.55 |  2.167  13.74 |  3.17   8.06
 0.250   7.82 | 1.250 182.70 |  2.250  12.16 |  3.25   7.59
 0.333   7.82 | 1.333 182.70 |  2.333  12.16 |  3.33   7.59
 0.417   8.91 | 1.417  39.87 |  2.417  10.95 |  3.42   7.19
 0.500   8.91 | 1.500  39.87 |  2.500  10.95 |  3.50   7.19
 0.583  10.47 | 1.583  25.27 |  2.583  10.01 |  3.58   6.83
 0.667  10.47 | 1.667  25.27 |  2.667  10.01 |  3.67   6.83
 0.750  12.94 | 1.750  19.33 |  2.750   9.24 |  3.75   6.52
 0.833  12.94 | 1.833  19.33 |  2.833   9.24 |  3.83   6.52
 0.917  17.63 | 1.917  15.96 |  2.917   8.60 |  3.92   6.24
 1.000  17.63 | 2.000  15.96 |  3.000   8.60 |  4.00   6.24

     Unit Hyd Qpeak  (cms)=   1.649

     PEAK FLOW       (cms)=   1.455 (i)
     TIME TO PEAK    (hrs)=   1.917
     RUNOFF VOLUME    (mm)=  41.389
     TOTAL RAINFALL   (mm)=  81.265
     RUNOFF COEFFICIENT   =   0.509

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                 *****  D E T A I L E D    O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\bdbd489c-62f9-456a-b929-444a77de064b\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\bdbd489c-62f9-456a-b929-444a77de064b\sc

DATE: 11-27-2024                          TIME: 08:40:18

USER:


COMMENTS: _____________________________________________________________

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  **********************************************
  ** SIMULATION : 2A - 2yr 12hr 15min SCS Type  **
  **********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jfletcher\AppD
|                  |              ata\Local\Temp\
|                  |              c740c1c5-319b-42e5-9217-47a86f8e726c\454c7dbd
| Ptotal= 55.96 mm |   Comments: 2yr 12hr 15min SCS Type II (MTO)
--------------------
 TIME   RAIN |  TIME   RAIN |'  TIME   RAIN |  TIME   RAIN |  TIME   RAIN
  hrs  mm/hr |   hrs  mm/hr |'   hrs  mm/hr |   hrs  mm/hr |   hrs  mm/hr
 0.00   0.00 |  3.25   2.24 |  6.50  10.07 |  9.75   1.96 |
 0.25   1.40 |  3.50   2.24 |  6.75   4.48 | 10.00   1.96 |
 0.50   1.40 |  3.75   2.24 |  7.00   4.48 | 10.25   1.12 |
 0.75   1.40 |  4.00   2.24 |  7.25   3.36 | 10.50   1.12 |
 1.00   1.40 |  4.25   3.36 |  7.50   3.36 | 10.75   1.12 |
 1.25   1.40 |  4.50   3.36 |  7.75   3.36 | 11.00   1.12 |
 1.50   1.40 |  4.75   4.48 |  8.00   3.36 | 11.25   1.12 |
 1.75   1.40 |  5.00   4.48 |  8.25   1.96 | 11.50   1.12 |
 2.00   1.40 |  5.25   6.72 |  8.50   1.96 | 11.75   1.12 |
 2.25   1.68 |  5.50   6.72 |  8.75   1.96 | 12.00   1.12 |
 2.50   1.68 |  5.75  26.86 |  9.00   1.96 |              |
 2.75   1.68 |  6.00  73.87 |  9.25   1.96 |              |
 3.00   1.68 |  6.25  10.07 |  9.50   1.96 |              |

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--------------------
| CALIB           |
| NASHYD  (  0102)|   Area    (ha)=  58.69   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.79   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.95

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
 TIME   RAIN |  TIME   RAIN |'  TIME   RAIN |  TIME   RAIN |  TIME   RAIN
  hrs  mm/hr |   hrs  mm/hr |'   hrs  mm/hr |   hrs  mm/hr |   hrs  mm/hr
 0.083   0.00 |  3.167   1.68 |  6.250  73.87 |  9.33   1.96 |
 0.167   0.00 |  3.250   1.68 |  6.333  10.07 |  9.42   1.96 |
 0.250   0.00 |  3.333   2.24 |  6.417  10.07 |  9.50   1.96 |
 0.333   1.40 |  3.417   2.24 |  6.500  10.07 |  9.58   1.96 |
 0.417   1.40 |  3.500   2.24 |  6.583  10.07 |  9.67   1.96 |
 0.500   1.40 |  3.583   2.24 |  6.667  10.07 |  9.75   1.96 |
 0.583   1.40 |  3.667   2.24 |  6.750  10.07 |  9.83   1.96 |
 0.667   1.40 |  3.750   2.24 |  6.833   4.48 |  9.92   1.96 |
 0.750   1.40 |  3.833   2.24 |  6.917   4.48 | 10.00   1.96 |
 0.833   1.40 |  3.917   2.24 |  7.000   4.48 | 10.08   1.96 |
 0.917   1.40 |  4.000   2.24 |  7.083   4.48 | 10.17   1.96 |
 1.000   1.40 |  4.083   2.24 |  7.167   4.48 | 10.25   1.96 |
 1.083   1.40 |  4.167   2.24 |  7.250   4.48 | 10.33   1.12 |
 1.167   1.40 |  4.250   2.24 |  7.333   3.36 | 10.42   1.12 |
 1.250   1.40 |  4.333   3.36 |  7.417   3.36 | 10.50   1.12 |
 1.333   1.40 |  4.417   3.36 |  7.500   3.36 | 10.58   1.12 |
 1.417   1.40 |  4.500   3.36 |  7.583   3.36 | 10.67   1.12 |
 1.500   1.40 |  4.583   3.36 |  7.667   3.36 | 10.75   1.12 |
 1.583   1.40 |  4.667   3.36 |  7.750   3.36 | 10.83   1.12 |
 1.667   1.40 |  4.750   3.36 |  7.833   3.36 | 10.92   1.12 |
 1.750   1.40 |  4.833   4.48 |  7.917   3.36 | 11.00   1.12 |
 1.833   1.40 |  4.917   4.48 |  8.000   3.36 | 11.08   1.12 |
 1.917   1.40 |  5.000   4.48 |  8.083   3.36 | 11.17   1.12 |
 2.000   1.40 |  5.083   4.48 |  8.167   3.36 | 11.25   1.12 |
 2.083   1.40 |  5.167   4.48 |  8.250   3.36 | 11.33   1.12 |
 2.167   1.40 |  5.250   4.48 |  8.333   1.96 | 11.42   1.12 |
 2.250   1.40 |  5.333   6.72 |  8.417   1.96 | 11.50   1.12 |
 2.333   1.68 |  5.417   6.72 |  8.500   1.96 | 11.58   1.12 |
 2.417   1.68 |  5.500   6.72 |  8.583   1.96 | 11.67   1.12 |
 2.500   1.68 |  5.583   6.72 |  8.667   1.96 | 11.75   1.12 |
 2.583   1.68 |  5.667   6.72 |  8.750   1.96 | 11.83   1.12 |
 2.667   1.68 |  5.750   6.72 |  8.833   1.96 | 11.92   1.12 |
 2.750   1.68 |  5.833  26.86 |  8.917   1.96 | 12.00   1.12 |
 2.833   1.68 |  5.917  26.86 |  9.000   1.96 | 12.08   1.12 |
 2.917   1.68 |  6.000  26.86 |  9.083   1.96 | 12.17   1.12 |
 3.000   1.68 |  6.083  73.87 |  9.167   1.96 | 12.25   1.12 |
 3.083   1.68 |  6.167  73.87 |  9.250   1.96 |              |

     Unit Hyd Qpeak  (cms)=   2.360

     PEAK FLOW       (cms)=   1.278 (i)
     TIME TO PEAK    (hrs)=   7.167
     RUNOFF VOLUME    (mm)=  22.231
     TOTAL RAINFALL   (mm)=  55.960
     RUNOFF COEFFICIENT   =   0.397

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB           |
| NASHYD  (  0103)|   Area    (ha)=  31.63   Curve Number   (CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.03   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.19

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
 TIME   RAIN |  TIME   RAIN |'  TIME   RAIN |  TIME   RAIN |  TIME   RAIN
  hrs  mm/hr |   hrs  mm/hr |'   hrs  mm/hr |   hrs  mm/hr |   hrs  mm/hr
 0.083   0.00 |  3.167   1.68 |  6.250  73.87 |  9.33   1.96 |
 0.167   0.00 |  3.250   1.68 |  6.333  10.07 |  9.42   1.96 |
 0.250   0.00 |  3.333   2.24 |  6.417  10.07 |  9.50   1.96 |
 0.333   1.40 |  3.417   2.24 |  6.500  10.07 |  9.58   1.96 |
 0.417   1.40 |  3.500   2.24 |  6.583  10.07 |  9.67   1.96 |
 0.500   1.40 |  3.583   2.24 |  6.667  10.07 |  9.75   1.96 |
 0.583   1.40 |  3.667   2.24 |  6.750  10.07 |  9.83   1.96 |
 0.667   1.40 |  3.750   2.24 |  6.833   4.48 |  9.92   1.96 |
 0.750   1.40 |  3.833   2.24 |  6.917   4.48 | 10.00   1.96 |
 0.833   1.40 |  3.917   2.24 |  7.000   4.48 | 10.08   1.96 |
 0.917   1.40 |  4.000   2.24 |  7.083   4.48 | 10.17   1.96 |
 1.000   1.40 |  4.083   2.24 |  7.167   4.48 | 10.25   1.96 |
 1.083   1.40 |  4.167   2.24 |  7.250   4.48 | 10.33   1.12 |
 1.167   1.40 |  4.250   2.24 |  7.333   3.36 | 10.42   1.12 |
 1.250   1.40 |  4.333   3.36 |  7.417   3.36 | 10.50   1.12 |
 1.333   1.40 |  4.417   3.36 |  7.500   3.36 | 10.58   1.12 |
 1.417   1.40 |  4.500   3.36 |  7.583   3.36 | 10.67   1.12 |
 1.500   1.40 |  4.583   3.36 |  7.667   3.36 | 10.75   1.12 |
 1.583   1.40 |  4.667   3.36 |  7.750   3.36 | 10.83   1.12 |
 1.667   1.40 |  4.750   3.36 |  7.833   3.36 | 10.92   1.12 |
 1.750   1.40 |  4.833   4.48 |  7.917   3.36 | 11.00   1.12 |
 1.833   1.40 |  4.917   4.48 |  8.000   3.36 | 11.08   1.12 |
 1.917   1.40 |  5.000   4.48 |  8.083   3.36 | 11.17   1.12 |
 2.000   1.40 |  5.083   4.48 |  8.167   3.36 | 11.25   1.12 |
 2.083   1.40 |  5.167   4.48 |  8.250   3.36 | 11.33   1.12 |
 2.167   1.40 |  5.250   4.48 |  8.333   1.96 | 11.42   1.12 |
 2.250   1.40 |  5.333   6.72 |  8.417   1.96 | 11.50   1.12 |
 2.333   1.68 |  5.417   6.72 |  8.500   1.96 | 11.58   1.12 |
 2.417   1.68 |  5.500   6.72 |  8.583   1.96 | 11.67   1.12 |
 2.500   1.68 |  5.583   6.72 |  8.667   1.96 | 11.75   1.12 |
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              2.583    1.68 | 5.667    6.72 | 8.750    1.96 | 11.83    1.12
              2.667    1.68 | 5.750    6.72 | 8.833    1.96 | 11.92    1.12
              2.750    1.68 | 5.833   26.86 | 8.917    1.96 | 12.00    1.12
              2.833    1.68 | 5.917   26.86 | 9.000    1.96 | 12.08    1.12
              2.917    1.68 | 6.000   26.86 | 9.083    1.96 | 12.17    1.12
              3.000    1.68 | 6.083   73.87 | 9.167    1.96 | 12.25    1.12
              3.083    1.68 | 6.167   73.87 | 9.250    1.96 |

     Unit Hyd Qpeak  (cms)=   1.015

     PEAK FLOW      (cms)=   0.531 (i)
     TIME TO PEAK   (hrs)=   7.500
     RUNOFF VOLUME   (mm)=  20.559
     TOTAL RAINFALL  (mm)=  55.960
     RUNOFF COEFFICIENT   =   0.367

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| NASHYD   (  0104)|   Area     (ha)=  42.80   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   6.89   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.88

          NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
   0.083    0.00 | 3.167    1.68 | 6.250   73.87 |  9.33    1.96
   0.167    0.00 | 3.250    1.68 | 6.333   10.07 |  9.42    1.96
   0.250    0.00 | 3.333    2.24 | 6.417   10.07 |  9.50    1.96
   0.333    1.40 | 3.417    2.24 | 6.500   10.07 |  9.58    1.96
   0.417    1.40 | 3.500    2.24 | 6.583   10.07 |  9.67    1.96
   0.500    1.40 | 3.583    2.24 | 6.667   10.07 |  9.75    1.96
   0.583    1.40 | 3.667    2.24 | 6.750   10.07 |  9.83    1.96
   0.667    1.40 | 3.750    2.24 | 6.833    4.48 |  9.92    1.96
   0.750    1.40 | 3.833    2.24 | 6.917    4.48 | 10.00    1.96
   0.833    1.40 | 3.917    2.24 | 7.000    4.48 | 10.08    1.96
   0.917    1.40 | 4.000    2.24 | 7.083    4.48 | 10.17    1.96
   1.000    1.40 | 4.083    2.24 | 7.167    4.48 | 10.25    1.96
   1.083    1.40 | 4.167    2.24 | 7.250    4.48 | 10.33    1.12
   1.167    1.40 | 4.250    2.24 | 7.333    3.36 | 10.42    1.12
   1.250    1.40 | 4.333    3.36 | 7.417    3.36 | 10.50    1.12
   1.333    1.40 | 4.417    3.36 | 7.500    3.36 | 10.58    1.12
   1.417    1.40 | 4.500    3.36 | 7.583    3.36 | 10.67    1.12
   1.500    1.40 | 4.583    3.36 | 7.667    3.36 | 10.75    1.12
   1.583    1.40 | 4.667    3.36 | 7.750    3.36 | 10.83    1.12
   1.667    1.40 | 4.750    3.36 | 7.833    3.36 | 10.92    1.12
   1.750    1.40 | 4.833    4.48 | 7.917    3.36 | 11.00    1.12
   1.833    1.40 | 4.917    4.48 | 8.000    3.36 | 11.08    1.12
   1.917    1.40 | 5.000    4.48 | 8.083    3.36 | 11.17    1.12
   2.000    1.40 | 5.083    4.48 | 8.167    3.36 | 11.25    1.12
   2.083    1.40 | 5.167    4.48 | 8.250    3.36 | 11.33    1.12
   2.167    1.40 | 5.250    4.48 | 8.333    1.96 | 11.42    1.12
   2.250    1.40 | 5.333    6.72 | 8.417    1.96 | 11.50    1.12
   2.333    1.68 | 5.417    6.72 | 8.500    1.96 | 11.58    1.12
   2.417    1.68 | 5.500    6.72 | 8.583    1.96 | 11.67    1.12
   2.500    1.68 | 5.583    6.72 | 8.667    1.96 | 11.75    1.12
   2.583    1.68 | 5.667    6.72 | 8.750    1.96 | 11.83    1.12
   2.667    1.68 | 5.750    6.72 | 8.833    1.96 | 11.92    1.12
   2.750    1.68 | 5.833   26.86 | 8.917    1.96 | 12.00    1.12
   2.833    1.68 | 5.917   26.86 | 9.000    1.96 | 12.08    1.12
   2.917    1.68 | 6.000   26.86 | 9.083    1.96 | 12.17    1.12
   3.000    1.68 | 6.083   73.87 | 9.167    1.96 | 12.25    1.12
   3.083    1.68 | 6.167   73.87 | 9.250    1.96 |

     Unit Hyd Qpeak  (cms)=   1.858

     PEAK FLOW      (cms)=   0.947 (i)
     TIME TO PEAK   (hrs)=   7.083
     RUNOFF VOLUME   (mm)=  21.390
     TOTAL RAINFALL  (mm)=  55.960
     RUNOFF COEFFICIENT   =   0.382

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB              |
| NASHYD   (  0105)|   Area     (ha)=   9.10   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.35

          NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
   0.083    0.00 | 3.167    1.68 | 6.250   73.87 |  9.33    1.96
   0.167    0.00 | 3.250    1.68 | 6.333   10.07 |  9.42    1.96
   0.250    0.00 | 3.333    2.24 | 6.417   10.07 |  9.50    1.96
   0.333    1.40 | 3.417    2.24 | 6.500   10.07 |  9.58    1.96
   0.417    1.40 | 3.500    2.24 | 6.583   10.07 |  9.67    1.96
   0.500    1.40 | 3.583    2.24 | 6.667   10.07 |  9.75    1.96
   0.583    1.40 | 3.667    2.24 | 6.750   10.07 |  9.83    1.96
   0.667    1.40 | 3.750    2.24 | 6.833    4.48 |  9.92    1.96
   0.750    1.40 | 3.833    2.24 | 6.917    4.48 | 10.00    1.96
   0.833    1.40 | 3.917    2.24 | 7.000    4.48 | 10.08    1.96
   0.917    1.40 | 4.000    2.24 | 7.083    4.48 | 10.17    1.96
   1.000    1.40 | 4.083    2.24 | 7.167    4.48 | 10.25    1.96
   1.083    1.40 | 4.167    2.24 | 7.250    4.48 | 10.33    1.12
   1.167    1.40 | 4.250    2.24 | 7.333    3.36 | 10.42    1.12
   1.250    1.40 | 4.333    3.36 | 7.417    3.36 | 10.50    1.12
   1.333    1.40 | 4.417    3.36 | 7.500    3.36 | 10.58    1.12
   1.417    1.40 | 4.500    3.36 | 7.583    3.36 | 10.67    1.12
   1.500    1.40 | 4.583    3.36 | 7.667    3.36 | 10.75    1.12
   1.583    1.40 | 4.667    3.36 | 7.750    3.36 | 10.83    1.12
   1.667    1.40 | 4.750    3.36 | 7.833    3.36 | 10.92    1.12
   1.750    1.40 | 4.833    4.48 | 7.917    3.36 | 11.00    1.12
   1.833    1.40 | 4.917    4.48 | 8.000    3.36 | 11.08    1.12
   1.917    1.40 | 5.000    4.48 | 8.083    3.36 | 11.17    1.12
   2.000    1.40 | 5.083    4.48 | 8.167    3.36 | 11.25    1.12
   2.083    1.40 | 5.167    4.48 | 8.250    3.36 | 11.33    1.12
   2.167    1.40 | 5.250    4.48 | 8.333    1.96 | 11.42    1.12
   2.250    1.40 | 5.333    6.72 | 8.417    1.96 | 11.50    1.12
   2.333    1.68 | 5.417    6.72 | 8.500    1.96 | 11.58    1.12
   2.417    1.68 | 5.500    6.72 | 8.583    1.96 | 11.67    1.12
   2.500    1.68 | 5.583    6.72 | 8.667    1.96 | 11.75    1.12
   2.583    1.68 | 5.667    6.72 | 8.750    1.96 | 11.83    1.12
   2.667    1.68 | 5.750    6.72 | 8.833    1.96 | 11.92    1.12
   2.750    1.68 | 5.833   26.86 | 8.917    1.96 | 12.00    1.12
   2.833    1.68 | 5.917   26.86 | 9.000    1.96 | 12.08    1.12
   2.917    1.68 | 6.000   26.86 | 9.083    1.96 | 12.17    1.12
   3.000    1.68 | 6.083   73.87 | 9.167    1.96 | 12.25    1.12
   3.083    1.68 | 6.167   73.87 | 9.250    1.96 |

     Unit Hyd Qpeak  (cms)=   0.993

     PEAK FLOW      (cms)=   0.392 (i)
     TIME TO PEAK   (hrs)=   6.500
     RUNOFF VOLUME   (mm)=  21.310
     TOTAL RAINFALL  (mm)=  55.960
     RUNOFF COEFFICIENT   =   0.381

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0103):    31.63   0.531    7.50    20.56
     + ID2= 2 (  0104):    42.80   0.947    7.08    21.39
       ========================================================
       ID = 3 (  0030):    74.43   1.450    7.25    21.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):    74.43   1.450    7.25    21.04
     + ID2= 2 (  0105):     9.10   0.392    6.50    21.31
       ========================================================
       ID = 1 (  0030):    83.53   1.606    7.08    21.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
--------------------
| CALIB              |
| NASHYD   (  0101)|   Area     (ha)=  22.02   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   6.77   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.51

          NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
   0.083    0.00 | 3.167    1.68 | 6.250   73.87 |  9.33    1.96
   0.167    0.00 | 3.250    1.68 | 6.333   10.07 |  9.42    1.96
   0.250    0.00 | 3.333    2.24 | 6.417   10.07 |  9.50    1.96
   0.333    1.40 | 3.417    2.24 | 6.500   10.07 |  9.58    1.96
   0.417    1.40 | 3.500    2.24 | 6.583   10.07 |  9.67    1.96
   0.500    1.40 | 3.583    2.24 | 6.667   10.07 |  9.75    1.96
   0.583    1.40 | 3.667    2.24 | 6.750   10.07 |  9.83    1.96
   0.667    1.40 | 3.750    2.24 | 6.833    4.48 |  9.92    1.96
   0.750    1.40 | 3.833    2.24 | 6.917    4.48 | 10.00    1.96
   0.833    1.40 | 3.917    2.24 | 7.000    4.48 | 10.08    1.96
   0.917    1.40 | 4.000    2.24 | 7.083    4.48 | 10.17    1.96
   1.000    1.40 | 4.083    2.24 | 7.167    4.48 | 10.25    1.96
   1.083    1.40 | 4.167    2.24 | 7.250    4.48 | 10.33    1.12
   1.167    1.40 | 4.250    2.24 | 7.333    3.36 | 10.42    1.12
   1.250    1.40 | 4.333    3.36 | 7.417    3.36 | 10.50    1.12
   1.333    1.40 | 4.417    3.36 | 7.500    3.36 | 10.58    1.12
   1.417    1.40 | 4.500    3.36 | 7.583    3.36 | 10.67    1.12
   1.500    1.40 | 4.583    3.36 | 7.667    3.36 | 10.75    1.12
   1.583    1.40 | 4.667    3.36 | 7.750    3.36 | 10.83    1.12
   1.667    1.40 | 4.750    3.36 | 7.833    3.36 | 10.92    1.12
   1.750    1.40 | 4.833    4.48 | 7.917    3.36 | 11.00    1.12
   1.833    1.40 | 4.917    4.48 | 8.000    3.36 | 11.08    1.12
   1.917    1.40 | 5.000    4.48 | 8.083    3.36 | 11.17    1.12
   2.000    1.40 | 5.083    4.48 | 8.167    3.36 | 11.25    1.12
   2.083    1.40 | 5.167    4.48 | 8.250    3.36 | 11.33    1.12
   2.167    1.40 | 5.250    4.48 | 8.333    1.96 | 11.42    1.12
   2.250    1.40 | 5.333    6.72 | 8.417    1.96 | 11.50    1.12
   2.333    1.68 | 5.417    6.72 | 8.500    1.96 | 11.58    1.12
   2.417    1.68 | 5.500    6.72 | 8.583    1.96 | 11.67    1.12
   2.500    1.68 | 5.583    6.72 | 8.667    1.96 | 11.75    1.12
   2.583    1.68 | 5.667    6.72 | 8.750    1.96 | 11.83    1.12
   2.667    1.68 | 5.750    6.72 | 8.833    1.96 | 11.92    1.12
   2.750    1.68 | 5.833   26.86 | 8.917    1.96 | 12.00    1.12
   2.833    1.68 | 5.917   26.86 | 9.000    1.96 | 12.08    1.12
   2.917    1.68 | 6.000   26.86 | 9.083    1.96 | 12.17    1.12
   3.000    1.68 | 6.083   73.87 | 9.167    1.96 | 12.25    1.12
   3.083    1.68 | 6.167   73.87 | 9.250    1.96 |

     Unit Hyd Qpeak  (cms)=   1.649

     PEAK FLOW      (cms)=   0.760 (i)
     TIME TO PEAK   (hrs)=   6.667
     RUNOFF VOLUME   (mm)=  22.244
     TOTAL RAINFALL  (mm)=  55.960
     RUNOFF COEFFICIENT   =   0.398

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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          V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
          V    V   I    SS     U   U   A A   L
           V  V    I     SS    U   U  AAAAA  L
            V V    I      SS   U   U  A   A  L
             VV    I   SSSSS  UUUU  A   A  LLLLL

           OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
          O   O    T      T    H   H   Y Y   MM MM  O   O
          O   O    T      T    H   H    Y    M   M  O   O
           OOO     T      T    H   H    Y    M   M   OOO
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                    *****  D E T A I L E D   O U T P U T *****

  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
```

```
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\fd
9cd46f-3db3-42bd-ba4d-4093407c3fd9\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\fd
9cd46f-3db3-42bd-ba4d-4093407c3fd9\sc


DATE: 11-27-2024                          TIME: 08:40:18

USER:


COMMENTS: _____

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  ************************************************
  ** SIMULATION : 2B - 5yr 12hr 15min SCS Type  **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jfletcher\AppD
|                  |              ata\Local\Temp\
|                  |              c740c1c5-319b-42e5-9217-47a86f8e726c\5138d69f
| Ptotal= 71.55 mm |   Comments: 5yr 12hr 15min SCS Type II (MTO)
--------------------
    TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
   0.00    0.00 |  3.25    2.86 |  6.50   12.88 |  9.75    2.50
   0.25    1.79 |  3.50    2.86 |  6.75    5.72 | 10.00    2.50
   0.50    1.79 |  3.75    2.86 |  7.00    5.72 | 10.25    1.43
   0.75    1.79 |  4.00    2.86 |  7.25    4.29 | 10.50    1.43
   1.00    1.79 |  4.25    4.29 |  7.50    4.29 | 10.75    1.43
   1.25    1.79 |  4.50    4.29 |  7.75    4.29 | 11.00    1.43
   1.50    1.79 |  4.75    5.72 |  8.00    4.29 | 11.25    1.43
   1.75    1.79 |  5.00    5.72 |  8.25    2.50 | 11.50    1.43
   2.00    1.79 |  5.25    8.59 |  8.50    2.50 | 11.75    1.43
   2.25    2.15 |  5.50    8.59 |  8.75    2.50 | 12.00    1.43
   2.50    2.15 |  5.75   34.34 |  9.00    2.50 |
   2.75    2.15 |  6.00   94.45 |  9.25    2.50 |
   3.00    2.15 |  6.25   12.88 |  9.50    2.50 |

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| CALIB              |
| NASHYD   (  0102)|   Area     (ha)=  58.69   Curve Number   (CN)= 81.0
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|ID= 1 DT= 5.0 min |   Ia       (mm)=   6.79   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.95

          NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
   0.083    0.00 | 3.167    2.15 | 6.250   94.44 |  9.33    2.50
   0.167    0.00 | 3.250    2.15 | 6.333   12.88 |  9.42    2.50
   0.250    0.00 | 3.333    2.86 | 6.417   12.88 |  9.50    2.50
   0.333    1.79 | 3.417    2.86 | 6.500   12.88 |  9.58    2.50
   0.417    1.79 | 3.500    2.86 | 6.583   12.88 |  9.67    2.50
   0.500    1.79 | 3.583    2.86 | 6.667   12.88 |  9.75    2.50
   0.583    1.79 | 3.667    2.86 | 6.750   12.88 |  9.83    2.50
   0.667    1.79 | 3.750    2.86 | 6.833    5.72 |  9.92    2.50
   0.750    1.79 | 3.833    2.86 | 6.917    5.72 | 10.00    2.50
   0.833    1.79 | 3.917    2.86 | 7.000    5.72 | 10.08    2.50
   0.917    1.79 | 4.000    2.86 | 7.083    5.72 | 10.17    2.50
   1.000    1.79 | 4.083    2.86 | 7.167    5.72 | 10.25    2.50
   1.083    1.79 | 4.167    2.86 | 7.250    5.72 | 10.33    1.43
   1.167    1.79 | 4.250    2.86 | 7.333    4.29 | 10.42    1.43
   1.250    1.79 | 4.333    4.29 | 7.417    4.29 | 10.50    1.43
   1.333    1.79 | 4.417    4.29 | 7.500    4.29 | 10.58    1.43
   1.417    1.79 | 4.500    4.29 | 7.583    4.29 | 10.67    1.43
   1.500    1.79 | 4.583    4.29 | 7.667    4.29 | 10.75    1.43
   1.583    1.79 | 4.667    4.29 | 7.750    4.29 | 10.83    1.43
   1.667    1.79 | 4.750    4.29 | 7.833    4.29 | 10.92    1.43
   1.750    1.79 | 4.833    5.72 | 7.917    4.29 | 11.00    1.43
   1.833    1.79 | 4.917    5.72 | 8.000    4.29 | 11.08    1.43
   1.917    1.79 | 5.000    5.72 | 8.083    4.29 | 11.17    1.43
   2.000    1.79 | 5.083    5.72 | 8.167    4.29 | 11.25    1.43
   2.083    1.79 | 5.167    5.72 | 8.250    4.29 | 11.33    1.43
   2.167    1.79 | 5.250    5.72 | 8.333    2.50 | 11.42    1.43
   2.250    1.79 | 5.333    8.59 | 8.417    2.50 | 11.50    1.43
   2.333    2.15 | 5.417    8.59 | 8.500    2.50 | 11.58    1.43
   2.417    2.15 | 5.500    8.59 | 8.583    2.50 | 11.67    1.43
   2.500    2.15 | 5.583    8.59 | 8.667    2.50 | 11.75    1.43
   2.583    2.15 | 5.667    8.59 | 8.750    2.50 | 11.83    1.43
   2.667    2.15 | 5.750    8.59 | 8.833    2.50 | 11.92    1.43
   2.750    2.15 | 5.833   34.34 | 8.917    2.50 | 12.00    1.43
   2.833    2.15 | 5.917   34.34 | 9.000    2.50 | 12.08    1.43
   2.917    2.15 | 6.000   34.35 | 9.083    2.50 | 12.17    1.43
   3.000    2.15 | 6.083   94.45 | 9.167    2.50 | 12.25    1.43
   3.083    2.15 | 6.167   94.45 | 9.250    2.50 |

     Unit Hyd Qpeak  (cms)=   2.360

     PEAK FLOW      (cms)=   1.971 (i)
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     TIME TO PEAK   (hrs)=   7.167
     RUNOFF VOLUME   (mm)=  33.729
     TOTAL RAINFALL  (mm)=  71.550
     RUNOFF COEFFICIENT   =   0.471

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| NASHYD   (  0103)|   Area     (ha)=  31.63   Curve Number   (CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   7.03   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.19

          NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
   0.083    0.00 | 3.167    2.15 | 6.250   94.44 |  9.33    2.50
   0.167    0.00 | 3.250    2.15 | 6.333   12.88 |  9.42    2.50
   0.250    0.00 | 3.333    2.86 | 6.417   12.88 |  9.50    2.50
   0.333    1.79 | 3.417    2.86 | 6.500   12.88 |  9.58    2.50
   0.417    1.79 | 3.500    2.86 | 6.583   12.88 |  9.67    2.50
   0.500    1.79 | 3.583    2.86 | 6.667   12.88 |  9.75    2.50
   0.583    1.79 | 3.667    2.86 | 6.750   12.88 |  9.83    2.50
   0.667    1.79 | 3.750    2.86 | 6.833    5.72 |  9.92    2.50
   0.750    1.79 | 3.833    2.86 | 6.917    5.72 | 10.00    2.50
   0.833    1.79 | 3.917    2.86 | 7.000    5.72 | 10.08    2.50
   0.917    1.79 | 4.000    2.86 | 7.083    5.72 | 10.17    2.50
   1.000    1.79 | 4.083    2.86 | 7.167    5.72 | 10.25    2.50
   1.083    1.79 | 4.167    2.86 | 7.250    5.72 | 10.33    1.43
   1.167    1.79 | 4.250    2.86 | 7.333    4.29 | 10.42    1.43
   1.250    1.79 | 4.333    4.29 | 7.417    4.29 | 10.50    1.43
   1.333    1.79 | 4.417    4.29 | 7.500    4.29 | 10.58    1.43
   1.417    1.79 | 4.500    4.29 | 7.583    4.29 | 10.67    1.43
   1.500    1.79 | 4.583    4.29 | 7.667    4.29 | 10.75    1.43
   1.583    1.79 | 4.667    4.29 | 7.750    4.29 | 10.83    1.43
   1.667    1.79 | 4.750    4.29 | 7.833    4.29 | 10.92    1.43
   1.750    1.79 | 4.833    5.72 | 7.917    4.29 | 11.00    1.43
   1.833    1.79 | 4.917    5.72 | 8.000    4.29 | 11.08    1.43
   1.917    1.79 | 5.000    5.72 | 8.083    4.29 | 11.17    1.43
   2.000    1.79 | 5.083    5.72 | 8.167    4.29 | 11.25    1.43
   2.083    1.79 | 5.167    5.72 | 8.250    4.29 | 11.33    1.43
   2.167    1.79 | 5.250    5.72 | 8.333    2.50 | 11.42    1.43
   2.250    1.79 | 5.333    8.59 | 8.417    2.50 | 11.50    1.43
   2.333    2.15 | 5.417    8.59 | 8.500    2.50 | 11.58    1.43
   2.417    2.15 | 5.500    8.59 | 8.583    2.50 | 11.67    1.43
   2.500    2.15 | 5.583    8.59 | 8.667    2.50 | 11.75    1.43
   2.583    2.15 | 5.667    8.59 | 8.750    2.50 | 11.83    1.43
   2.667    2.15 | 5.750    8.59 | 8.833    2.50 | 11.92    1.43
   2.750    2.15 | 5.833   34.34 | 8.917    2.50 | 12.00    1.43
   2.833    2.15 | 5.917   34.34 | 9.000    2.50 | 12.08    1.43
   2.917    2.15 | 6.000   34.35 | 9.083    2.50 | 12.17    1.43
   3.000    2.15 | 6.083   94.45 | 9.167    2.50 | 12.25    1.43
   3.083    2.15 | 6.167   94.45 | 9.250    2.50 |

     Unit Hyd Qpeak  (cms)=   1.015

     PEAK FLOW      (cms)=   0.827 (i)
     TIME TO PEAK   (hrs)=   7.500
     RUNOFF VOLUME   (mm)=  31.527
     TOTAL RAINFALL  (mm)=  71.550
     RUNOFF COEFFICIENT   =   0.441

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| NASHYD   (  0104)|   Area     (ha)=  42.80   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   6.89   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.88

          NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
   0.083    0.00 | 3.167    2.15 | 6.250   94.44 |  9.33    2.50
   0.167    0.00 | 3.250    2.15 | 6.333   12.88 |  9.42    2.50
   0.250    0.00 | 3.333    2.86 | 6.417   12.88 |  9.50    2.50
   0.333    1.79 | 3.417    2.86 | 6.500   12.88 |  9.58    2.50
   0.417    1.79 | 3.500    2.86 | 6.583   12.88 |  9.67    2.50
   0.500    1.79 | 3.583    2.86 | 6.667   12.88 |  9.75    2.50
   0.583    1.79 | 3.667    2.86 | 6.750   12.88 |  9.83    2.50
   0.667    1.79 | 3.750    2.86 | 6.833    5.72 |  9.92    2.50
   0.750    1.79 | 3.833    2.86 | 6.917    5.72 | 10.00    2.50
   0.833    1.79 | 3.917    2.86 | 7.000    5.72 | 10.08    2.50
   0.917    1.79 | 4.000    2.86 | 7.083    5.72 | 10.17    2.50
   1.000    1.79 | 4.083    2.86 | 7.167    5.72 | 10.25    2.50
   1.083    1.79 | 4.167    2.86 | 7.250    5.72 | 10.33    1.43
   1.167    1.79 | 4.250    2.86 | 7.333    4.29 | 10.42    1.43
   1.250    1.79 | 4.333    4.29 | 7.417    4.29 | 10.50    1.43
   1.333    1.79 | 4.417    4.29 | 7.500    4.29 | 10.58    1.43
   1.417    1.79 | 4.500    4.29 | 7.583    4.29 | 10.67    1.43
   1.500    1.79 | 4.583    4.29 | 7.667    4.29 | 10.75    1.43
   1.583    1.79 | 4.667    4.29 | 7.750    4.29 | 10.83    1.43
```

1.667	1.79	4.750	4.29	7.833	4.29	10.92	1.43
1.750	1.79	4.833	5.72	7.917	4.29	11.00	1.43
1.833	1.79	4.917	5.72	8.000	4.29	11.08	1.43
1.917	1.79	5.000	5.72	8.083	4.29	11.17	1.43
2.000	1.79	5.083	5.72	8.167	4.29	11.25	1.43
2.083	1.79	5.167	5.72	8.250	4.29	11.33	1.43
2.167	1.79	5.250	5.72	8.333	2.50	11.42	1.43
2.250	1.79	5.333	8.59	8.417	2.50	11.50	1.43
2.333	2.15	5.417	8.59	8.500	2.50	11.58	1.43
2.417	2.15	5.500	8.59	8.583	2.50	11.67	1.43
2.500	2.15	5.583	8.59	8.667	2.50	11.75	1.43
2.583	2.15	5.667	8.59	8.750	2.50	11.83	1.43
2.667	2.15	5.750	8.59	8.833	2.50	11.92	1.43
2.750	2.15	5.833	34.34	8.917	2.50	12.00	1.43
2.833	2.15	5.917	34.34	9.000	2.50	12.08	1.43
2.917	2.15	6.000	34.35	9.083	2.50	12.17	1.43
3.000	2.15	6.083	94.45	9.167	2.50	12.25	1.43
3.083	2.15	6.167	94.45	9.250	2.50		

Unit Hyd Qpeak (cms)= 1.858

PEAK FLOW (cms)= 1.470 (i)
TIME TO PEAK (hrs)= 7.083
RUNOFF VOLUME (mm)= 32.622
TOTAL RAINFALL (mm)= 71.550
RUNOFF COEFFICIENT = 0.456

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0105)	Area (ha)= 9.10	Curve Number (CN)= 80.0					
ID= 1 DT= 5.0 min	Ia (mm)= 7.00	# of Linear Res.(N)= 3.00					
	U.H. Tp(hrs)= 0.35						

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.15	6.250	94.44	9.33	2.50
0.167	0.00	3.250	2.15	6.333	12.88	9.42	2.50
0.250	0.00	3.333	2.86	6.417	12.88	9.50	2.50
0.333	1.79	3.417	2.86	6.500	12.88	9.58	2.50
0.417	1.79	3.500	2.86	6.583	12.88	9.67	2.50
0.500	1.79	3.583	2.86	6.667	12.88	9.75	2.50
0.583	1.79	3.667	2.86	6.750	12.88	9.83	2.50
0.667	1.79	3.750	2.86	6.833	5.72	9.92	2.50
0.750	1.79	3.833	2.86	6.917	5.72	10.00	2.50
0.833	1.79	3.917	2.86	7.000	5.72	10.08	2.50
0.917	1.79	4.000	2.86	7.083	5.72	10.17	2.50
1.000	1.79	4.083	2.86	7.167	5.72	10.25	2.50
1.083	1.79	4.167	2.86	7.250	5.72	10.33	1.43
1.167	1.79	4.250	2.86	7.333	4.29	10.42	1.43
1.250	1.79	4.333	4.29	7.417	4.29	10.50	1.43
1.333	1.79	4.417	4.29	7.500	4.29	10.58	1.43
1.417	1.79	4.500	4.29	7.583	4.29	10.67	1.43
1.500	1.79	4.583	4.29	7.667	4.29	10.75	1.43
1.583	1.79	4.667	4.29	7.750	4.29	10.83	1.43
1.667	1.79	4.750	4.29	7.833	4.29	10.92	1.43
1.750	1.79	4.833	5.72	7.917	4.29	11.00	1.43
1.833	1.79	4.917	5.72	8.000	4.29	11.08	1.43
1.917	1.79	5.000	5.72	8.083	4.29	11.17	1.43
2.000	1.79	5.083	5.72	8.167	4.29	11.25	1.43
2.083	1.79	5.167	5.72	8.250	4.29	11.33	1.43
2.167	1.79	5.250	5.72	8.333	2.50	11.42	1.43
2.250	1.79	5.333	8.59	8.417	2.50	11.50	1.43
2.333	2.15	5.417	8.59	8.500	2.50	11.58	1.43
2.417	2.15	5.500	8.59	8.583	2.50	11.67	1.43
2.500	2.15	5.583	8.59	8.667	2.50	11.75	1.43
2.583	2.15	5.667	8.59	8.750	2.50	11.83	1.43
2.667	2.15	5.750	8.59	8.833	2.50	11.92	1.43
2.750	2.15	5.833	34.34	8.917	2.50	12.00	1.43
2.833	2.15	5.917	34.34	9.000	2.50	12.08	1.43
2.917	2.15	6.000	34.35	9.083	2.50	12.17	1.43
3.000	2.15	6.083	94.45	9.167	2.50	12.25	1.43
3.083	2.15	6.167	94.45	9.250	2.50		

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 0.606 (i)
TIME TO PEAK (hrs)= 6.500
RUNOFF VOLUME (mm)= 32.533
TOTAL RAINFALL (mm)= 71.550
RUNOFF COEFFICIENT = 0.455

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0103):	31.63	0.827	7.50	31.53
+ ID2= 2 (0104):	42.80	1.470	7.08	32.62
ID = 3 (0030):	74.43	2.253	7.17	32.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB							
NASHYD (0101)	Area (ha)= 22.02	Curve Number (CN)= 81.0					
ID= 1 DT= 5.0 min	Ia (mm)= 6.77	# of Linear Res.(N)= 3.00					
	U.H. Tp(hrs)= 0.51						

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.15	6.250	94.44	9.33	2.50
0.167	0.00	3.250	2.15	6.333	12.88	9.42	2.50
0.250	0.00	3.333	2.86	6.417	12.88	9.50	2.50
0.333	1.79	3.417	2.86	6.500	12.88	9.58	2.50
0.417	1.79	3.500	2.86	6.583	12.88	9.67	2.50
0.500	1.79	3.583	2.86	6.667	12.88	9.75	2.50
0.583	1.79	3.667	2.86	6.750	12.88	9.83	2.50
0.667	1.79	3.750	2.86	6.833	5.72	9.92	2.50
0.750	1.79	3.833	2.86	6.917	5.72	10.00	2.50
0.833	1.79	3.917	2.86	7.000	5.72	10.08	2.50
0.917	1.79	4.000	2.86	7.083	5.72	10.17	2.50
1.000	1.79	4.083	2.86	7.167	5.72	10.25	2.50
1.083	1.79	4.167	2.86	7.250	5.72	10.33	1.43
1.167	1.79	4.250	2.86	7.333	4.29	10.42	1.43
1.250	1.79	4.333	4.29	7.417	4.29	10.50	1.43
1.333	1.79	4.417	4.29	7.500	4.29	10.58	1.43
1.417	1.79	4.500	4.29	7.583	4.29	10.67	1.43
1.500	1.79	4.583	4.29	7.667	4.29	10.75	1.43
1.583	1.79	4.667	4.29	7.750	4.29	10.83	1.43
1.667	1.79	4.750	4.29	7.833	4.29	10.92	1.43
1.750	1.79	4.833	5.72	7.917	4.29	11.00	1.43
1.833	1.79	4.917	5.72	8.000	4.29	11.08	1.43
1.917	1.79	5.000	5.72	8.083	4.29	11.17	1.43
2.000	1.79	5.083	5.72	8.167	4.29	11.25	1.43
2.083	1.79	5.167	5.72	8.250	4.29	11.33	1.43
2.167	1.79	5.250	5.72	8.333	2.87	11.42	1.64
2.250	2.05	5.333	9.85	8.417	2.87	11.50	1.64
2.333	2.46	5.417	9.85	8.500	2.87	11.58	1.64
2.417	2.46	5.500	9.85	8.583	2.87	11.67	1.64
2.500	2.46	5.583	9.85	8.667	2.87	11.75	1.64
2.583	2.46	5.667	9.85	8.750	2.87	11.83	1.64
2.667	2.46	5.750	9.85	8.833	2.87	11.92	1.64
2.750	2.46	5.833	39.40	8.917	2.87	12.00	1.64
2.833	2.46	5.917	39.40	9.000	2.87	12.08	1.64
2.917	2.46	6.000	39.40	9.083	2.87	12.17	1.64
3.000	2.46	6.083	108.35	9.167	2.87	12.25	1.64
3.083	2.46	6.167	108.35	9.250	2.87		

Unit Hyd Qpeak (cms)= 1.649

PEAK FLOW (cms)= 1.170 (i)
TIME TO PEAK (hrs)= 6.667
RUNOFF VOLUME (mm)= 33.743
TOTAL RAINFALL (mm)= 71.550
RUNOFF COEFFICIENT = 0.472

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

FINISH

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
      V    V   I   SS      U   U   A A   L
       V  V    I     SS     U   U  AAAAA  L
        V V     I      SS    U   U A   A  L
         VV     I    SSSSS   UUUUU A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO     TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M M M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
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***** D E T A I L E D O U T P U T *****

2.000	1.79	5.083	5.72	8.167	4.29	11.25	1.43
2.083	1.79	5.167	5.72	8.250	4.29	11.33	1.43
2.167	1.79	5.250	5.72	8.333	2.50	11.42	1.43
2.250	1.79	5.333	8.59	8.417	2.50	11.50	1.43
2.333	2.15	5.417	8.59	8.500	2.50	11.58	1.43
2.417	2.15	5.500	8.59	8.583	2.50	11.67	1.43
2.500	2.15	5.583	8.59	8.667	2.50	11.75	1.43
2.583	2.15	5.667	8.59	8.750	2.50	11.83	1.43
2.667	2.15	5.750	8.59	8.833	2.50	11.92	1.43
2.750	2.15	5.833	34.34	8.917	2.50	12.00	1.43
2.833	2.15	5.917	34.34	9.000	2.50	12.08	1.43
2.917	2.15	6.000	34.35	9.083	2.50	12.17	1.43
3.000	2.15	6.083	94.45	9.167	2.50	12.25	1.43
3.083	2.15	6.167	94.45	9.250	2.50		

Unit Hyd Qpeak (cms)= 2.360

PEAK FLOW (cms)= 2.472 (i)
TIME TO PEAK (hrs)= 7.167
RUNOFF VOLUME (mm)= 42.030
TOTAL RAINFALL (mm)= 82.080
RUNOFF COEFFICIENT = 0.512

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0103)	Area (ha)= 31.63	Curve Number (CN)= 79.0					
ID= 1 DT= 5.0 min	Ia (mm)= 7.03	# of Linear Res.(N)= 3.00					
	U.H. Tp(hrs)= 1.19						

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.46	6.250	108.34	9.33	2.87
0.167	0.00	3.250	2.46	6.333	14.77	9.42	2.87
0.250	0.00	3.333	3.28	6.417	14.77	9.50	2.87
0.333	2.05	3.417	3.28	6.500	14.77	9.58	2.87
0.417	2.05	3.500	3.28	6.583	14.77	9.67	2.87
0.500	2.05	3.583	3.28	6.667	14.77	9.75	2.87
0.583	2.05	3.667	3.28	6.750	14.77	9.83	2.87
0.667	2.05	3.750	3.28	6.833	6.57	9.92	2.87
0.750	2.05	3.833	3.28	6.917	6.57	10.00	2.87
0.833	2.05	3.917	3.28	7.000	6.57	10.08	2.87
0.917	2.05	4.000	3.28	7.083	6.57	10.17	2.87
1.000	2.05	4.083	3.28	7.167	6.57	10.25	2.87
1.083	2.05	4.167	3.28	7.250	6.57	10.33	1.64
1.167	2.05	4.250	3.28	7.333	4.92	10.42	1.64
1.250	2.05	4.333	4.92	7.417	4.92	10.50	1.64
1.333	2.05	4.417	4.92	7.500	4.92	10.58	1.64
1.417	2.05	4.500	4.92	7.583	4.92	10.67	1.64
1.500	2.05	4.583	4.92	7.667	4.92	10.75	1.64
1.583	2.05	4.667	4.92	7.750	4.92	10.83	1.64
1.667	2.05	4.750	4.92	7.833	4.92	10.92	1.64
1.750	2.05	4.833	6.57	7.917	4.92	11.00	1.64
1.833	2.05	4.917	6.57	8.000	4.92	11.08	1.64
1.917	2.05	5.000	6.57	8.083	4.92	11.17	1.64
2.000	2.05	5.083	6.57	8.167	4.92	11.25	1.64
2.083	2.05	5.167	6.57	8.250	4.92	11.33	1.64
2.167	2.05	5.250	6.57	8.333	2.87	11.42	1.64
2.250	2.05	5.333	9.85	8.417	2.87	11.50	1.64
2.333	2.46	5.417	9.85	8.500	2.87	11.58	1.64
2.417	2.46	5.500	9.85	8.583	2.87	11.67	1.64
2.500	2.46	5.583	9.85	8.667	2.87	11.75	1.64
2.583	2.46	5.667	9.85	8.750	2.87	11.83	1.64
2.667	2.46	5.750	9.85	8.833	2.87	11.92	1.64
2.750	2.46	5.833	39.40	8.917	2.87	12.00	1.64
2.833	2.46	5.917	39.40	9.000	2.87	12.08	1.64
2.917	2.46	6.000	39.40	9.083	2.87	12.17	1.64
3.000	2.46	6.083	108.35	9.167	2.87	12.25	1.64
3.083	2.46	6.167	108.35	9.250	2.87		

Unit Hyd Qpeak (cms)= 1.015

PEAK FLOW (cms)= 1.045 (i)
TIME TO PEAK (hrs)= 7.417
RUNOFF VOLUME (mm)= 39.507
TOTAL RAINFALL (mm)= 82.080
RUNOFF COEFFICIENT = 0.481

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0104)	Area (ha)= 42.80	Curve Number (CN)= 80.0					
ID= 1 DT= 5.0 min	Ia (mm)= 6.89	# of Linear Res.(N)= 3.00					
	U.H. Tp(hrs)= 0.88						

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.46	6.250	108.34	9.33	2.87
0.167	0.00	3.250	2.46	6.333	14.77	9.42	2.87
0.250	0.00	3.333	3.28	6.417	14.77	9.50	2.87
0.333	2.05	3.417	3.28	6.500	14.77	9.58	2.87
0.417	2.05	3.500	3.28	6.583	14.77	9.67	2.87
0.500	2.05	3.583	3.28	6.667	14.77	9.75	2.87
0.583	2.05	3.667	3.28	6.750	14.77	9.83	2.87
0.667	2.05	3.750	3.28	6.833	6.57	9.92	2.87
0.750	2.05	3.833	3.28	6.917	6.57	10.00	2.87
0.833	2.05	3.917	3.28	7.000	6.57	10.08	2.87
0.917	2.05	4.000	3.28	7.083	6.57	10.17	2.87
1.000	2.05	4.083	3.28	7.167	6.57	10.25	2.87
1.083	2.05	4.167	3.28	7.250	6.57	10.33	1.64
1.167	2.05	4.250	3.28	7.333	4.92	10.42	1.64
1.250	2.05	4.333	4.92	7.417	4.92	10.50	1.64
1.333	2.05	4.417	4.92	7.500	4.92	10.58	1.64
1.417	2.05	4.500	4.92	7.583	4.92	10.67	1.64
1.500	2.05	4.583	4.92	7.667	4.92	10.75	1.64
1.583	2.05	4.667	4.92	7.750	4.92	10.83	1.64
1.667	2.05	4.750	4.92	7.833	4.92	10.92	1.64
1.750	2.05	4.833	6.57	7.917	4.92	11.00	1.64
1.833	2.05	4.917	6.57	8.000	4.92	11.08	1.64
1.917	2.05	5.000	6.57	8.083	4.92	11.17	1.64
2.000	2.05	5.083	6.57	8.167	4.92	11.25	1.64
2.083	2.05	5.167	6.57	8.250	4.92	11.33	1.64
2.167	2.05	5.250	6.57	8.333	2.87	11.42	1.64
2.250	2.05	5.333	9.85	8.417	2.87	11.50	1.64
2.333	2.46	5.417	9.85	8.500	2.87	11.58	1.64
2.417	2.46	5.500	9.85	8.583	2.87	11.67	1.64
2.500	2.46	5.583	9.85	8.667	2.87	11.75	1.64
2.583	2.46	5.667	9.85	8.750	2.87	11.83	1.64
2.667	2.46	5.750	9.85	8.833	2.87	11.92	1.64
2.750	2.46	5.833	39.40	8.917	2.87	12.00	1.64
2.833	2.46	5.917	39.40	9.000	2.87	12.08	1.64
2.917	2.46	6.000	39.40	9.083	2.87	12.17	1.64
3.000	2.46	6.083	108.35	9.167	2.87	12.25	1.64
3.083	2.46	6.167	108.35	9.250	2.87		

Unit Hyd Qpeak (cms)= 1.858

PEAK FLOW (cms)= 1.849 (i)
TIME TO PEAK (hrs)= 7.083
RUNOFF VOLUME (mm)= 40.764
TOTAL RAINFALL (mm)= 82.080
RUNOFF COEFFICIENT = 0.497

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0105)	Area (ha)= 9.10	Curve Number (CN)= 80.0					
ID= 1 DT= 5.0 min	Ia (mm)= 7.00	# of Linear Res.(N)= 3.00					
	U.H. Tp(hrs)= 0.35						

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.46	6.250	108.34	9.33	2.87
0.167	0.00	3.250	2.46	6.333	14.77	9.42	2.87
0.250	0.00	3.333	3.28	6.417	14.77	9.50	2.87

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\35
11ee91-8266-45fe-ab1e-1b63311bac01\sc
Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\35
11ee91-8266-45fe-ab1e-1b63311bac01\sc

DATE: 11-27-2024 TIME: 08:40:18

USER:

COMMENTS: _____

READ STORM	Filename: C:\Users\jfletcher\AppD ata\Local\Temp\ c740c1c5-319b-42e5-9217-47a86f8e726c\e49c198a
Ptotal= 82.08 mm	Comments: 10yr 12hr 15min SCS Type II (MTO)

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	3.25	3.28	6.50	14.77	9.75	2.87
0.25	2.05	3.50	3.28	6.75	6.57	10.00	2.87
0.50	2.05	3.75	3.28	7.00	6.57	10.25	1.64
0.75	2.05	4.00	3.28	7.25	4.92	10.50	1.64
1.00	2.05	4.25	4.92	7.50	4.92	10.75	1.64
1.25	2.05	4.50	4.92	7.75	4.92	11.00	1.64
1.50	2.05	4.75	6.57	8.00	4.92	11.25	1.64
1.75	2.05	5.00	6.57	8.25	2.87	11.50	1.64
2.00	2.05	5.25	9.85	8.50	2.87	11.75	1.64
2.25	2.46	5.50	9.85	8.75	2.87	12.00	1.64
2.50	2.46	5.75	39.40	9.00	2.87		
2.75	2.46	6.00	108.35	9.25	2.87		
3.00	2.46	6.25	14.77	9.50	2.87		

```
       0.333    2.05 | 3.417    3.28 | 6.500   14.77 |  9.58    2.87
       0.417    2.05 | 3.500    3.28 | 6.583   14.77 |  9.67    2.87
       0.500    2.05 | 3.583    3.28 | 6.667   14.77 |  9.75    2.87
       0.583    2.05 | 3.667    3.28 | 6.750   14.77 |  9.83    2.87
       0.667    2.05 | 3.750    3.28 | 6.833    6.57 |  9.92    2.87
       0.750    2.05 | 3.833    3.28 | 6.917    6.57 | 10.00    2.87
       0.833    2.05 | 3.917    3.28 | 7.000    6.57 | 10.08    2.87
       0.917    2.05 | 4.000    3.28 | 7.083    6.57 | 10.17    2.87
       1.000    2.05 | 4.083    3.28 | 7.167    6.57 | 10.25    2.87
       1.083    2.05 | 4.167    3.28 | 7.250    6.57 | 10.33    1.64
       1.167    2.05 | 4.250    3.28 | 7.333    4.92 | 10.42    1.64
       1.250    2.05 | 4.333    4.92 | 7.417    4.92 | 10.50    1.64
       1.333    2.05 | 4.417    4.92 | 7.500    4.92 | 10.58    1.64
       1.417    2.05 | 4.500    4.92 | 7.583    4.92 | 10.67    1.64
       1.500    2.05 | 4.583    4.92 | 7.667    4.92 | 10.75    1.64
       1.583    2.05 | 4.667    4.92 | 7.750    4.92 | 10.83    1.64
       1.667    2.05 | 4.750    4.92 | 7.833    4.92 | 10.92    1.64
       1.750    2.05 | 4.833    6.57 | 7.917    4.92 | 11.00    1.64
       1.833    2.05 | 4.917    6.57 | 8.000    4.92 | 11.08    1.64
       1.917    2.05 | 5.000    6.57 | 8.083    4.92 | 11.17    1.64
       2.000    2.05 | 5.083    6.57 | 8.167    4.92 | 11.25    1.64
       2.083    2.05 | 5.167    6.57 | 8.250    4.92 | 11.33    1.64
       2.167    2.05 | 5.250    6.57 | 8.333    2.87 | 11.42    1.64
       2.250    2.05 | 5.333    9.85 | 8.417    2.87 | 11.50    1.64
       2.333    2.46 | 5.417    9.85 | 8.500    2.87 | 11.58    1.64
       2.417    2.46 | 5.500    9.85 | 8.583    2.87 | 11.67    1.64
       2.500    2.46 | 5.583    9.85 | 8.667    2.87 | 11.75    1.64
       2.583    2.46 | 5.667    9.85 | 8.750    2.87 | 11.83    1.64
       2.667    2.46 | 5.750    9.85 | 8.833    2.87 | 11.92    1.64
       2.750    2.46 | 5.833   39.40 | 8.917    2.87 | 12.00    1.64
       2.833    2.46 | 5.917   39.40 | 9.000    2.87 | 12.08    1.64
       2.917    2.46 | 6.000   39.40 | 9.083    2.87 | 12.17    1.64
       3.000    2.46 | 6.083  108.35 | 9.167    2.87 | 12.25    1.64
       3.083    2.46 | 6.167  108.35 | 9.250    2.87 |

  Unit Hyd Qpeak  (cms)=   0.993

  PEAK FLOW       (cms)=   0.761 (i)
  TIME TO PEAK    (hrs)=   6.500
  RUNOFF VOLUME    (mm)=  40.668
  TOTAL RAINFALL   (mm)=  82.080
  RUNOFF COEFFICIENT   =   0.495

  (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0103):    31.63   1.045     7.42    39.51
      + ID2= 2 (  0104):    42.80   1.849     7.08    40.76
        ===================================================
        ID = 3 (  0030):    74.43   2.839     7.17    40.23

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0030):    74.43   2.839     7.17    40.23
      + ID2= 2 (  0105):     9.10   0.761     6.50    40.67
        ===================================================
        ID = 1 (  0030):    83.53   3.147     7.00    40.28

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=  22.02   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.77   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.51

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
         TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
          hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
        0.083    0.00 | 3.167    2.46 | 6.250  108.34 |  9.33    2.87
        0.167    0.00 | 3.250    2.46 | 6.333   14.77 |  9.42    2.87
        0.250    0.00 | 3.333    3.28 | 6.417   14.77 |  9.50    2.87
        0.333    2.05 | 3.417    3.28 | 6.500   14.77 |  9.58    2.87
        0.417    2.05 | 3.500    3.28 | 6.583   14.77 |  9.67    2.87
        0.500    2.05 | 3.583    3.28 | 6.667   14.77 |  9.75    2.87
        0.583    2.05 | 3.667    3.28 | 6.750   14.77 |  9.83    2.87
        0.667    2.05 | 3.750    3.28 | 6.833    6.57 |  9.92    2.87
        0.750    2.05 | 3.833    3.28 | 6.917    6.57 | 10.00    2.87
        0.833    2.05 | 3.917    3.28 | 7.000    6.57 | 10.08    2.87
        0.917    2.05 | 4.000    3.28 | 7.083    6.57 | 10.17    2.87
        1.000    2.05 | 4.083    3.28 | 7.167    6.57 | 10.25    2.87
        1.083    2.05 | 4.167    3.28 | 7.250    6.57 | 10.33    1.64
        1.167    2.05 | 4.250    3.28 | 7.333    4.92 | 10.42    1.64
        1.250    2.05 | 4.333    4.92 | 7.417    4.92 | 10.50    1.64
        1.333    2.05 | 4.417    4.92 | 7.500    4.92 | 10.58    1.64
        1.417    2.05 | 4.500    4.92 | 7.583    4.92 | 10.67    1.64
        1.500    2.05 | 4.583    4.92 | 7.667    4.92 | 10.75    1.64
        1.583    2.05 | 4.667    4.92 | 7.750    4.92 | 10.83    1.64
        1.667    2.05 | 4.750    4.92 | 7.833    4.92 | 10.92    1.64
        1.750    2.05 | 4.833    6.57 | 7.917    4.92 | 11.00    1.64
        1.833    2.05 | 4.917    6.57 | 8.000    4.92 | 11.08    1.64
        1.917    2.05 | 5.000    6.57 | 8.083    4.92 | 11.17    1.64
        2.000    2.05 | 5.083    6.57 | 8.167    4.92 | 11.25    1.64
        2.083    2.05 | 5.167    6.57 | 8.250    4.92 | 11.33    1.64
        2.167    2.05 | 5.250    6.57 | 8.333    2.87 | 11.42    1.64
        2.250    2.05 | 5.333    9.85 | 8.417    2.87 | 11.50    1.64
        2.333    2.46 | 5.417    9.85 | 8.500    2.87 | 11.58    1.64
        2.417    2.46 | 5.500    9.85 | 8.583    2.87 | 11.67    1.64
        2.500    2.46 | 5.583    9.85 | 8.667    2.87 | 11.75    1.64
        2.583    2.46 | 5.667    9.85 | 8.750    2.87 | 11.83    1.64
        2.667    2.46 | 5.750    9.85 | 8.833    2.87 | 11.92    1.64
        2.750    2.46 | 5.833   39.40 | 8.917    2.87 | 12.00    1.64
        2.833    2.46 | 5.917   39.40 | 9.000    2.87 | 12.08    1.64
        2.917    2.46 | 6.000   39.40 | 9.083    2.87 | 12.17    1.64
        3.000    2.46 | 6.083  108.35 | 9.167    2.87 | 12.25    1.64
        3.083    2.46 | 6.167  108.35 | 9.250    2.87 |

  Unit Hyd Qpeak  (cms)=   1.649

  PEAK FLOW       (cms)=   1.466 (i)
  TIME TO PEAK    (hrs)=   6.667
  RUNOFF VOLUME    (mm)=  42.044
  TOTAL RAINFALL   (mm)=  82.080
  RUNOFF COEFFICIENT   =   0.512

  (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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==========================================================================================
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      V    V   I   SSSSS  U   U    A    L             (v 6.2.2015)
      V    V   I   SS     U   U   A A   L
       V  V    I    SS    U   U  AAAAA  L
       V  V    I     SS   U   U  A   A  L
        VV     I   SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
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                     *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\51
2e53b0-66a9-48db-9858-040b0a8786d5\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\51
2e53b0-66a9-48db-9858-040b0a8786d5\sc


DATE: 11-27-2024                           TIME: 08:40:18

USER:



COMMENTS: ____________________________________________________________


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  **********************************************
  ** SIMULATION : 2D - 25yr 12hr 15min SCS Type **
  **********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jfletcher\AppD
|                  |              ata\Local\Temp\
|                  |              c740c1c5-319b-42e5-9217-47a86f8e726c\a98d124a
| Ptotal= 94.74 mm |    Comments: 25yr 12hr 15min SCS Type II (MTO)
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.00    0.00 |  3.25    3.79 |  6.50   17.05 |  9.75    3.32
                 0.25    2.37 |  3.50    3.79 |  6.75    7.58 | 10.00    3.32
                 0.50    2.37 |  3.75    3.79 |  7.00    7.58 | 10.25    1.89
                 0.75    2.37 |  4.00    3.79 |  7.25    5.68 | 10.50    1.89
                 1.00    2.37 |  4.25    5.68 |  7.50    5.68 | 10.75    1.89
                 1.25    2.37 |  4.50    5.68 |  7.75    5.68 | 11.00    1.89
                 1.50    2.37 |  4.75    7.58 |  8.00    5.68 | 11.25    1.89
                 1.75    2.37 |  5.00    7.58 |  8.25    3.32 | 11.50    1.89
                 2.00    2.37 |  5.25   11.37 |  8.50    3.32 | 11.75    1.89
                 2.25    2.84 |  5.50   11.37 |  8.75    3.32 | 12.00    1.89
                 2.50    2.84 |  5.75   45.48 |  9.00    3.32 |
                 2.75    2.84 |  6.00  125.06 |  9.25    3.32 |
                 3.00    2.84 |  6.25   17.05 |  9.50    3.32 |

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| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=  58.69   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.79   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.95

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
         TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
          hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
        0.083    0.00 | 3.167    2.84 | 6.250  125.05 |  9.33    3.32
        0.167    0.00 | 3.250    2.84 | 6.333   17.05 |  9.42    3.32
        0.250    0.00 | 3.333    3.79 | 6.417   17.05 |  9.50    3.32
        0.333    2.37 | 3.417    3.79 | 6.500   17.05 |  9.58    3.32
        0.417    2.37 | 3.500    3.79 | 6.583   17.05 |  9.67    3.32
        0.500    2.37 | 3.583    3.79 | 6.667   17.05 |  9.75    3.32
        0.583    2.37 | 3.667    3.79 | 6.750   17.05 |  9.83    3.32
        0.667    2.37 | 3.750    3.79 | 6.833    7.58 |  9.92    3.32
        0.750    2.37 | 3.833    3.79 | 6.917    7.58 | 10.00    3.32
        0.833    2.37 | 3.917    3.79 | 7.000    7.58 | 10.08    3.32
        0.917    2.37 | 4.000    3.79 | 7.083    7.58 | 10.17    3.32
        1.000    2.37 | 4.083    3.79 | 7.167    7.58 | 10.25    3.32
        1.083    2.37 | 4.167    3.79 | 7.250    7.58 | 10.33    1.89
        1.167    2.37 | 4.250    3.79 | 7.333    5.68 | 10.42    1.89
        1.250    2.37 | 4.333    5.68 | 7.417    5.68 | 10.50    1.89
        1.333    2.37 | 4.417    5.68 | 7.500    5.68 | 10.58    1.89
        1.417    2.37 | 4.500    5.68 | 7.583    5.68 | 10.67    1.89
        1.500    2.37 | 4.583    5.68 | 7.667    5.68 | 10.75    1.89
        1.583    2.37 | 4.667    5.68 | 7.750    5.68 | 10.83    1.89
        1.667    2.37 | 4.750    5.68 | 7.833    5.68 | 10.92    1.89
        1.750    2.37 | 4.833    7.58 | 7.917    5.68 | 11.00    1.89
        1.833    2.37 | 4.917    7.58 | 8.000    5.68 | 11.08    1.89
        1.917    2.37 | 5.000    7.58 | 8.083    5.68 | 11.17    1.89
        2.000    2.37 | 5.083    7.58 | 8.167    5.68 | 11.25    1.89
        2.083    2.37 | 5.167    7.58 | 8.250    5.68 | 11.33    1.89
        2.167    2.37 | 5.250    7.58 | 8.333    3.32 | 11.42    1.89
        2.250    2.37 | 5.333   11.37 | 8.417    3.32 | 11.50    1.89
        2.333    2.84 | 5.417   11.37 | 8.500    3.32 | 11.58    1.89
        2.417    2.84 | 5.500   11.37 | 8.583    3.32 | 11.67    1.89
        2.500    2.84 | 5.583   11.37 | 8.667    3.32 | 11.75    1.89
        2.583    2.84 | 5.667   11.37 | 8.750    3.32 | 11.83    1.89
        2.667    2.84 | 5.750   11.37 | 8.833    3.32 | 11.92    1.89
        2.750    2.84 | 5.833   45.48 | 8.917    3.32 | 12.00    1.89
        2.833    2.84 | 5.917   45.48 | 9.000    3.32 | 12.08    1.89
        2.917    2.84 | 6.000   45.48 | 9.083    3.32 | 12.17    1.89
        3.000    2.84 | 6.083  125.06 | 9.167    3.32 | 12.25    1.89
        3.083    2.84 | 6.167  125.06 | 9.250    3.32 |

  Unit Hyd Qpeak  (cms)=   2.360

  PEAK FLOW       (cms)=   3.099 (i)
  TIME TO PEAK    (hrs)=   7.167
  RUNOFF VOLUME    (mm)=  52.431
  TOTAL RAINFALL   (mm)=  94.740
  RUNOFF COEFFICIENT   =   0.553

  (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD   (  0103)|   Area    (ha)=  31.63   Curve Number   (CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.03   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.19

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
         TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
          hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
        0.083    0.00 | 3.167    2.84 | 6.250  125.05 |  9.33    3.32
        0.167    0.00 | 3.250    2.84 | 6.333   17.05 |  9.42    3.32
        0.250    0.00 | 3.333    3.79 | 6.417   17.05 |  9.50    3.32
        0.333    2.37 | 3.417    3.79 | 6.500   17.05 |  9.58    3.32
        0.417    2.37 | 3.500    3.79 | 6.583   17.05 |  9.67    3.32
        0.500    2.37 | 3.583    3.79 | 6.667   17.05 |  9.75    3.32
        0.583    2.37 | 3.667    3.79 | 6.750   17.05 |  9.83    3.32
        0.667    2.37 | 3.750    3.79 | 6.833    7.58 |  9.92    3.32
        0.750    2.37 | 3.833    3.79 | 6.917    7.58 | 10.00    3.32
        0.833    2.37 | 3.917    3.79 | 7.000    7.58 | 10.08    3.32
        0.917    2.37 | 4.000    3.79 | 7.083    7.58 | 10.17    3.32
        1.000    2.37 | 4.083    3.79 | 7.167    7.58 | 10.25    3.32
        1.083    2.37 | 4.167    3.79 | 7.250    7.58 | 10.33    1.89
        1.167    2.37 | 4.250    3.79 | 7.333    5.68 | 10.42    1.89
        1.250    2.37 | 4.333    5.68 | 7.417    5.68 | 10.50    1.89
        1.333    2.37 | 4.417    5.68 | 7.500    5.68 | 10.58    1.89
        1.417    2.37 | 4.500    5.68 | 7.583    5.68 | 10.67    1.89
        1.500    2.37 | 4.583    5.68 | 7.667    5.68 | 10.75    1.89
        1.583    2.37 | 4.667    5.68 | 7.750    5.68 | 10.83    1.89
        1.667    2.37 | 4.750    5.68 | 7.833    5.68 | 10.92    1.89
        1.750    2.37 | 4.833    7.58 | 7.917    5.68 | 11.00    1.89
        1.833    2.37 | 4.917    7.58 | 8.000    5.68 | 11.08    1.89
        1.917    2.37 | 5.000    7.58 | 8.083    5.68 | 11.17    1.89
        2.000    2.37 | 5.083    7.58 | 8.167    5.68 | 11.25    1.89
        2.083    2.37 | 5.167    7.58 | 8.250    5.68 | 11.33    1.89
        2.167    2.37 | 5.250    7.58 | 8.333    3.32 | 11.42    1.89
        2.250    2.37 | 5.333   11.37 | 8.417    3.32 | 11.50    1.89
        2.333    2.84 | 5.417   11.37 | 8.500    3.32 | 11.58    1.89
        2.417    2.84 | 5.500   11.37 | 8.583    3.32 | 11.67    1.89
        2.500    2.84 | 5.583   11.37 | 8.667    3.32 | 11.75    1.89
        2.583    2.84 | 5.667   11.37 | 8.750    3.32 | 11.83    1.89
        2.667    2.84 | 5.750   11.37 | 8.833    3.32 | 11.92    1.89
        2.750    2.84 | 5.833   45.48 | 8.917    3.32 | 12.00    1.89
        2.833    2.84 | 5.917   45.48 | 9.000    3.32 | 12.08    1.89
        2.917    2.84 | 6.000   45.48 | 9.083    3.32 | 12.17    1.89
        3.000    2.84 | 6.083  125.06 | 9.167    3.32 | 12.25    1.89
        3.083    2.84 | 6.167  125.06 | 9.250    3.32 |

  Unit Hyd Qpeak  (cms)=   1.015

  PEAK FLOW       (cms)=   1.319 (i)
  TIME TO PEAK    (hrs)=   7.417
  RUNOFF VOLUME    (mm)=  49.559
  TOTAL RAINFALL   (mm)=  94.740
  RUNOFF COEFFICIENT   =   0.523

  (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD   (  0104)|   Area    (ha)=  42.80   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.89   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.88

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
         TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
          hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
        0.083    0.00 | 3.167    2.84 | 6.250  125.05 |  9.33    3.32
        0.167    0.00 | 3.250    2.84 | 6.333   17.05 |  9.42    3.32
        0.250    0.00 | 3.333    3.79 | 6.417   17.05 |  9.50    3.32
        0.333    2.37 | 3.417    3.79 | 6.500   17.05 |  9.58    3.32
        0.417    2.37 | 3.500    3.79 | 6.583   17.05 |  9.67    3.32
        0.500    2.37 | 3.583    3.79 | 6.667   17.05 |  9.75    3.32
        0.583    2.37 | 3.667    3.79 | 6.750   17.05 |  9.83    3.32
        0.667    2.37 | 3.750    3.79 | 6.833    7.58 |  9.92    3.32
        0.750    2.37 | 3.833    3.79 | 6.917    7.58 | 10.00    3.32
        0.833    2.37 | 3.917    3.79 | 7.000    7.58 | 10.08    3.32
        0.917    2.37 | 4.000    3.79 | 7.083    7.58 | 10.17    3.32
        1.000    2.37 | 4.083    3.79 | 7.167    7.58 | 10.25    3.32
        1.083    2.37 | 4.167    3.79 | 7.250    7.58 | 10.33    1.89
        1.167    2.37 | 4.250    3.79 | 7.333    5.68 | 10.42    1.89
        1.250    2.37 | 4.333    5.68 | 7.417    5.68 | 10.50    1.89
        1.333    2.37 | 4.417    5.68 | 7.500    5.68 | 10.58    1.89
        1.417    2.37 | 4.500    5.68 | 7.583    5.68 | 10.67    1.89
        1.500    2.37 | 4.583    5.68 | 7.667    5.68 | 10.75    1.89
        1.583    2.37 | 4.667    5.68 | 7.750    5.68 | 10.83    1.89
        1.667    2.37 | 4.750    5.68 | 7.833    5.68 | 10.92    1.89
        1.750    2.37 | 4.833    7.58 | 7.917    5.68 | 11.00    1.89
        1.833    2.37 | 4.917    7.58 | 8.000    5.68 | 11.08    1.89
        1.917    2.37 | 5.000    7.58 | 8.083    5.68 | 11.17    1.89
        2.000    2.37 | 5.083    7.58 | 8.167    5.68 | 11.25    1.89
        2.083    2.37 | 5.167    7.58 | 8.250    5.68 | 11.33    1.89
        2.167    2.37 | 5.250    7.58 | 8.333    3.32 | 11.42    1.89
        2.250    2.37 | 5.333   11.37 | 8.417    3.32 | 11.50    1.89
        2.333    2.84 | 5.417   11.37 | 8.500    3.32 | 11.58    1.89
        2.417    2.84 | 5.500   11.37 | 8.583    3.32 | 11.67    1.89
        2.500    2.84 | 5.583   11.37 | 8.667    3.32 | 11.75    1.89
        2.583    2.84 | 5.667   11.37 | 8.750    3.32 | 11.83    1.89
        2.667    2.84 | 5.750   11.37 | 8.833    3.32 | 11.92    1.89
        2.750    2.84 | 5.833   45.48 | 8.917    3.32 | 12.00    1.89
        2.833    2.84 | 5.917   45.48 | 9.000    3.32 | 12.08    1.89
        2.917    2.84 | 6.000   45.48 | 9.083    3.32 | 12.17    1.89
        3.000    2.84 | 6.083  125.06 | 9.167    3.32 | 12.25    1.89
        3.083    2.84 | 6.167  125.06 | 9.250    3.32 |

  Unit Hyd Qpeak  (cms)=   1.858

  PEAK FLOW       (cms)=   2.326 (i)
  TIME TO PEAK    (hrs)=   7.083
  RUNOFF VOLUME    (mm)=  50.992
  TOTAL RAINFALL   (mm)=  94.740
  RUNOFF COEFFICIENT   =   0.538

  (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD   (  0105)|   Area    (ha)=   9.10   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.35

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
         TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
          hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
        0.083    0.00 | 3.167    2.84 | 6.250  125.05 |  9.33    3.32
        0.167    0.00 | 3.250    2.84 | 6.333   17.05 |  9.42    3.32
        0.250    0.00 | 3.333    3.79 | 6.417   17.05 |  9.50    3.32
        0.333    2.37 | 3.417    3.79 | 6.500   17.05 |  9.58    3.32
        0.417    2.37 | 3.500    3.79 | 6.583   17.05 |  9.67    3.32
        0.500    2.37 | 3.583    3.79 | 6.667   17.05 |  9.75    3.32
        0.583    2.37 | 3.667    3.79 | 6.750   17.05 |  9.83    3.32
        0.667    2.37 | 3.750    3.79 | 6.833    7.58 |  9.92    3.32
        0.750    2.37 | 3.833    3.79 | 6.917    7.58 | 10.00    3.32
        0.833    2.37 | 3.917    3.79 | 7.000    7.58 | 10.08    3.32
        0.917    2.37 | 4.000    3.79 | 7.083    7.58 | 10.17    3.32
        1.000    2.37 | 4.083    3.79 | 7.167    7.58 | 10.25    3.32
        1.083    2.37 | 4.167    3.79 | 7.250    7.58 | 10.33    1.89
        1.167    2.37 | 4.250    3.79 | 7.333    5.68 | 10.42    1.89
        1.250    2.37 | 4.333    5.68 | 7.417    5.68 | 10.50    1.89
        1.333    2.37 | 4.417    5.68 | 7.500    5.68 | 10.58    1.89
        1.417    2.37 | 4.500    5.68 | 7.583    5.68 | 10.67    1.89
        1.500    2.37 | 4.583    5.68 | 7.667    5.68 | 10.75    1.89
        1.583    2.37 | 4.667    5.68 | 7.750    5.68 | 10.83    1.89
        1.667    2.37 | 4.750    5.68 | 7.833    5.68 | 10.92    1.89
        1.750    2.37 | 4.833    7.58 | 7.917    5.68 | 11.00    1.89
        1.833    2.37 | 4.917    7.58 | 8.000    5.68 | 11.08    1.89
        1.917    2.37 | 5.000    7.58 | 8.083    5.68 | 11.17    1.89
        2.000    2.37 | 5.083    7.58 | 8.167    5.68 | 11.25    1.89
        2.083    2.37 | 5.167    7.58 | 8.250    5.68 | 11.33    1.89
        2.167    2.37 | 5.250    7.58 | 8.333    3.32 | 11.42    1.89
        2.250    2.37 | 5.333   11.37 | 8.417    3.32 | 11.50    1.89
        2.333    2.84 | 5.417   11.37 | 8.500    3.32 | 11.58    1.89
        2.417    2.84 | 5.500   11.37 | 8.583    3.32 | 11.67    1.89
        2.500    2.84 | 5.583   11.37 | 8.667    3.32 | 11.75    1.89
        2.583    2.84 | 5.667   11.37 | 8.750    3.32 | 11.83    1.89
        2.667    2.84 | 5.750   11.37 | 8.833    3.32 | 11.92    1.89
        2.750    2.84 | 5.833   45.48 | 8.917    3.32 | 12.00    1.89
        2.833    2.84 | 5.917   45.48 | 9.000    3.32 | 12.08    1.89
        2.917    2.84 | 6.000   45.48 | 9.083    3.32 | 12.17    1.89
        3.000    2.84 | 6.083  125.06 | 9.167    3.32 | 12.25    1.89
        3.083    2.84 | 6.167  125.06 | 9.250    3.32 |

  Unit Hyd Qpeak  (cms)=   0.993

  PEAK FLOW       (cms)=   0.955 (i)
  TIME TO PEAK    (hrs)=   6.500
  RUNOFF VOLUME    (mm)=  50.890
  TOTAL RAINFALL   (mm)=  94.740
  RUNOFF COEFFICIENT   =   0.537

  (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
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```
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0103):    31.63   1.319     7.42    49.56
     + ID2= 2 (  0104):    42.80   2.326     7.08    50.99
       =====================================================
       ID = 3 (  0030):    74.43   3.578     7.17    50.38

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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-------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):    74.43   3.578     7.17    50.38
     + ID2= 2 (  0105):     9.10   0.955     6.50    50.89
       =====================================================
       ID = 1 (  0030):    83.53   3.967     7.00    50.44

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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-------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=  22.02   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.77   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.51

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 3.167    2.84 | 6.250  125.05 |  9.33    3.32
 0.167    0.00 | 3.250    2.84 | 6.333   17.05 |  9.42    3.32
 0.250    0.00 | 3.333    3.79 | 6.417   17.05 |  9.50    3.32
 0.333    2.37 | 3.417    3.79 | 6.500   17.05 |  9.58    3.32
 0.417    2.37 | 3.500    3.79 | 6.583   17.05 |  9.67    3.32
 0.500    2.37 | 3.583    3.79 | 6.667   17.05 |  9.75    3.32
 0.583    2.37 | 3.667    3.79 | 6.750   17.05 |  9.83    3.32
 0.667    2.37 | 3.750    3.79 | 6.833    7.58 |  9.92    3.32
 0.750    2.37 | 3.833    3.79 | 6.917    7.58 | 10.00    3.32
 0.833    2.37 | 3.917    3.79 | 7.000    7.58 | 10.08    3.32
 0.917    2.37 | 4.000    3.79 | 7.083    7.58 | 10.17    3.32
 1.000    2.37 | 4.083    3.79 | 7.167    7.58 | 10.25    3.32
 1.083    2.37 | 4.167    3.79 | 7.250    7.58 | 10.33    1.89
 1.167    2.37 | 4.250    3.79 | 7.333    5.68 | 10.42    1.89
 1.250    2.37 | 4.333    5.68 | 7.417    5.68 | 10.50    1.89
 1.333    2.37 | 4.417    5.68 | 7.500    5.68 | 10.58    1.89
 1.417    2.37 | 4.500    5.68 | 7.583    5.68 | 10.67    1.89
 1.500    2.37 | 4.583    5.68 | 7.667    5.68 | 10.75    1.89
 1.583    2.37 | 4.667    5.68 | 7.750    5.68 | 10.83    1.89
 1.667    2.37 | 4.750    5.68 | 7.833    5.68 | 10.92    1.89
 1.750    2.37 | 4.833    7.58 | 7.917    5.68 | 11.00    1.89
 1.833    2.37 | 4.917    7.58 | 8.000    5.68 | 11.08    1.89
 1.917    2.37 | 5.000    7.58 | 8.083    5.68 | 11.17    1.89
 2.000    2.37 | 5.083    7.58 | 8.167    5.68 | 11.25    1.89
 2.083    2.37 | 5.167    7.58 | 8.250    5.68 | 11.33    1.89
 2.167    2.37 | 5.250    7.58 | 8.333    3.32 | 11.42    1.89
 2.250    2.37 | 5.333   11.37 | 8.417    3.32 | 11.50    1.89
 2.333    2.84 | 5.417   11.37 | 8.500    3.32 | 11.58    1.89
 2.417    2.84 | 5.500   11.37 | 8.583    3.32 | 11.67    1.89
 2.500    2.84 | 5.583   11.37 | 8.667    3.32 | 11.75    1.89
 2.583    2.84 | 5.667   11.37 | 8.750    3.32 | 11.83    1.89
 2.667    2.84 | 5.750   11.37 | 8.833    3.32 | 11.92    1.89
 2.750    2.84 | 5.833   45.48 | 8.917    3.32 | 12.00    1.89
 2.833    2.84 | 5.917   45.48 | 9.000    3.32 | 12.08    1.89
 2.917    2.84 | 6.000   45.48 | 9.083    3.32 | 12.17    1.89
 3.000    2.84 | 6.083  125.06 | 9.167    3.32 | 12.25    1.89
 3.083    2.84 | 6.167  125.06 | 9.250    3.32 |

    Unit Hyd Qpeak  (cms)=   1.649

    PEAK FLOW      (cms)=   1.836 (i)
    TIME TO PEAK   (hrs)=   6.667
    RUNOFF VOLUME   (mm)=  52.445
    TOTAL RAINFALL  (mm)=  94.740
    RUNOFF COEFFICIENT   =   0.554

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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     V    V   I    SSSSS  U   U    A    L                (v 6.2.2015)
     V    V   I    SS     U   U   A A   L
      V  V    I     SS    U   U  AAAAA  L
       V V    I      SS   U   U  A   A  L
        VV    I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
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                *****  D E T A I L E D   O U T P U T *****
```

```
  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\8b
3ff36b-de48-4488-b806-33196ef5e038\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\8b
3ff36b-de48-4488-b806-33196ef5e038\sc


DATE: 11-27-2024                          TIME: 08:40:18

USER:


COMMENTS: _____

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  ***********************************************
  ** SIMULATION : 2E - 50yr 12hr 15min SCS Type **
  ***********************************************


--------------------
|    READ STORM    |      Filename: C:\Users\jfletcher\AppD
|                  |                ata\Local\Temp\
|                  |                c740c1c5-319b-42e5-9217-47a86f8e726c\57dab586
| Ptotal=104.44 mm |   Comments: 50yr 12hr 15min SCS Type II (MTO)
--------------------
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
 0.00    0.00 |  3.25    4.18 |  6.50   18.80 |  9.75    3.66
 0.25    2.61 |  3.50    4.18 |  6.75    8.36 | 10.00    3.66
 0.50    2.61 |  3.75    4.18 |  7.00    8.36 | 10.25    2.09
 0.75    2.61 |  4.00    4.18 |  7.25    6.27 | 10.50    2.09
 1.00    2.61 |  4.25    6.27 |  7.50    6.27 | 10.75    2.09
 1.25    2.61 |  4.50    6.27 |  7.75    6.27 | 11.00    2.09
 1.50    2.61 |  4.75    8.36 |  8.00    6.27 | 11.25    2.09
 1.75    2.61 |  5.00    8.36 |  8.25    3.66 | 11.50    2.09
 2.00    2.61 |  5.25   12.53 |  8.50    3.66 | 11.75    2.09
 2.25    3.13 |  5.50   12.53 |  8.75    3.66 | 12.00    2.09
 2.50    3.13 |  5.75   50.13 |  9.00    3.66 |
 2.75    3.13 |  6.00  137.86 |  9.25    3.66 |
 3.00    3.13 |  6.25   18.80 |  9.50    3.66 |
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| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=  58.69   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.79   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.95

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 3.167    3.13 | 6.250  137.86 |  9.33    3.66
 0.167    0.00 | 3.250    3.13 | 6.333   18.80 |  9.42    3.66
 0.250    0.00 | 3.333    4.18 | 6.417   18.80 |  9.50    3.66
 0.333    2.61 | 3.417    4.18 | 6.500   18.80 |  9.58    3.66
 0.417    2.61 | 3.500    4.18 | 6.583   18.80 |  9.67    3.66
 0.500    2.61 | 3.583    4.18 | 6.667   18.80 |  9.75    3.66
 0.583    2.61 | 3.667    4.18 | 6.750   18.80 |  9.83    3.66
 0.667    2.61 | 3.750    4.18 | 6.833    8.36 |  9.92    3.66
 0.750    2.61 | 3.833    4.18 | 6.917    8.36 | 10.00    3.66
 0.833    2.61 | 3.917    4.18 | 7.000    8.36 | 10.08    3.66
 0.917    2.61 | 4.000    4.18 | 7.083    8.36 | 10.17    3.66
 1.000    2.61 | 4.083    4.18 | 7.167    8.36 | 10.25    3.66
 1.083    2.61 | 4.167    4.18 | 7.250    8.36 | 10.33    2.09
 1.167    2.61 | 4.250    4.18 | 7.333    6.27 | 10.42    2.09
 1.250    2.61 | 4.333    6.27 | 7.417    6.27 | 10.50    2.09
 1.333    2.61 | 4.417    6.27 | 7.500    6.27 | 10.58    2.09
 1.417    2.61 | 4.500    6.27 | 7.583    6.27 | 10.67    2.09
 1.500    2.61 | 4.583    6.27 | 7.667    6.27 | 10.75    2.09
 1.583    2.61 | 4.667    6.27 | 7.750    6.27 | 10.83    2.09
 1.667    2.61 | 4.750    6.27 | 7.833    6.27 | 10.92    2.09
 1.750    2.61 | 4.833    8.36 | 7.917    6.27 | 11.00    2.09
 1.833    2.61 | 4.917    8.36 | 8.000    6.27 | 11.08    2.09
 1.917    2.61 | 5.000    8.36 | 8.083    6.27 | 11.17    2.09
 2.000    2.61 | 5.083    8.36 | 8.167    6.27 | 11.25    2.09
 2.083    2.61 | 5.167    8.36 | 8.250    6.27 | 11.33    2.09
 2.167    2.61 | 5.250    8.36 | 8.333    3.66 | 11.42    2.09
 2.250    2.61 | 5.333   12.53 | 8.417    3.66 | 11.50    2.09
 2.333    3.13 | 5.417   12.53 | 8.500    3.66 | 11.58    2.09
 2.417    3.13 | 5.500   12.53 | 8.583    3.66 | 11.67    2.09
 2.500    3.13 | 5.583   12.53 | 8.667    3.66 | 11.75    2.09
 2.583    3.13 | 5.667   12.53 | 8.750    3.66 | 11.83    2.09
 2.667    3.13 | 5.750   12.53 | 8.833    3.66 | 11.92    2.09
 2.750    3.13 | 5.833   50.13 | 8.917    3.66 | 12.00    2.09
 2.833    3.13 | 5.917   50.13 | 9.000    3.66 | 12.08    2.09
 2.917    3.13 | 6.000   50.13 | 9.083    3.66 | 12.17    2.09
 3.000    3.13 | 6.083  137.86 | 9.167    3.66 | 12.25    2.09
 3.083    3.13 | 6.167  137.86 | 9.250    3.66 |

    Unit Hyd Qpeak  (cms)=   2.360

    PEAK FLOW      (cms)=   3.594 (i)
    TIME TO PEAK   (hrs)=   7.167
    RUNOFF VOLUME   (mm)=  60.647
    TOTAL RAINFALL  (mm)= 104.440
    RUNOFF COEFFICIENT   =   0.581

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD   (  0103)|   Area    (ha)=  31.63   Curve Number   (CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.03   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.19

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 3.167    3.13 | 6.250  137.86 |  9.33    3.66
 0.167    0.00 | 3.250    3.13 | 6.333   18.80 |  9.42    3.66
 0.250    0.00 | 3.333    4.18 | 6.417   18.80 |  9.50    3.66
 0.333    2.61 | 3.417    4.18 | 6.500   18.80 |  9.58    3.66
 0.417    2.61 | 3.500    4.18 | 6.583   18.80 |  9.67    3.66
 0.500    2.61 | 3.583    4.18 | 6.667   18.80 |  9.75    3.66
 0.583    2.61 | 3.667    4.18 | 6.750   18.80 |  9.83    3.66
 0.667    2.61 | 3.750    4.18 | 6.833    8.36 |  9.92    3.66
 0.750    2.61 | 3.833    4.18 | 6.917    8.36 | 10.00    3.66
 0.833    2.61 | 3.917    4.18 | 7.000    8.36 | 10.08    3.66
 0.917    2.61 | 4.000    4.18 | 7.083    8.36 | 10.17    3.66
 1.000    2.61 | 4.083    4.18 | 7.167    8.36 | 10.25    3.66
 1.083    2.61 | 4.167    4.18 | 7.250    8.36 | 10.33    2.09
 1.167    2.61 | 4.250    4.18 | 7.333    6.27 | 10.42    2.09
 1.250    2.61 | 4.333    6.27 | 7.417    6.27 | 10.50    2.09
 1.333    2.61 | 4.417    6.27 | 7.500    6.27 | 10.58    2.09
 1.417    2.61 | 4.500    6.27 | 7.583    6.27 | 10.67    2.09
 1.500    2.61 | 4.583    6.27 | 7.667    6.27 | 10.75    2.09
 1.583    2.61 | 4.667    6.27 | 7.750    6.27 | 10.83    2.09
 1.667    2.61 | 4.750    6.27 | 7.833    6.27 | 10.92    2.09
 1.750    2.61 | 4.833    8.36 | 7.917    6.27 | 11.00    2.09
 1.833    2.61 | 4.917    8.36 | 8.000    6.27 | 11.08    2.09
 1.917    2.61 | 5.000    8.36 | 8.083    6.27 | 11.17    2.09
 2.000    2.61 | 5.083    8.36 | 8.167    6.27 | 11.25    2.09
 2.083    2.61 | 5.167    8.36 | 8.250    6.27 | 11.33    2.09
```

```
 2.167    2.61 | 5.250    8.36 | 8.333    3.66 | 11.42    2.09
 2.250    2.61 | 5.333   12.53 | 8.417    3.66 | 11.50    2.09
 2.333    3.13 | 5.417   12.53 | 8.500    3.66 | 11.58    2.09
 2.417    3.13 | 5.500   12.53 | 8.583    3.66 | 11.67    2.09
 2.500    3.13 | 5.583   12.53 | 8.667    3.66 | 11.75    2.09
 2.583    3.13 | 5.667   12.53 | 8.750    3.66 | 11.83    2.09
 2.667    3.13 | 5.750   12.53 | 8.833    3.66 | 11.92    2.09
 2.750    3.13 | 5.833   50.13 | 8.917    3.66 | 12.00    2.09
 2.833    3.13 | 5.917   50.13 | 9.000    3.66 | 12.08    2.09
 2.917    3.13 | 6.000   50.13 | 9.083    3.66 | 12.17    2.09
 3.000    3.13 | 6.083  137.86 | 9.167    3.66 | 12.25    2.09
 3.083    3.13 | 6.167  137.86 | 9.250    3.66 |

    Unit Hyd Qpeak  (cms)=   1.015

    PEAK FLOW      (cms)=   1.537 (i)
    TIME TO PEAK   (hrs)=   7.417
    RUNOFF VOLUME   (mm)=  57.532
    TOTAL RAINFALL  (mm)= 104.440
    RUNOFF COEFFICIENT   =   0.551

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0104)|   Area    (ha)=  42.80   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.89   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.88

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 3.167    3.13 | 6.250  137.86 |  9.33    3.66
 0.167    0.00 | 3.250    3.13 | 6.333   18.80 |  9.42    3.66
 0.250    0.00 | 3.333    4.18 | 6.417   18.80 |  9.50    3.66
 0.333    2.61 | 3.417    4.18 | 6.500   18.80 |  9.58    3.66
 0.417    2.61 | 3.500    4.18 | 6.583   18.80 |  9.67    3.66
 0.500    2.61 | 3.583    4.18 | 6.667   18.80 |  9.75    3.66
 0.583    2.61 | 3.667    4.18 | 6.750   18.80 |  9.83    3.66
 0.667    2.61 | 3.750    4.18 | 6.833    8.36 |  9.92    3.66
 0.750    2.61 | 3.833    4.18 | 6.917    8.36 | 10.00    3.66
 0.833    2.61 | 3.917    4.18 | 7.000    8.36 | 10.08    3.66
 0.917    2.61 | 4.000    4.18 | 7.083    8.36 | 10.17    3.66
 1.000    2.61 | 4.083    4.18 | 7.167    8.36 | 10.25    3.66
 1.083    2.61 | 4.167    4.18 | 7.250    8.36 | 10.33    2.09
 1.167    2.61 | 4.250    4.18 | 7.333    6.27 | 10.42    2.09
 1.250    2.61 | 4.333    6.27 | 7.417    6.27 | 10.50    2.09
 1.333    2.61 | 4.417    6.27 | 7.500    6.27 | 10.58    2.09
 1.417    2.61 | 4.500    6.27 | 7.583    6.27 | 10.67    2.09
 1.500    2.61 | 4.583    6.27 | 7.667    6.27 | 10.75    2.09
 1.583    2.61 | 4.667    6.27 | 7.750    6.27 | 10.83    2.09
 1.667    2.61 | 4.750    6.27 | 7.833    6.27 | 10.92    2.09
 1.750    2.61 | 4.833    8.36 | 7.917    6.27 | 11.00    2.09
 1.833    2.61 | 4.917    8.36 | 8.000    6.27 | 11.08    2.09
 1.917    2.61 | 5.000    8.36 | 8.083    6.27 | 11.17    2.09
 2.000    2.61 | 5.083    8.36 | 8.167    6.27 | 11.25    2.09
 2.083    2.61 | 5.167    8.36 | 8.250    6.27 | 11.33    2.09
```

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 2.167    2.61 | 5.250    8.36 | 8.333    3.66 | 11.42    2.09
 2.250    2.61 | 5.333   12.53 | 8.417    3.66 | 11.50    2.09
 2.333    3.13 | 5.417   12.53 | 8.500    3.66 | 11.58    2.09
 2.417    3.13 | 5.500   12.53 | 8.583    3.66 | 11.67    2.09
 2.500    3.13 | 5.583   12.53 | 8.667    3.66 | 11.75    2.09
 2.583    3.13 | 5.667   12.53 | 8.750    3.66 | 11.83    2.09
 2.667    3.13 | 5.750   12.53 | 8.833    3.66 | 11.92    2.09
 2.750    3.13 | 5.833   50.13 | 8.917    3.66 | 12.00    2.09
 2.833    3.13 | 5.917   50.13 | 9.000    3.66 | 12.08    2.09
 2.917    3.13 | 6.000   50.13 | 9.083    3.66 | 12.17    2.09
 3.000    3.13 | 6.083  137.86 | 9.167    3.66 | 12.25    2.09
 3.083    3.13 | 6.167  137.86 | 9.250    3.66 |

    Unit Hyd Qpeak  (cms)=   1.858

    PEAK FLOW      (cms)=   2.702 (i)
    TIME TO PEAK   (hrs)=   7.083
    RUNOFF VOLUME   (mm)=  59.087
    TOTAL RAINFALL  (mm)= 104.440
    RUNOFF COEFFICIENT   =   0.566

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0105)|   Area    (ha)=   9.10   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.35

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 3.167    3.13 | 6.250  137.86 |  9.33    3.66
 0.167    0.00 | 3.250    3.13 | 6.333   18.80 |  9.42    3.66
 0.250    0.00 | 3.333    4.18 | 6.417   18.80 |  9.50    3.66
```

```
 0.333    2.61 | 3.417    4.18 | 6.500   18.80 |  9.58    3.66
 0.417    2.61 | 3.500    4.18 | 6.583   18.80 |  9.67    3.66
 0.500    2.61 | 3.583    4.18 | 6.667   18.80 |  9.75    3.66
 0.583    2.61 | 3.667    4.18 | 6.750   18.80 |  9.83    3.66
 0.667    2.61 | 3.750    4.18 | 6.833    8.36 |  9.92    3.66
 0.750    2.61 | 3.833    4.18 | 6.917    8.36 | 10.00    3.66
 0.833    2.61 | 3.917    4.18 | 7.000    8.36 | 10.08    3.66
 0.917    2.61 | 4.000    4.18 | 7.083    8.36 | 10.17    3.66
 1.000    2.61 | 4.083    4.18 | 7.167    8.36 | 10.25    3.66
 1.083    2.61 | 4.167    4.18 | 7.250    8.36 | 10.33    2.09
 1.167    2.61 | 4.250    4.18 | 7.333    6.27 | 10.42    2.09
 1.250    2.61 | 4.333    6.27 | 7.417    6.27 | 10.50    2.09
 1.333    2.61 | 4.417    6.27 | 7.500    6.27 | 10.58    2.09
 1.417    2.61 | 4.500    6.27 | 7.583    6.27 | 10.67    2.09
 1.500    2.61 | 4.583    6.27 | 7.667    6.27 | 10.75    2.09
 1.583    2.61 | 4.667    6.27 | 7.750    6.27 | 10.83    2.09
 1.667    2.61 | 4.750    6.27 | 7.833    6.27 | 10.92    2.09
 1.750    2.61 | 4.833    8.36 | 7.917    6.27 | 11.00    2.09
 1.833    2.61 | 4.917    8.36 | 8.000    6.27 | 11.08    2.09
 1.917    2.61 | 5.000    8.36 | 8.083    6.27 | 11.17    2.09
 2.000    2.61 | 5.083    8.36 | 8.167    6.27 | 11.25    2.09
 2.083    2.61 | 5.167    8.36 | 8.250    6.27 | 11.33    2.09
 2.167    2.61 | 5.250    8.36 | 8.333    3.66 | 11.42    2.09
 2.250    2.61 | 5.333   12.53 | 8.417    3.66 | 11.50    2.09
 2.333    3.13 | 5.417   12.53 | 8.500    3.66 | 11.58    2.09
 2.417    3.13 | 5.500   12.53 | 8.583    3.66 | 11.67    2.09
 2.500    3.13 | 5.583   12.53 | 8.667    3.66 | 11.75    2.09
 2.583    3.13 | 5.667   12.53 | 8.750    3.66 | 11.83    2.09
 2.667    3.13 | 5.750   12.53 | 8.833    3.66 | 11.92    2.09
 2.750    3.13 | 5.833   50.13 | 8.917    3.66 | 12.00    2.09
 2.833    3.13 | 5.917   50.13 | 9.000    3.66 | 12.08    2.09
 2.917    3.13 | 6.000   50.13 | 9.083    3.66 | 12.17    2.09
 3.000    3.13 | 6.083  137.86 | 9.167    3.66 | 12.25    2.09
 3.083    3.13 | 6.167  137.86 | 9.250    3.66 |

    Unit Hyd Qpeak  (cms)=   0.993

    PEAK FLOW      (cms)=   1.110 (i)
    TIME TO PEAK   (hrs)=   6.417
    RUNOFF VOLUME   (mm)=  58.982
    TOTAL RAINFALL  (mm)= 104.440
    RUNOFF COEFFICIENT   =   0.565

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------


--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
```

```
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0103):    31.63   1.537     7.42    57.53
     + ID2= 2 (  0104):    42.80   2.702     7.08    59.09
       =====================================================
       ID = 3 (  0030):    74.43   4.163     7.17    58.43

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------


-------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):    74.43   4.163     7.17    58.43
     + ID2= 2 (  0105):     9.10   1.110     6.42    58.98
       =====================================================
       ID = 1 (  0030):    83.53   4.616     7.00    58.49

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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-------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=  22.02   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.77   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.51

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 3.167    3.13 | 6.250  137.86 |  9.33    3.66
 0.167    0.00 | 3.250    3.13 | 6.333   18.80 |  9.42    3.66
 0.250    0.00 | 3.333    4.18 | 6.417   18.80 |  9.50    3.66
 0.333    2.61 | 3.417    4.18 | 6.500   18.80 |  9.58    3.66
 0.417    2.61 | 3.500    4.18 | 6.583   18.80 |  9.67    3.66
 0.500    2.61 | 3.583    4.18 | 6.667   18.80 |  9.75    3.66
 0.583    2.61 | 3.667    4.18 | 6.750   18.80 |  9.83    3.66
 0.667    2.61 | 3.750    4.18 | 6.833    8.36 |  9.92    3.66
 0.750    2.61 | 3.833    4.18 | 6.917    8.36 | 10.00    3.66
 0.833    2.61 | 3.917    4.18 | 7.000    8.36 | 10.08    3.66
 0.917    2.61 | 4.000    4.18 | 7.083    8.36 | 10.17    3.66
 1.000    2.61 | 4.083    4.18 | 7.167    8.36 | 10.25    3.66
 1.083    2.61 | 4.167    4.18 | 7.250    8.36 | 10.33    2.09
 1.167    2.61 | 4.250    4.18 | 7.333    6.27 | 10.42    2.09
 1.250    2.61 | 4.333    6.27 | 7.417    6.27 | 10.50    2.09
 1.333    2.61 | 4.417    6.27 | 7.500    6.27 | 10.58    2.09
 1.417    2.61 | 4.500    6.27 | 7.583    6.27 | 10.67    2.09
 1.500    2.61 | 4.583    6.27 | 7.667    6.27 | 10.75    2.09
```

1.583	2.61	4.667	6.27	7.750	6.27	10.83	2.09
1.667	2.61	4.750	6.27	7.833	6.27	10.92	2.09
1.750	2.61	4.833	8.36	7.917	6.27	11.00	2.09
1.833	2.61	4.917	8.36	8.000	6.27	11.08	2.09
1.917	2.61	5.000	8.36	8.083	6.27	11.17	2.09
2.000	2.61	5.083	8.36	8.167	6.27	11.25	2.09
2.083	2.61	5.167	8.36	8.250	6.27	11.33	2.09
2.167	2.61	5.250	8.36	8.333	3.66	11.42	2.09
2.250	2.61	5.333	12.53	8.417	3.66	11.50	2.09
2.333	3.13	5.417	12.53	8.500	3.66	11.58	2.09
2.417	3.13	5.500	12.53	8.583	3.66	11.67	2.09
2.500	3.13	5.583	12.53	8.667	3.66	11.75	2.09
2.583	3.13	5.667	12.53	8.750	3.66	11.83	2.09
2.667	3.13	5.750	12.53	8.833	3.66	11.92	2.09
2.750	3.13	5.833	50.13	8.917	3.66	12.00	2.09
2.833	3.13	5.917	50.13	9.000	3.66	12.08	2.09
2.917	3.13	6.000	50.13	9.083	3.66	12.17	2.09
3.000	3.13	6.083	137.86	9.167	3.66	12.25	2.09
3.083	3.13	6.167	137.86	9.250	3.66		

Unit Hyd Qpeak (cms)= 1.649

PEAK FLOW (cms)= 2.128 (i)
TIME TO PEAK (hrs)= 6.667
RUNOFF VOLUME (mm)= 60.661
TOTAL RAINFALL (mm)= 184.440
RUNOFF COEFFICIENT = 0.581

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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```
     V    V   I    SSSSS  U   U    A    L                (v 6.2.2015)
     V    V   I    SS     U   U   A A   L
      V  V    I     SS    U   U  AAAAA  L
       V V    I      SS   U   U  A   A  L
        VV    I    SSSSS  UUUUU  A   A  LLLLL

      OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
     O   O    T      T    H   H   Y Y   MM MM  O   O
     O   O    T      T    H   H    Y    M   M  O   O
      OOO     T      T    H   H    Y    M   M   OOO
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```

***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\a499df91-a1b8-4fff-a801-a4c38567b5f8\sc

Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\a499df91-a1b8-4fff-a801-a4c38567b5f8\sc

DATE: 11-27-2024 TIME: 08:40:18

USER:

COMMENTS: _____

```
  **********************************************
  ** SIMULATION : 2F - 100yr 12hr 15min SCS Typ **
  **********************************************
```

READ STORM	Filename: C:\Users\jfletcher\AppData\Local\Temp\c740c1c5-319b-42e5-9217-47a86f8e726c\40cdb64a
Ptotal=114.16 mm	Comments: 100yr 12hr 15min SCS Type II (MTO)

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	3.25	4.57	6.50	20.55	9.75	4.00
0.25	2.85	3.50	4.57	6.75	9.13	10.00	4.00
0.50	2.85	3.75	4.57	7.00	9.13	10.25	2.28
0.75	2.85	4.00	4.57	7.25	6.85	10.50	2.28
1.00	2.85	4.25	6.85	7.50	6.85	10.75	2.28
1.25	2.85	4.50	6.85	7.75	6.85	11.00	2.28
1.50	2.85	4.75	9.13	8.00	6.85	11.25	2.28
1.75	2.85	5.00	9.13	8.25	4.00	11.50	2.28
2.00	2.85	5.25	13.70	8.50	4.00	11.75	2.28
2.25	3.42	5.50	13.70	8.75	4.00	12.00	2.28
2.50	3.42	5.75	54.80	9.00	4.00		
2.75	3.42	6.00	150.69	9.25	4.00		
3.00	3.42	6.25	20.55	9.50	4.00		

CALIB					
NASHYD (0102)	ID= 1 DT= 5.0 min	Area	(ha)= 58.69	Curve Number	(CN)= 81.0
		Ia	(mm)= 6.79	# of Linear Res.(N)= 3.00	
		U.H. Tp(hrs)= 0.95			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.42	6.250	150.69	9.33	4.00
0.167	0.00	3.250	3.42	6.333	20.55	9.42	4.00
0.250	0.00	3.333	4.57	6.417	20.55	9.50	4.00
0.333	2.85	3.417	4.57	6.500	20.55	9.58	4.00
0.417	2.85	3.500	4.57	6.583	20.55	9.67	4.00
0.500	2.85	3.583	4.57	6.667	20.55	9.75	4.00
0.583	2.85	3.667	4.57	6.750	20.55	9.83	4.00
0.667	2.85	3.750	4.57	6.833	9.13	9.92	4.00
0.750	2.85	3.833	4.57	6.917	9.13	10.00	4.00
0.833	2.85	3.917	4.57	7.000	9.13	10.08	4.00
0.917	2.85	4.000	4.57	7.083	9.13	10.17	4.00
1.000	2.85	4.083	4.57	7.167	9.13	10.25	4.00
1.083	2.85	4.167	4.57	7.250	9.13	10.33	2.28
1.167	2.85	4.250	4.57	7.333	6.85	10.42	2.28
1.250	2.85	4.333	6.85	7.417	6.85	10.50	2.28
1.333	2.85	4.417	6.85	7.500	6.85	10.58	2.28
1.417	2.85	4.500	6.85	7.583	6.85	10.67	2.28
1.500	2.85	4.583	6.85	7.667	6.85	10.75	2.28
1.583	2.85	4.667	6.85	7.750	6.85	10.83	2.28
1.667	2.85	4.750	6.85	7.833	6.85	10.92	2.28
1.750	2.85	4.833	9.13	7.917	6.85	11.00	2.28
1.833	2.85	4.917	9.13	8.000	6.85	11.08	2.28
1.917	2.85	5.000	9.13	8.083	6.85	11.17	2.28
2.000	2.85	5.083	9.13	8.167	6.85	11.25	2.28
2.083	2.85	5.167	9.13	8.250	6.85	11.33	2.28
2.167	2.85	5.250	9.13	8.333	4.00	11.42	2.28
2.250	2.85	5.333	13.70	8.417	4.00	11.50	2.28
2.333	3.42	5.417	13.70	8.500	4.00	11.58	2.28
2.417	3.42	5.500	13.70	8.583	4.00	11.67	2.28
2.500	3.42	5.583	13.70	8.667	4.00	11.75	2.28
2.583	3.42	5.667	13.70	8.750	4.00	11.83	2.28
2.667	3.42	5.750	13.70	8.833	4.00	11.92	2.28
2.750	3.42	5.833	54.80	8.917	4.00	12.00	2.28
2.833	3.42	5.917	54.80	9.000	4.00	12.08	2.28
2.917	3.42	6.000	54.80	9.083	4.00	12.17	2.28
3.000	3.42	6.083	150.69	9.167	4.00	12.25	2.28
3.083	3.42	6.167	150.69	9.250	4.00		

Unit Hyd Qpeak (cms)= 2.360

PEAK FLOW (cms)= 4.100 (i)
TIME TO PEAK (hrs)= 7.167
RUNOFF VOLUME (mm)= 69.052
TOTAL RAINFALL (mm)= 114.160
RUNOFF COEFFICIENT = 0.605

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0103)	ID= 1 DT= 5.0 min	Area	(ha)= 31.63	Curve Number	(CN)= 79.0
		Ia	(mm)= 7.03	# of Linear Res.(N)= 3.00	
		U.H. Tp(hrs)= 1.19			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.42	6.250	150.69	9.33	4.00
0.167	0.00	3.250	3.42	6.333	20.55	9.42	4.00
0.250	0.00	3.333	4.57	6.417	20.55	9.50	4.00
0.333	2.85	3.417	4.57	6.500	20.55	9.58	4.00
0.417	2.85	3.500	4.57	6.583	20.55	9.67	4.00
0.500	2.85	3.583	4.57	6.667	20.55	9.75	4.00
0.583	2.85	3.667	4.57	6.750	20.55	9.83	4.00
0.667	2.85	3.750	4.57	6.833	9.13	9.92	4.00
0.750	2.85	3.833	4.57	6.917	9.13	10.00	4.00
0.833	2.85	3.917	4.57	7.000	9.13	10.08	4.00
0.917	2.85	4.000	4.57	7.083	9.13	10.17	4.00
1.000	2.85	4.083	4.57	7.167	9.13	10.25	4.00
1.083	2.85	4.167	4.57	7.250	9.13	10.33	2.28
1.167	2.85	4.250	4.57	7.333	6.85	10.42	2.28
1.250	2.85	4.333	6.85	7.417	6.85	10.50	2.28
1.333	2.85	4.417	6.85	7.500	6.85	10.58	2.28
1.417	2.85	4.500	6.85	7.583	6.85	10.67	2.28
1.500	2.85	4.583	6.85	7.667	6.85	10.75	2.28
1.583	2.85	4.667	6.85	7.750	6.85	10.83	2.28
1.667	2.85	4.750	6.85	7.833	6.85	10.92	2.28
1.750	2.85	4.833	9.13	7.917	6.85	11.00	2.28
1.833	2.85	4.917	9.13	8.000	6.85	11.08	2.28
1.917	2.85	5.000	9.13	8.083	6.85	11.17	2.28
2.000	2.85	5.083	9.13	8.167	6.85	11.25	2.28
2.083	2.85	5.167	9.13	8.250	6.85	11.33	2.28
2.167	2.85	5.250	9.13	8.333	4.00	11.42	2.28
2.250	2.85	5.333	13.70	8.417	4.00	11.50	2.28
2.333	3.42	5.417	13.70	8.500	4.00	11.58	2.28
2.417	3.42	5.500	13.70	8.583	4.00	11.67	2.28
2.500	3.42	5.583	13.70	8.667	4.00	11.75	2.28
2.583	3.42	5.667	13.70	8.750	4.00	11.83	2.28
2.667	3.42	5.750	13.70	8.833	4.00	11.92	2.28
2.750	3.42	5.833	54.80	8.917	4.00	12.00	2.28
2.833	3.42	5.917	54.80	9.000	4.00	12.08	2.28
2.917	3.42	6.000	54.80	9.083	4.00	12.17	2.28
3.000	3.42	6.083	150.69	9.167	4.00	12.25	2.28
3.083	3.42	6.167	150.69	9.250	4.00		

Unit Hyd Qpeak (cms)= 1.015

PEAK FLOW (cms)= 1.760 (i)
TIME TO PEAK (hrs)= 7.417
RUNOFF VOLUME (mm)= 65.713
TOTAL RAINFALL (mm)= 114.160
RUNOFF COEFFICIENT = 0.576

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0104)	ID= 1 DT= 5.0 min	Area	(ha)= 42.80	Curve Number	(CN)= 80.0
		Ia	(mm)= 6.89	# of Linear Res.(N)= 3.00	
		U.H. Tp(hrs)= 0.88			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.42	6.250	150.69	9.33	4.00
0.167	0.00	3.250	3.42	6.333	20.55	9.42	4.00
0.250	0.00	3.333	4.57	6.417	20.55	9.50	4.00
0.333	2.85	3.417	4.57	6.500	20.55	9.58	4.00
0.417	2.85	3.500	4.57	6.583	20.55	9.67	4.00
0.500	2.85	3.583	4.57	6.667	20.55	9.75	4.00
0.583	2.85	3.667	4.57	6.750	20.55	9.83	4.00
0.667	2.85	3.750	4.57	6.833	9.13	9.92	4.00
0.750	2.85	3.833	4.57	6.917	9.13	10.00	4.00
0.833	2.85	3.917	4.57	7.000	9.13	10.08	4.00
0.917	2.85	4.000	4.57	7.083	9.13	10.17	4.00
1.000	2.85	4.083	4.57	7.167	9.13	10.25	4.00
1.083	2.85	4.167	4.57	7.250	9.13	10.33	2.28
1.167	2.85	4.250	4.57	7.333	6.85	10.42	2.28
1.250	2.85	4.333	6.85	7.417	6.85	10.50	2.28
1.333	2.85	4.417	6.85	7.500	6.85	10.58	2.28
1.417	2.85	4.500	6.85	7.583	6.85	10.67	2.28
1.500	2.85	4.583	6.85	7.667	6.85	10.75	2.28
1.583	2.85	4.667	6.85	7.750	6.85	10.83	2.28
1.667	2.85	4.750	6.85	7.833	6.85	10.92	2.28
1.750	2.85	4.833	9.13	7.917	6.85	11.00	2.28
1.833	2.85	4.917	9.13	8.000	6.85	11.08	2.28
1.917	2.85	5.000	9.13	8.083	6.85	11.17	2.28
2.000	2.85	5.083	9.13	8.167	6.85	11.25	2.28
2.083	2.85	5.167	9.13	8.250	6.85	11.33	2.28
2.167	2.85	5.250	9.13	8.333	4.00	11.42	2.28
2.250	2.85	5.333	13.70	8.417	4.00	11.50	2.28
2.333	3.42	5.417	13.70	8.500	4.00	11.58	2.28
2.417	3.42	5.500	13.70	8.583	4.00	11.67	2.28
2.500	3.42	5.583	13.70	8.667	4.00	11.75	2.28
2.583	3.42	5.667	13.70	8.750	4.00	11.83	2.28
2.667	3.42	5.750	13.70	8.833	4.00	11.92	2.28
2.750	3.42	5.833	54.80	8.917	4.00	12.00	2.28
2.833	3.42	5.917	54.80	9.000	4.00	12.08	2.28
2.917	3.42	6.000	54.80	9.083	4.00	12.17	2.28
3.000	3.42	6.083	150.69	9.167	4.00	12.25	2.28
3.083	3.42	6.167	150.69	9.250	4.00		

Unit Hyd Qpeak (cms)= 1.858

PEAK FLOW (cms)= 3.088 (i)
TIME TO PEAK (hrs)= 7.083
RUNOFF VOLUME (mm)= 67.382
TOTAL RAINFALL (mm)= 114.160
RUNOFF COEFFICIENT = 0.590

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0105)	ID= 1 DT= 5.0 min	Area	(ha)= 9.10	Curve Number	(CN)= 80.0
		Ia	(mm)= 7.00	# of Linear Res.(N)= 3.00	
		U.H. Tp(hrs)= 0.35			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.42	6.250	150.69	9.33	4.00
0.167	0.00	3.250	3.42	6.333	20.55	9.42	4.00
0.250	0.00	3.333	4.57	6.417	20.55	9.50	4.00
0.333	2.85	3.417	4.57	6.500	20.55	9.58	4.00
0.417	2.85	3.500	4.57	6.583	20.55	9.67	4.00
0.500	2.85	3.583	4.57	6.667	20.55	9.75	4.00
0.583	2.85	3.667	4.57	6.750	20.55	9.83	4.00
0.667	2.85	3.750	4.57	6.833	9.13	9.92	4.00
0.750	2.85	3.833	4.57	6.917	9.13	10.00	4.00
0.833	2.85	3.917	4.57	7.000	9.13	10.08	4.00
0.917	2.85	4.000	4.57	7.083	9.13	10.17	4.00
1.000	2.85	4.083	4.57	7.167	9.13	10.25	4.00
1.083	2.85	4.167	4.57	7.250	9.13	10.33	2.28
1.167	2.85	4.250	4.57	7.333	6.85	10.42	2.28
1.250	2.85	4.333	6.85	7.417	6.85	10.50	2.28
1.333	2.85	4.417	6.85	7.500	6.85	10.58	2.28
1.417	2.85	4.500	6.85	7.583	6.85	10.67	2.28
1.500	2.85	4.583	6.85	7.667	6.85	10.75	2.28
1.583	2.85	4.667	6.85	7.750	6.85	10.83	2.28
1.667	2.85	4.750	6.85	7.833	6.85	10.92	2.28
1.750	2.85	4.833	9.13	7.917	6.85	11.00	2.28
1.833	2.85	4.917	9.13	8.000	6.85	11.08	2.28
1.917	2.85	5.000	9.13	8.083	6.85	11.17	2.28
2.000	2.85	5.083	9.13	8.167	6.85	11.25	2.28
2.083	2.85	5.167	9.13	8.250	6.85	11.33	2.28
2.167	2.85	5.250	9.13	8.333	4.00	11.42	2.28
2.250	2.85	5.333	13.70	8.417	4.00	11.50	2.28
2.333	3.42	5.417	13.70	8.500	4.00	11.58	2.28
2.417	3.42	5.500	13.70	8.583	4.00	11.67	2.28
2.500	3.42	5.583	13.70	8.667	4.00	11.75	2.28
2.583	3.42	5.667	13.70	8.750	4.00	11.83	2.28
2.667	3.42	5.750	13.70	8.833	4.00	11.92	2.28
2.750	3.42	5.833	54.80	8.917	4.00	12.00	2.28
2.833	3.42	5.917	54.80	9.000	4.00	12.08	2.28
2.917	3.42	6.000	54.80	9.083	4.00	12.17	2.28
3.000	3.42	6.083	150.69	9.167	4.00	12.25	2.28
3.083	3.42	6.167	150.69	9.250	4.00		

Unit Hyd Qpeak (cms)= 1.649

PEAK FLOW (cms)= 2.425 (i)
TIME TO PEAK (hrs)= 6.667
RUNOFF VOLUME (mm)= 69.066
TOTAL RAINFALL (mm)= 114.160
RUNOFF COEFFICIENT = 0.605

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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     V    V   I    SSSSS  U   U    A    L                (v 6.2.2015)
     V    V   I    SS     U   U   A A   L
      V  V    I     SS    U   U  AAAAA  L
       V V    I      SS   U   U  A   A  L
        VV    I    SSSSS  UUUUU  A   A  LLLLL

      OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
     O   O    T      T    H   H   Y Y   MM MM  O   O
     O   O    T      T    H   H    Y    M   M  O   O
      OOO     T      T    H   H    Y    M   M   OOO
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***** D E T A I L E D O U T P U T *****

0.333	2.85	3.417	4.57	6.500	20.55	9.58	4.00
0.417	2.85	3.500	4.57	6.583	20.55	9.67	4.00
0.500	2.85	3.583	4.57	6.667	20.55	9.75	4.00
0.583	2.85	3.667	4.57	6.750	20.55	9.83	4.00
0.667	2.85	3.750	4.57	6.833	9.13	9.92	4.00
0.750	2.85	3.833	4.57	6.917	9.13	10.00	4.00
0.833	2.85	3.917	4.57	7.000	9.13	10.08	4.00
0.917	2.85	4.000	4.57	7.083	9.13	10.17	4.00
1.000	2.85	4.083	4.57	7.167	9.13	10.25	4.00
1.083	2.85	4.167	4.57	7.250	9.13	10.33	2.28
1.167	2.85	4.250	4.57	7.333	6.85	10.42	2.28
1.250	2.85	4.333	6.85	7.417	6.85	10.50	2.28
1.333	2.85	4.417	6.85	7.500	6.85	10.58	2.28
1.417	2.85	4.500	6.85	7.583	6.85	10.67	2.28
1.500	2.85	4.583	6.85	7.667	6.85	10.75	2.28
1.583	2.85	4.667	6.85	7.750	6.85	10.83	2.28
1.667	2.85	4.750	6.85	7.833	6.85	10.92	2.28
1.750	2.85	4.833	9.13	7.917	6.85	11.00	2.28
1.833	2.85	4.917	9.13	8.000	6.85	11.08	2.28
1.917	2.85	5.000	9.13	8.083	6.85	11.17	2.28
2.000	2.85	5.083	9.13	8.167	6.85	11.25	2.28
2.083	2.85	5.167	9.13	8.250	6.85	11.33	2.28
2.167	2.85	5.250	9.13	8.333	4.00	11.42	2.28
2.250	2.85	5.333	13.70	8.417	4.00	11.50	2.28
2.333	3.42	5.417	13.70	8.500	4.00	11.58	2.28
2.417	3.42	5.500	13.70	8.583	4.00	11.67	2.28
2.500	3.42	5.583	13.70	8.667	4.00	11.75	2.28
2.583	3.42	5.667	13.70	8.750	4.00	11.83	2.28
2.667	3.42	5.750	13.70	8.833	4.00	11.92	2.28
2.750	3.42	5.833	54.80	8.917	4.00	12.00	2.28
2.833	3.42	5.917	54.80	9.000	4.00	12.08	2.28
2.917	3.42	6.000	54.80	9.083	4.00	12.17	2.28
3.000	3.42	6.083	150.69	9.167	4.00	12.25	2.28
3.083	3.42	6.167	150.69	9.250	4.00		

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 1.269 (i)
TIME TO PEAK (hrs)= 6.417
RUNOFF VOLUME (mm)= 67.273
TOTAL RAINFALL (mm)= 114.160
RUNOFF COEFFICIENT = 0.589

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0030)					
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.
	ID1= 1 (0103):	31.63	1.760	7.42	65.71
	+ ID2= 2 (0104):	42.80	3.088	7.08	67.38
	ID = 3 (0030):	74.43	4.762	7.17	66.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)					
3 + 2 = 1		AREA	QPEAK	TPEAK	R.V.
	ID1= 3 (0030):	74.43	4.762	7.17	66.67
	+ ID2= 2 (0105):	9.10	1.269	6.42	67.27
	ID = 1 (0030):	83.53	5.282	7.00	66.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0101)	ID= 1 DT= 5.0 min	Area	(ha)= 22.02	Curve Number	(CN)= 81.0
		Ia	(mm)= 6.77	# of Linear Res.(N)= 3.00	
		U.H. Tp(hrs)= 0.51			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.42	6.250	150.69	9.33	4.00
0.167	0.00	3.250	3.42	6.333	20.55	9.42	4.00
0.250	0.00	3.333	4.57	6.417	20.55	9.50	4.00
0.333	2.85	3.417	4.57	6.500	20.55	9.58	4.00
0.417	2.85	3.500	4.57	6.583	20.55	9.67	4.00
0.500	2.85	3.583	4.57	6.667	20.55	9.75	4.00
0.583	2.85	3.667	4.57	6.750	20.55	9.83	4.00
0.667	2.85	3.750	4.57	6.833	9.13	9.92	4.00
0.750	2.85	3.833	4.57	6.917	9.13	10.00	4.00
0.833	2.85	3.917	4.57	7.000	9.13	10.08	4.00
0.917	2.85	4.000	4.57	7.083	9.13	10.17	4.00
1.000	2.85	4.083	4.57	7.167	9.13	10.25	4.00
1.083	2.85	4.167	4.57	7.250	9.13	10.33	2.28
1.167	2.85	4.250	4.57	7.333	6.85	10.42	2.28
1.250	2.85	4.333	6.85	7.417	6.85	10.50	2.28
1.333	2.85	4.417	6.85	7.500	6.85	10.58	2.28
1.417	2.85	4.500	6.85	7.583	6.85	10.67	2.28
1.500	2.85	4.583	6.85	7.667	6.85	10.75	2.28

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
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Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\7eec5176-fb62-4e8a-8fc3-2ecf89d840ef\sc

DATE: 11-27-2024 TIME: 08:40:17

USER:

COMMENTS: ____

****
** SIMULATION : 3A - 2yr 24hr 15min SCS Type **
****

| READ STORM |
| Ptotal= 69.75 mm |

Filename: C:\Users\jfletcher\AppData\Local\Temp\c740c1c5-319b-42e5-9217-47a86f8e726c\b6615046
Comments: 2yr 24hr 15min SCS Type II (MTO)

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	1.26	12.50	10.04	18.75	1.26
0.25	0.77	6.50	1.26	12.75	5.16	19.00	1.26
0.50	0.77	6.75	1.26	13.00	5.16	19.25	1.26
0.75	0.77	7.00	1.26	13.25	3.77	19.50	1.26
1.00	0.77	7.25	1.53	13.50	3.77	19.75	1.26
1.25	0.77	7.50	1.53	13.75	2.93	20.00	1.26
1.50	0.77	7.75	1.53	14.00	2.93	20.25	0.84
1.75	0.77	8.00	1.53	14.25	2.09	20.50	0.84
2.00	0.77	8.25	1.81	14.50	2.09	20.75	0.84
2.25	0.91	8.50	1.81	14.75	2.09	21.00	0.84
2.50	0.91	8.75	1.95	15.00	2.09	21.25	0.84
2.75	0.91	9.00	1.95	15.25	2.09	21.50	0.84
3.00	0.91	9.25	2.23	15.50	2.09	21.75	0.84
3.25	0.91	9.50	2.23	15.75	2.09	22.00	0.84
3.50	0.91	9.75	2.51	16.00	2.09	22.25	0.84
3.75	0.91	10.00	2.51	16.25	1.26	22.50	0.84
4.00	0.91	10.25	3.21	16.50	1.26	22.75	0.84
4.25	1.12	10.50	3.21	16.75	1.26	23.00	0.84
4.50	1.12	10.75	4.32	17.00	1.26	23.25	0.84
4.75	1.12	11.00	4.32	17.25	1.26	23.50	0.84
5.00	1.12	11.25	6.70	17.50	1.26	23.75	0.84
5.25	1.12	11.50	6.70	17.75	1.26	24.00	0.84
5.50	1.12	11.75	20.65	18.00	1.26		
5.75	1.12	12.00	85.37	18.25	1.26		
6.00	1.12	12.25	10.04	18.50	1.26		

| CALIB |
| NASHYD (0102) |
| ID= 1 DT= 5.0 min |

Area (ha)= 58.69 Curve Number (CN)= 81.0
Ia (mm)= 6.79 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.95

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.12	12.250	85.37	18.33	1.26
0.167	0.00	6.250	1.12	12.333	10.05	18.42	1.26
0.250	0.00	6.333	1.26	12.417	10.04	18.50	1.26
0.333	0.77	6.417	1.26	12.500	10.04	18.58	1.26
0.417	0.77	6.500	1.26	12.583	10.04	18.67	1.26
0.500	0.77	6.583	1.26	12.667	10.04	18.75	1.26
0.583	0.77	6.667	1.26	12.750	10.04	18.83	1.26
0.667	0.77	6.750	1.26	12.833	5.16	18.92	1.26
0.750	0.77	6.833	1.26	12.917	5.16	19.00	1.26
0.833	0.77	6.917	1.26	13.000	5.16	19.08	1.26
0.917	0.77	7.000	1.26	13.083	5.16	19.17	1.26
1.000	0.77	7.083	1.26	13.167	5.16	19.25	1.26
1.083	0.77	7.167	1.26	13.250	5.16	19.33	1.26
1.167	0.77	7.250	1.26	13.333	3.77	19.42	1.26
1.250	0.77	7.333	1.53	13.417	3.77	19.50	1.26
1.333	0.77	7.417	1.53	13.500	3.77	19.58	1.26
1.417	0.77	7.500	1.53	13.583	3.77	19.67	1.26
1.500	0.77	7.583	1.53	13.667	3.77	19.75	1.26
1.583	0.77	7.667	1.53	13.750	3.77	19.83	1.26
1.667	0.77	7.750	1.53	13.833	2.93	19.92	1.26
1.750	0.77	7.833	1.53	13.917	2.93	20.00	1.26
1.833	0.77	7.917	1.53	14.000	2.93	20.08	1.26
1.917	0.77	8.000	1.53	14.083	2.93	20.17	1.26
2.000	0.77	8.083	1.53	14.167	2.93	20.25	1.26
2.083	0.77	8.167	1.53	14.250	2.93	20.33	0.84
2.167	0.77	8.250	1.53	14.333	2.09	20.42	0.84
2.250	0.77	8.333	1.81	14.417	2.09	20.50	0.84
2.333	0.91	8.417	1.81	14.500	2.09	20.58	0.84
2.417	0.91	8.500	1.81	14.583	2.09	20.67	0.84
2.500	0.91	8.583	1.81	14.667	2.09	20.75	0.84
2.583	0.91	8.667	1.81	14.750	2.09	20.83	0.84
2.667	0.91	8.750	1.81	14.833	2.09	20.92	0.84
2.750	0.91	8.833	1.95	14.917	2.09	21.00	0.84
2.833	0.91	8.917	1.95	15.000	2.09	21.08	0.84
2.917	0.91	9.000	1.95	15.083	2.09	21.17	0.84
3.000	0.91	9.083	1.95	15.167	2.09	21.25	0.84
3.083	0.91	9.167	1.95	15.250	2.09	21.33	0.84
3.167	0.91	9.250	1.95	15.333	2.09	21.42	0.84
3.250	0.91	9.333	2.23	15.417	2.09	21.50	0.84
3.333	0.91	9.417	2.23	15.500	2.09	21.58	0.84
3.417	0.91	9.500	2.23	15.583	2.09	21.67	0.84
3.500	0.91	9.583	2.23	15.667	2.09	21.75	0.84
3.583	0.91	9.667	2.23	15.750	2.09	21.83	0.84
3.667	0.91	9.750	2.23	15.833	2.09	21.92	0.84
3.750	0.91	9.833	2.51	15.917	2.09	22.00	0.84
3.833	0.91	9.917	2.51	16.000	2.09	22.08	0.84
3.917	0.91	10.000	2.51	16.083	2.09	22.17	0.84
4.000	0.91	10.083	2.51	16.167	2.09	22.25	0.84
4.083	0.91	10.167	2.51	16.250	2.09	22.33	0.84
4.167	0.91	10.250	2.51	16.333	1.26	22.42	0.84
4.250	0.91	10.333	3.21	16.417	1.26	22.50	0.84
4.333	1.12	10.417	3.21	16.500	1.26	22.58	0.84
4.417	1.12	10.500	3.21	16.583	1.26	22.67	0.84
4.500	1.12	10.583	3.21	16.667	1.26	22.75	0.84
4.583	1.12	10.667	3.21	16.750	1.26	22.83	0.84
4.667	1.12	10.750	3.21	16.833	1.26	22.92	0.84
4.750	1.12	10.833	4.32	16.917	1.26	23.00	0.84
4.833	1.12	10.917	4.32	17.000	1.26	23.08	0.84
4.917	1.12	11.000	4.32	17.083	1.26	23.17	0.84
5.000	1.12	11.083	4.32	17.167	1.26	23.25	0.84
5.083	1.12	11.167	4.32	17.250	1.26	23.33	0.84
5.167	1.12	11.250	4.32	17.333	1.26	23.42	0.84
5.250	1.12	11.333	6.70	17.417	1.26	23.50	0.84
5.333	1.12	11.417	6.70	17.500	1.26	23.58	0.84
5.417	1.12	11.500	6.70	17.583	1.26	23.67	0.84
5.500	1.12	11.583	6.70	17.667	1.26	23.75	0.84
5.583	1.12	11.667	6.70	17.750	1.26	23.83	0.84
5.667	1.12	11.750	6.70	17.833	1.26	23.92	0.84
5.750	1.12	11.833	20.64	17.917	1.26	24.00	0.84
5.833	1.12	11.917	20.65	18.000	1.26	24.08	0.84
5.917	1.12	12.000	20.65	18.083	1.26	24.17	0.84
6.000	1.12	12.083	85.37	18.167	1.26	24.25	0.84
6.083	1.12	12.167	85.37	18.250	1.26		

Unit Hyd Qpeak (cms)= 2.360

PEAK FLOW (cms)= 1.605 (i)
TIME TO PEAK (hrs)= 13.167
RUNOFF VOLUME (mm)= 32.348
TOTAL RAINFALL (mm)= 69.750
RUNOFF COEFFICIENT = 0.464

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0103) |
| ID= 1 DT= 5.0 min |

Area (ha)= 31.63 Curve Number (CN)= 79.0
Ia (mm)= 7.03 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.19

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.12	12.250	85.37	18.33	1.26
0.167	0.00	6.250	1.12	12.333	10.05	18.42	1.26
0.250	0.00	6.333	1.26	12.417	10.04	18.50	1.26
0.333	0.77	6.417	1.26	12.500	10.04	18.58	1.26
0.417	0.77	6.500	1.26	12.583	10.04	18.67	1.26
0.500	0.77	6.583	1.26	12.667	10.04	18.75	1.26
0.583	0.77	6.667	1.26	12.750	10.04	18.83	1.26
0.667	0.77	6.750	1.26	12.833	5.16	18.92	1.26
0.750	0.77	6.833	1.26	12.917	5.16	19.00	1.26
0.833	0.77	6.917	1.26	13.000	5.16	19.08	1.26
0.917	0.77	7.000	1.26	13.083	5.16	19.17	1.26
1.000	0.77	7.083	1.26	13.167	5.16	19.25	1.26
1.083	0.77	7.167	1.26	13.250	5.16	19.33	1.26
1.167	0.77	7.250	1.26	13.333	3.77	19.42	1.26
1.250	0.77	7.333	1.53	13.417	3.77	19.50	1.26
1.333	0.77	7.417	1.53	13.500	3.77	19.58	1.26
1.417	0.77	7.500	1.53	13.583	3.77	19.67	1.26
1.500	0.77	7.583	1.53	13.667	3.77	19.75	1.26
1.583	0.77	7.667	1.53	13.750	3.77	19.83	1.26
1.667	0.77	7.750	1.53	13.833	2.93	19.92	1.26
1.750	0.77	7.833	1.53	13.917	2.93	20.00	1.26
1.833	0.77	7.917	1.53	14.000	2.93	20.08	1.26
1.917	0.77	8.000	1.53	14.083	2.93	20.17	1.26
2.000	0.77	8.083	1.53	14.167	2.93	20.25	1.26
2.083	0.77	8.167	1.53	14.250	2.93	20.33	0.84
2.167	0.77	8.250	1.53	14.333	2.09	20.42	0.84
2.250	0.77	8.333	1.81	14.417	2.09	20.50	0.84
2.333	0.91	8.417	1.81	14.500	2.09	20.58	0.84
2.417	0.91	8.500	1.81	14.583	2.09	20.67	0.84
2.500	0.91	8.583	1.81	14.667	2.09	20.75	0.84
2.583	0.91	8.667	1.81	14.750	2.09	20.83	0.84
2.667	0.91	8.750	1.81	14.833	2.09	20.92	0.84
2.750	0.91	8.833	1.95	14.917	2.09	21.00	0.84
2.833	0.91	8.917	1.95	15.000	2.09	21.08	0.84
2.917	0.91	9.000	1.95	15.083	2.09	21.17	0.84
3.000	0.91	9.083	1.95	15.167	2.09	21.25	0.84
3.083	0.91	9.167	1.95	15.250	2.09	21.33	0.84
3.167	0.91	9.250	1.95	15.333	2.09	21.42	0.84
3.250	0.91	9.333	2.23	15.417	2.09	21.50	0.84
3.333	0.91	9.417	2.23	15.500	2.09	21.58	0.84
3.417	0.91	9.500	2.23	15.583	2.09	21.67	0.84
3.500	0.91	9.583	2.23	15.667	2.09	21.75	0.84
3.583	0.91	9.667	2.23	15.750	2.09	21.83	0.84
3.667	0.91	9.750	2.23	15.833	2.09	21.92	0.84
3.750	0.91	9.833	2.51	15.917	2.09	22.00	0.84
3.833	0.91	9.917	2.51	16.000	2.09	22.08	0.84
3.917	0.91	10.000	2.51	16.083	2.09	22.17	0.84
4.000	0.91	10.083	2.51	16.167	2.09	22.25	0.84
4.083	0.91	10.167	2.51	16.250	2.09	22.33	0.84
4.167	0.91	10.250	2.51	16.333	1.26	22.42	0.84
4.250	0.91	10.333	3.21	16.417	1.26	22.50	0.84
4.333	1.12	10.417	3.21	16.500	1.26	22.58	0.84
4.417	1.12	10.500	3.21	16.583	1.26	22.67	0.84
4.500	1.12	10.583	3.21	16.667	1.26	22.75	0.84
4.583	1.12	10.667	3.21	16.750	1.26	22.83	0.84
4.667	1.12	10.750	3.21	16.833	1.26	22.92	0.84
4.750	1.12	10.833	4.32	16.917	1.26	23.00	0.84
4.833	1.12	10.917	4.32	17.000	1.26	23.08	0.84
4.917	1.12	11.000	4.32	17.083	1.26	23.17	0.84
5.000	1.12	11.083	4.32	17.167	1.26	23.25	0.84
5.083	1.12	11.167	4.32	17.250	1.26	23.33	0.84
5.167	1.12	11.250	4.32	17.333	1.26	23.42	0.84
5.250	1.12	11.333	6.70	17.417	1.26	23.50	0.84
5.333	1.12	11.417	6.70	17.500	1.26	23.58	0.84
5.417	1.12	11.500	6.70	17.583	1.26	23.67	0.84
5.500	1.12	11.583	6.70	17.667	1.26	23.75	0.84
5.583	1.12	11.667	6.70	17.750	1.26	23.83	0.84
5.667	1.12	11.750	6.70	17.833	1.26	23.92	0.84
5.750	1.12	11.833	20.64	17.917	1.26	24.00	0.84
5.833	1.12	11.917	20.65	18.000	1.26	24.08	0.84
5.917	1.12	12.000	20.65	18.083	1.26	24.17	0.84
6.000	1.12	12.083	85.37	18.167	1.26	24.25	0.84
6.083	1.12	12.167	85.37	18.250	1.26		

Unit Hyd Qpeak (cms)= 1.015

PEAK FLOW (cms)= 0.674 (i)
TIME TO PEAK (hrs)= 13.417
RUNOFF VOLUME (mm)= 30.204
TOTAL RAINFALL (mm)= 69.750
RUNOFF COEFFICIENT = 0.433

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0104) |
| ID= 1 DT= 5.0 min |

Area (ha)= 42.80 Curve Number (CN)= 80.0
Ia (mm)= 6.89 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.88

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.12	12.250	85.37	18.33	1.26
0.167	0.00	6.250	1.12	12.333	10.05	18.42	1.26
0.250	0.00	6.333	1.26	12.417	10.04	18.50	1.26
0.333	0.77	6.417	1.26	12.500	10.04	18.58	1.26
0.417	0.77	6.500	1.26	12.583	10.04	18.67	1.26
0.500	0.77	6.583	1.26	12.667	10.04	18.75	1.26
0.583	0.77	6.667	1.26	12.750	10.04	18.83	1.26
0.667	0.77	6.750	1.26	12.833	5.16	18.92	1.26
0.750	0.77	6.833	1.26	12.917	5.16	19.00	1.26
0.833	0.77	6.917	1.26	13.000	5.16	19.08	1.26
0.917	0.77	7.000	1.26	13.083	5.16	19.17	1.26
1.000	0.77	7.083	1.26	13.167	5.16	19.25	1.26
1.083	0.77	7.167	1.26	13.250	5.16	19.33	1.26
1.167	0.77	7.250	1.26	13.333	3.77	19.42	1.26
1.250	0.77	7.333	1.53	13.417	3.77	19.50	1.26
1.333	0.77	7.417	1.53	13.500	3.77	19.58	1.26
1.417	0.77	7.500	1.53	13.583	3.77	19.67	1.26
1.500	0.77	7.583	1.53	13.667	3.77	19.75	1.26
1.583	0.77	7.667	1.53	13.750	3.77	19.83	1.26
1.667	0.77	7.750	1.53	13.833	2.93	19.92	1.26
1.750	0.77	7.833	1.53	13.917	2.93	20.00	1.26
1.833	0.77	7.917	1.53	14.000	2.93	20.08	1.26
1.917	0.77	8.000	1.53	14.083	2.93	20.17	1.26
2.000	0.77	8.083	1.53	14.167	2.93	20.25	1.26
2.083	0.77	8.167	1.53	14.250	2.93	20.33	0.84
2.167	0.77	8.250	1.53	14.333	2.09	20.42	0.84
2.250	0.77	8.333	1.81	14.417	2.09	20.50	0.84
2.333	0.91	8.417	1.81	14.500	2.09	20.58	0.84
2.417	0.91	8.500	1.81	14.583	2.09	20.67	0.84
2.500	0.91	8.583	1.81	14.667	2.09	20.75	0.84
2.583	0.91	8.667	1.81	14.750	2.09	20.83	0.84
2.667	0.91	8.750	1.81	14.833	2.09	20.92	0.84
2.750	0.91	8.833	1.95	14.917	2.09	21.00	0.84
2.833	0.91	8.917	1.95	15.000	2.09	21.08	0.84
2.917	0.91	9.000	1.95	15.083	2.09	21.17	0.84
3.000	0.91	9.083	1.95	15.167	2.09	21.25	0.84
3.083	0.91	9.167	1.95	15.250	2.09	21.33	0.84
3.167	0.91	9.250	1.95	15.333	2.09	21.42	0.84
3.250	0.91	9.333	2.23	15.417	2.09	21.50	0.84
3.333	0.91	9.417	2.23	15.500	2.09	21.58	0.84
3.417	0.91	9.500	2.23	15.583	2.09	21.67	0.84
3.500	0.91	9.583	2.23	15.667	2.09	21.75	0.84
3.583	0.91	9.667	2.23	15.750	2.09	21.83	0.84
3.667	0.91	9.750	2.23	15.833	2.09	21.92	0.84
3.750	0.91	9.833	2.51	15.917	2.09	22.00	0.84
3.833	0.91	9.917	2.51	16.000	2.09	22.08	0.84
3.917	0.91	10.000	2.51	16.083	2.09	22.17	0.84
4.000	0.91	10.083	2.51	16.167	2.09	22.25	0.84
4.083	0.91	10.167	2.51	16.250	2.09	22.33	0.84
4.167	0.91	10.250	2.51	16.333	1.26	22.42	0.84
4.250	0.91	10.333	3.21	16.417	1.26	22.50	0.84
4.333	1.12	10.417	3.21	16.500	1.26	22.58	0.84
4.417	1.12	10.500	3.21	16.583	1.26	22.67	0.84
4.500	1.12	10.583	3.21	16.667	1.26	22.75	0.84
4.583	1.12	10.667	3.21	16.750	1.26	22.83	0.84
4.667	1.12	10.750	3.21	16.833	1.26	22.92	0.84
4.750	1.12	10.833	4.32	16.917	1.26	23.00	0.84
4.833	1.12	10.917	4.32	17.000	1.26	23.08	0.84
4.917	1.12	11.000	4.32	17.083	1.26	23.17	0.84
5.000	1.12	11.083	4.32	17.167	1.26	23.25	0.84
5.083	1.12	11.167	4.32	17.250	1.26	23.33	0.84
5.167	1.12	11.250	4.32	17.333	1.26	23.42	0.84
5.250	1.12	11.333	6.70	17.417	1.26	23.50	0.84
5.333	1.12	11.417	6.70	17.500	1.26	23.58	0.84
5.417	1.12	11.500	6.70	17.583	1.26	23.67	0.84
5.500	1.12	11.583	6.70	17.667	1.26	23.75	0.84
5.583	1.12	11.667	6.70	17.750	1.26	23.83	0.84
5.667	1.12	11.750	6.70	17.833	1.26	23.92	0.84
5.750	1.12	11.833	20.64	17.917	1.26	24.00	0.84
5.833	1.12	11.917	20.65	18.000	1.26	24.08	0.84
5.917	1.12	12.000	20.65	18.083	1.26	24.17	0.84
6.000	1.12	12.083	85.37	18.167	1.26	24.25	0.84
6.083	1.12	12.167	85.37	18.250	1.26		

Unit Hyd Qpeak (cms)= 1.858

PEAK FLOW (cms)= 1.194 (i)
TIME TO PEAK (hrs)= 13.083
RUNOFF VOLUME (mm)= 31.271
TOTAL RAINFALL (mm)= 69.750
RUNOFF COEFFICIENT = 0.448

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0105) |
| ID= 1 DT= 5.0 min |

Area (ha)= 9.10 Curve Number (CN)= 80.0
Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.35

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.12	12.250	85.37	18.33	1.26
0.167	0.00	6.250	1.12	12.333	10.05	18.42	1.26
0.250	0.00	6.333	1.26	12.417	10.04	18.50	1.26
0.333	0.77	6.417	1.26	12.500	10.04	18.58	1.26
0.417	0.77	6.500	1.26	12.583	10.04	18.67	1.26
0.500	0.77	6.583	1.26	12.667	10.04	18.75	1.26
0.583	0.77	6.667	1.26	12.750	10.04	18.83	1.26
0.667	0.77	6.750	1.26	12.833	5.16	18.92	1.26
0.750	0.77	6.833	1.26	12.917	5.16	19.00	1.26
0.833	0.77	6.917	1.26	13.000	5.16	19.08	1.26
0.917	0.77	7.000	1.26	13.083	5.16	19.17	1.26
1.000	0.77	7.083	1.26	13.167	5.16	19.25	1.26
1.083	0.77	7.167	1.26	13.250	5.16	19.33	1.26
1.167	0.77	7.250	1.26	13.333	3.77	19.42	1.26
1.250	0.77	7.333	1.53	13.417	3.77	19.50	1.26
1.333	0.77	7.417	1.53	13.500	3.77	19.58	1.26
1.417	0.77	7.500	1.53	13.583	3.77	19.67	1.26
1.500	0.77	7.583	1.53	13.667	3.77	19.75	1.26
1.583	0.77	7.667	1.53	13.750	3.77	19.83	1.26
1.667	0.77	7.750	1.53	13.833	2.93	19.92	1.26
1.750	0.77	7.833	1.53	13.917	2.93	20.00	1.26
1.833	0.77	7.917	1.53	14.000	2.93	20.08	1.26
1.917	0.77	8.000	1.53	14.083	2.93	20.17	1.26
2.000	0.77	8.083	1.53	14.167	2.93	20.25	1.26
2.083	0.77	8.167	1.53	14.250	2.93	20.33	0.84
2.167	0.77	8.250	1.53	14.333	2.09	20.42	0.84
2.250	0.77	8.333	1.81	14.417	2.09	20.50	0.84
2.333	0.91	8.417	1.81	14.500	2.09	20.58	0.84
2.417	0.91	8.500	1.81	14.583	2.09	20.67	0.84
2.500	0.91	8.583	1.81	14.667	2.09	20.75	0.84
2.583	0.91	8.667	1.81	14.750	2.09	20.83	0.84
2.667	0.91	8.750	1.81	14.833	2.09	20.92	0.84
2.750	0.91	8.833	1.95	14.917	2.09	21.00	0.84
2.833	0.91	8.917	1.95	15.000	2.09	21.08	0.84
2.917	0.91	9.000	1.95	15.083	2.09	21.17	0.84
3.000	0.91	9.083	1.95	15.167	2.09	21.25	0.84
3.083	0.91	9.167	1.95	15.250	2.09	21.33	0.84
3.167	0.91	9.250	1.95	15.333	2.09	21.42	0.84
3.250	0.91	9.333	2.23	15.417	2.09	21.50	0.84
3.333	0.91	9.417	2.23	15.500	2.09	21.58	0.84
3.417	0.91	9.500	2.23	15.583	2.09	21.67	0.84
3.500	0.91	9.583	2.23	15.667	2.09	21.75	0.84
3.583	0.91	9.667	2.23	15.750	2.09	21.83	0.84
3.667	0.91	9.750	2.23	15.833	2.09	21.92	0.84
3.750	0.91	9.833	2.51	15.917	2.09	22.00	0.84
3.833	0.91	9.917	2.51	16.000	2.09	22.08	0.84
3.917	0.91	10.000	2.51	16.083	2.09	22.17	0.84
4.000	0.91	10.083	2.51	16.167	2.09	22.25	0.84
4.083	0.91	10.167	2.51	16.250	2.09	22.33	0.84
4.167	0.91	10.250	2.51	16.333	1.26	22.42	0.84
4.250	0.91	10.333	3.21	16.417	1.26	22.50	0.84
4.333	1.12	10.417	3.21	16.500	1.26	22.58	0.84
4.417	1.12	10.500	3.21	16.583	1.26	22.67	0.84
4.500	1.12	10.583	3.21	16.667	1.26	22.75	0.84
4.583	1.12	10.667	3.21	16.750	1.26	22.83	0.84
4.667	1.12	10.750	3.21	16.833	1.26	22.92	0.84
4.750	1.12	10.833	4.32	16.917	1.26	23.00	0.84
4.833	1.12	10.917	4.32	17.000	1.26	23.08	0.84
4.917	1.12	11.000	4.32	17.083	1.26	23.17	0.84
5.000	1.12	11.083	4.32	17.167	1.26	23.25	0.84
5.083	1.12	11.167	4.32	17.250	1.26	23.33	0.84
5.167	1.12	11.250	4.32	17.333	1.26	23.42	0.84
5.250	1.12	11.333	6.70	17.417	1.26	23.50	0.84
5.333	1.12	11.417	6.70	17.500	1.26	23.58	0.84
5.417	1.12	11.500	6.70	17.583	1.26	23.67	0.84
5.500	1.12	11.583	6.70	17.667	1.26	23.75	0.84
5.583	1.12	11.667	6.70	17.750	1.26	23.83	0.84
5.667	1.12	11.750	6.70	17.833	1.26	23.92	0.84
5.750	1.12	11.833	20.64	17.917	1.26	24.00	0.84
5.833	1.12	11.917	20.65	18.000	1.26	24.08	0.84
5.917	1.12	12.000	20.65	18.083	1.26	24.17	0.84
6.000	1.12	12.083	85.37	18.167	1.26	24.25	0.84
6.083	1.12	12.167	85.37	18.250	1.26		

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 0.498 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 31.182
TOTAL RAINFALL (mm)= 69.750
RUNOFF COEFFICIENT = 0.447

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD  (  0030)|
|   1 +  2 =  3    |       AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0103):    31.63    0.674    13.42    30.20
     + ID2= 2 (  0104):    42.80    1.194    13.08    31.27
       ========================================================
       ID = 3 (  0030):    74.43    1.833    13.17    30.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ADD HYD  (  0030)|
|   3 +  2 =  1    |       AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0030):    74.43    1.833    13.17    30.82
     + ID2= 2 (  0105):     9.10    0.498    12.50    31.18
       ========================================================
       ID = 1 (  0030):    83.53    2.031    13.00    30.86

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| CALIB         |
| NASHYD  (  0101)|  Area    (ha)=  22.02   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |  Ia      (mm)=   6.77   # of Linear Res.(N)= 3.00
-------------------  U.H. Tp(hrs)=   0.51

          NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
   0.083    0.00 | 6.167    1.12 |12.250   85.37 | 18.33    1.26
   0.167    0.00 | 6.250    1.12 |12.333   10.05 | 18.42    1.26
   0.250    0.00 | 6.333    1.26 |12.417   10.04 | 18.50    1.26
   0.333    0.77 | 6.417    1.26 |12.500   10.04 | 18.58    1.26
   0.417    0.77 | 6.500    1.26 |12.583   10.04 | 18.67    1.26
   0.500    0.77 | 6.583    1.26 |12.667   10.04 | 18.75    1.26
   0.583    0.77 | 6.667    1.26 |12.750   10.04 | 18.83    1.26
   0.667    0.77 | 6.750    1.26 |12.833    5.16 | 18.92    1.26
   0.750    0.77 | 6.833    1.26 |12.917    5.16 | 19.00    1.26
   0.833    0.77 | 6.917    1.26 |13.000    5.16 | 19.08    1.26
   0.917    0.77 | 7.000    1.26 |13.083    5.16 | 19.17    1.26
   1.000    0.77 | 7.083    1.26 |13.167    5.16 | 19.25    1.26
   1.083    0.77 | 7.167    1.26 |13.250    5.16 | 19.33    1.26
   1.167    0.77 | 7.250    1.26 |13.333    3.77 | 19.42    1.26
   1.250    0.77 | 7.333    1.53 |13.417    3.77 | 19.50    1.26
   1.333    0.77 | 7.417    1.53 |13.500    3.77 | 19.58    1.26
   1.417    0.77 | 7.500    1.53 |13.583    3.77 | 19.67    1.26
   1.500    0.77 | 7.583    1.53 |13.667    3.77 | 19.75    1.26
   1.583    0.77 | 7.667    1.53 |13.750    3.77 | 19.83    1.26
   1.667    0.77 | 7.750    1.53 |13.833    2.93 | 19.92    1.26
   1.750    0.77 | 7.833    1.53 |13.917    2.93 | 20.00    1.26
   1.833    0.77 | 7.917    1.53 |14.000    2.93 | 20.08    1.26
   1.917    0.77 | 8.000    1.53 |14.083    2.93 | 20.17    1.26
   2.000    0.77 | 8.083    1.53 |14.167    2.93 | 20.25    1.26
   2.083    0.77 | 8.167    1.53 |14.250    2.93 | 20.33    0.84
   2.167    0.77 | 8.250    1.53 |14.333    2.09 | 20.42    0.84
   2.250    0.77 | 8.333    1.81 |14.417    2.09 | 20.50    0.84
   2.333    0.91 | 8.417    1.81 |14.500    2.09 | 20.58    0.84
   2.417    0.91 | 8.500    1.81 |14.583    2.09 | 20.67    0.84
   2.500    0.91 | 8.583    1.81 |14.667    2.09 | 20.75    0.84
   2.583    0.91 | 8.667    1.81 |14.750    2.09 | 20.83    0.84
   2.667    0.91 | 8.750    1.81 |14.833    2.09 | 20.92    0.84
   2.750    0.91 | 8.833    1.95 |14.917    2.09 | 21.00    0.84
   2.833    0.91 | 8.917    1.95 |15.000    2.09 | 21.08    0.84
   2.917    0.91 | 9.000    1.95 |15.083    2.09 | 21.17    0.84
   3.000    0.91 | 9.083    1.95 |15.167    2.09 | 21.25    0.84
   3.083    0.91 | 9.167    1.95 |15.250    2.09 | 21.33    0.84
   3.167    0.91 | 9.250    1.95 |15.333    2.09 | 21.42    0.84
   3.250    0.91 | 9.333    2.23 |15.417    2.09 | 21.50    0.84
   3.333    0.91 | 9.417    2.23 |15.500    2.09 | 21.58    0.84
   3.417    0.91 | 9.500    2.23 |15.583    2.09 | 21.67    0.84
   3.500    0.91 | 9.583    2.23 |15.667    2.09 | 21.75    0.84
   3.583    0.91 | 9.667    2.23 |15.750    2.09 | 21.83    0.84
   3.667    0.91 | 9.750    2.23 |15.833    2.09 | 21.92    0.84
   3.750    0.91 | 9.833    2.51 |15.917    2.09 | 22.00    0.84
   3.833    0.91 | 9.917    2.51 |16.000    2.09 | 22.08    0.84
   3.917    0.91 |10.000    2.51 |16.083    2.09 | 22.17    0.84
   4.000    0.91 |10.083    2.51 |16.167    2.09 | 22.25    0.84
   4.083    0.91 |10.167    2.51 |16.250    2.09 | 22.33    0.84
   4.167    0.91 |10.250    2.51 |16.333    1.26 | 22.42    0.84
   4.250    0.91 |10.333    3.21 |16.417    1.26 | 22.50    0.84
   4.333    1.12 |10.417    3.21 |16.500    1.26 | 22.58    0.84
   4.417    1.12 |10.500    3.21 |16.583    1.26 | 22.67    0.84
   4.500    1.12 |10.583    3.21 |16.667    1.26 | 22.75    0.84
   4.583    1.12 |10.667    3.21 |16.750    1.26 | 22.83    0.84
   4.667    1.12 |10.750    3.21 |16.833    1.26 | 22.92    0.84
   4.750    1.12 |10.833    4.32 |16.917    1.26 | 23.00    0.84
   4.833    1.12 |10.917    4.32 |17.000    1.26 | 23.08    0.84
   4.917    1.12 |11.000    4.32 |17.083    1.26 | 23.17    0.84
   5.000    1.12 |11.083    4.32 |17.167    1.26 | 23.25    0.84
   5.083    1.12 |11.167    4.32 |17.250    1.26 | 23.33    0.84
   5.167    1.12 |11.250    4.32 |17.333    1.26 | 23.42    0.84
   5.250    1.12 |11.333    6.70 |17.417    1.26 | 23.50    0.84
   5.333    1.12 |11.417    6.70 |17.500    1.26 | 23.58    0.84
   5.417    1.12 |11.500    6.70 |17.583    1.26 | 23.67    0.84
   5.500    1.12 |11.583    6.70 |17.667    1.26 | 23.75    0.84
   5.583    1.12 |11.667    6.70 |17.750    1.26 | 23.83    0.84
   5.667    1.12 |11.750    6.70 |17.833    1.26 | 23.92    0.84
   5.750    1.12 |11.833   20.64 |17.917    1.26 | 24.00    0.84
   5.833    1.12 |11.917   20.65 |18.000    1.26 | 24.08    0.84
   5.917    1.12 |12.000   20.65 |18.083    1.26 | 24.17    0.84
   6.000    1.12 |12.083   85.37 |18.167    1.26 | 24.25    0.84
   6.083    1.12 |12.167   85.37 |18.250    1.26 |

     Unit Hyd Qpeak  (cms)=   1.649

     PEAK FLOW      (cms)=   0.955 (i)
     TIME TO PEAK   (hrs)=  12.667
     RUNOFF VOLUME   (mm)=  32.362
     TOTAL RAINFALL  (mm)=  69.750
     RUNOFF COEFFICIENT   =   0.464

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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        V    V   I    SSSSS  U   U    A    L                (v 6.2.2015)
        V    V   I    SS     U   U   A A   L
         V  V    I     SS    U   U  AAAAA  L
         V  V    I      SS   U   U  A   A  L
          VV     I    SSSSS  UUUU  A   A  LLLLL

          OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
         O   O    T      T    H   H   Y Y   MM MM  O   O
         O   O    T      T    HHHHH    Y    M M M  O   O
          OOO     T      T    H   H    Y    M   M   OOO
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                  ***** D E T A I L E D   O U T P U T *****

   Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\WO2\voin.dat

   Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\39
c14ac0-1c64-42f3-86b4-e57cdcb0af21\sc
   Summary filename:

C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\39
c14ac0-1c64-42f3-86b4-e57cdcb0af21\sc

DATE: 11-27-2024                       TIME: 08:40:17

USER:


COMMENTS: _____

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  **********************************************
  ** SIMULATION : 3B - 5yr 24hr 15min SCS Type  **
  **********************************************


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|    READ STORM    |    Filename: C:\Users\jfletcher\AppD
|                  |              ata\Local\Temp\
|                  |              c748c1c5-319b-42e5-9217-47a86f8e726c\fa96227f
| Ptotal= 88.95 mm |    Comments: 5yr 24hr 15min SCS Type II (MTO)
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                          ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
   0.00     0.00 |  6.25    1.60 | 12.50   12.81 | 18.75    1.60
   0.25     0.98 |  6.50    1.60 | 12.75    6.58 | 19.00    1.60
   0.50     0.98 |  6.75    1.60 | 13.00    6.58 | 19.25    1.60
   0.75     0.98 |  7.00    1.60 | 13.25    4.80 | 19.50    1.60
   1.00     0.98 |  7.25    1.96 | 13.50    4.80 | 19.75    1.60
   1.25     0.98 |  7.50    1.96 | 13.75    3.74 | 20.00    1.60
   1.50     0.98 |  7.75    1.96 | 14.00    3.74 | 20.25    1.07
   1.75     0.98 |  8.00    1.96 | 14.25    2.67 | 20.50    1.07
   2.00     0.98 |  8.25    2.31 | 14.50    2.67 | 20.75    1.07
   2.25     1.16 |  8.50    2.31 | 14.75    2.67 | 21.00    1.07
   2.50     1.16 |  8.75    2.49 | 15.00    2.67 | 21.25    1.07
   2.75     1.16 |  9.00    2.49 | 15.25    2.67 | 21.50    1.07
   3.00     1.16 |  9.25    2.85 | 15.50    2.67 | 21.75    1.07
   3.25     1.16 |  9.50    2.85 | 15.75    2.67 | 22.00    1.07
   3.50     1.16 |  9.75    3.20 | 16.00    2.67 | 22.25    1.07
   3.75     1.16 | 10.00    3.20 | 16.25    1.60 | 22.50    1.07
   4.00     1.16 | 10.25    4.09 | 16.50    1.60 | 22.75    1.07
   4.25     1.42 | 10.50    4.09 | 16.75    1.60 | 23.00    1.07
   4.50     1.42 | 10.75    5.51 | 17.00    1.60 | 23.25    1.07
   4.75     1.42 | 11.00    5.51 | 17.25    1.60 | 23.50    1.07
   5.00     1.42 | 11.25    8.54 | 17.50    1.60 | 23.75    1.07
   5.25     1.42 | 11.50    8.54 | 17.75    1.60 | 24.00    1.07
   5.50     1.42 | 11.75   26.33 | 18.00    1.60 |
   5.75     1.42 | 12.00  108.87 | 18.25    1.60 |
   6.00     1.42 | 12.25   12.81 | 18.50    1.60 |
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| CALIB         |
| NASHYD  (  0102)|  Area    (ha)=  58.69   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |  Ia      (mm)=   6.79   # of Linear Res.(N)= 3.00
-------------------  U.H. Tp(hrs)=   0.95

          NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
   0.083    0.00 | 6.167    1.42 |12.250  108.87 | 18.33    1.60
   0.167    0.00 | 6.250    1.42 |12.333   12.82 | 18.42    1.60
   0.250    0.00 | 6.333    1.60 |12.417   12.81 | 18.50    1.60
   0.333    0.98 | 6.417    1.60 |12.500   12.81 | 18.58    1.60
   0.417    0.98 | 6.500    1.60 |12.583   12.81 | 18.67    1.60
   0.500    0.98 | 6.583    1.60 |12.667   12.81 | 18.75    1.60
   0.583    0.98 | 6.667    1.60 |12.750   12.81 | 18.83    1.60
   0.667    0.98 | 6.750    1.60 |12.833    6.58 | 18.92    1.60
   0.750    0.98 | 6.833    1.60 |12.917    6.58 | 19.00    1.60
   0.833    0.98 | 6.917    1.60 |13.000    6.58 | 19.08    1.60
   0.917    0.98 | 7.000    1.60 |13.083    6.58 | 19.17    1.60
   1.000    0.98 | 7.083    1.60 |13.167    6.58 | 19.25    1.60
   1.083    0.98 | 7.167    1.60 |13.250    6.58 | 19.33    1.60
   1.167    0.98 | 7.250    1.60 |13.333    4.80 | 19.42    1.60
   1.250    0.98 | 7.333    1.96 |13.417    4.80 | 19.50    1.60
   1.333    0.98 | 7.417    1.96 |13.500    4.80 | 19.58    1.60
   1.417    0.98 | 7.500    1.96 |13.583    4.80 | 19.67    1.60
   1.500    0.98 | 7.583    1.96 |13.667    4.80 | 19.75    1.60
   1.583    0.98 | 7.667    1.96 |13.750    4.80 | 19.83    1.60
   1.667    0.98 | 7.750    1.96 |13.833    3.74 | 19.92    1.60
   1.750    0.98 | 7.833    1.96 |13.917    3.74 | 20.00    1.60
   1.833    0.98 | 7.917    1.96 |14.000    3.74 | 20.08    1.60
   1.917    0.98 | 8.000    1.96 |14.083    3.74 | 20.17    1.60
   2.000    0.98 | 8.083    1.96 |14.167    3.74 | 20.25    1.60
   2.083    0.98 | 8.167    1.96 |14.250    3.74 | 20.33    1.07
   2.167    0.98 | 8.250    1.96 |14.333    2.67 | 20.42    1.07
   2.250    0.98 | 8.333    2.31 |14.417    2.67 | 20.50    1.07
   2.333    1.16 | 8.417    2.31 |14.500    2.67 | 20.58    1.07
   2.417    1.16 | 8.500    2.31 |14.583    2.67 | 20.67    1.07
   2.500    1.16 | 8.583    2.31 |14.667    2.67 | 20.75    1.07
   2.583    1.16 | 8.667    2.31 |14.750    2.67 | 20.83    1.07
   2.667    1.16 | 8.750    2.31 |14.833    2.67 | 20.92    1.07
   2.750    1.16 | 8.833    2.49 |14.917    2.67 | 21.00    1.07
   2.833    1.16 | 8.917    2.49 |15.000    2.67 | 21.08    1.07
   2.917    1.16 | 9.000    2.49 |15.083    2.67 | 21.17    1.07
   3.000    1.16 | 9.083    2.49 |15.167    2.67 | 21.25    1.07
   3.083    1.16 | 9.167    2.49 |15.250    2.67 | 21.33    1.07
   3.167    1.16 | 9.250    2.49 |15.333    2.67 | 21.42    1.07
   3.250    1.16 | 9.333    2.85 |15.417    2.67 | 21.50    1.07
   3.333    1.16 | 9.417    2.85 |15.500    2.67 | 21.58    1.07
   3.417    1.16 | 9.500    2.85 |15.583    2.67 | 21.67    1.07
   3.500    1.16 | 9.583    2.85 |15.667    2.67 | 21.75    1.07
   3.583    1.16 | 9.667    2.85 |15.750    2.67 | 21.83    1.07
   3.667    1.16 | 9.750    2.85 |15.833    2.67 | 21.92    1.07
   3.750    1.16 | 9.833    3.20 |15.917    2.67 | 22.00    1.07
   3.833    1.16 | 9.917    3.20 |16.000    2.67 | 22.08    1.07
   3.917    1.16 |10.000    3.20 |16.083    2.67 | 22.17    1.07
   4.000    1.16 |10.083    3.20 |16.167    2.67 | 22.25    1.07
   4.083    1.16 |10.167    3.20 |16.250    2.67 | 22.33    1.07
   4.167    1.16 |10.250    3.20 |16.333    1.60 | 22.42    1.07
   4.250    1.16 |10.333    4.09 |16.417    1.60 | 22.50    1.07
   4.333    1.42 |10.417    4.09 |16.500    1.60 | 22.58    1.07
   4.417    1.42 |10.500    4.09 |16.583    1.60 | 22.67    1.07
   4.500    1.42 |10.583    4.09 |16.667    1.60 | 22.75    1.07
   4.583    1.42 |10.667    4.09 |16.750    1.60 | 22.83    1.07
   4.667    1.42 |10.750    4.09 |16.833    1.60 | 22.92    1.07
   4.750    1.42 |10.833    5.51 |16.917    1.60 | 23.00    1.07
   4.833    1.42 |10.917    5.51 |17.000    1.60 | 23.08    1.07
   4.917    1.42 |11.000    5.51 |17.083    1.60 | 23.17    1.07
   5.000    1.42 |11.083    5.51 |17.167    1.60 | 23.25    1.07
   5.083    1.42 |11.167    5.51 |17.250    1.60 | 23.33    1.07
   5.167    1.42 |11.250    5.51 |17.333    1.60 | 23.42    1.07
   5.250    1.42 |11.333    8.54 |17.417    1.60 | 23.50    1.07
   5.333    1.42 |11.417    8.54 |17.500    1.60 | 23.58    1.07
   5.417    1.42 |11.500    8.54 |17.583    1.60 | 23.67    1.07
   5.500    1.42 |11.583    8.54 |17.667    1.60 | 23.75    1.07
   5.583    1.42 |11.667    8.54 |17.750    1.60 | 23.83    1.07
   5.667    1.42 |11.750    8.54 |17.833    1.60 | 23.92    1.07
   5.750    1.42 |11.833   26.33 |17.917    1.60 | 24.00    1.07
   5.833    1.42 |11.917   26.33 |18.000    1.60 | 24.08    1.07
   5.917    1.42 |12.000   26.33 |18.083    1.60 | 24.17    1.07
   6.000    1.42 |12.083  108.86 |18.167    1.60 | 24.25    1.07
   6.083    1.42 |12.167  108.87 |18.250    1.60 |

     Unit Hyd Qpeak  (cms)=   1.015

     PEAK FLOW      (cms)=   1.017 (i)
     TIME TO PEAK   (hrs)=  13.417
     RUNOFF VOLUME   (mm)=  44.907
     TOTAL RAINFALL  (mm)=  88.950
     RUNOFF COEFFICIENT   =   0.505

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB         |
| NASHYD  (  0104)|  Area    (ha)=  42.80   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |  Ia      (mm)=   6.89   # of Linear Res.(N)= 3.00
-------------------  U.H. Tp(hrs)=   0.88

          NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
   0.083    0.00 | 6.167    1.42 |12.250  108.87 | 18.33    1.60
   0.167    0.00 | 6.250    1.42 |12.333   12.82 | 18.42    1.60
   0.250    0.00 | 6.333    1.60 |12.417   12.81 | 18.50    1.60
   0.333    0.98 | 6.417    1.60 |12.500   12.81 | 18.58    1.60
   0.417    0.98 | 6.500    1.60 |12.583   12.81 | 18.67    1.60
   0.500    0.98 | 6.583    1.60 |12.667   12.81 | 18.75    1.60
   0.583    0.98 | 6.667    1.60 |12.750   12.81 | 18.83    1.60
   0.667    0.98 | 6.750    1.60 |12.833    6.58 | 18.92    1.60
   0.750    0.98 | 6.833    1.60 |12.917    6.58 | 19.00    1.60
   0.833    0.98 | 6.917    1.60 |13.000    6.58 | 19.08    1.60
   0.917    0.98 | 7.000    1.60 |13.083    6.58 | 19.17    1.60
   1.000    0.98 | 7.083    1.60 |13.167    6.58 | 19.25    1.60
   1.083    0.98 | 7.167    1.60 |13.250    6.58 | 19.33    1.60
   1.167    0.98 | 7.250    1.60 |13.333    4.80 | 19.42    1.60
   1.250    0.98 | 7.333    1.96 |13.417    4.80 | 19.50    1.60
   1.333    0.98 | 7.417    1.96 |13.500    4.80 | 19.58    1.60
   1.417    0.98 | 7.500    1.96 |13.583    4.80 | 19.67    1.60
   1.500    0.98 | 7.583    1.96 |13.667    4.80 | 19.75    1.60
   1.583    0.98 | 7.667    1.96 |13.750    4.80 | 19.83    1.60
   1.667    0.98 | 7.750    1.96 |13.833    3.74 | 19.92    1.60
   1.750    0.98 | 7.833    1.96 |13.917    3.74 | 20.00    1.60
   1.833    0.98 | 7.917    1.96 |14.000    3.74 | 20.08    1.60
   1.917    0.98 | 8.000    1.96 |14.083    3.74 | 20.17    1.60
   2.000    0.98 | 8.083    1.96 |14.167    3.74 | 20.25    1.60
   2.083    0.98 | 8.167    1.96 |14.250    3.74 | 20.33    1.07
   2.167    0.98 | 8.250    1.96 |14.333    2.67 | 20.42    1.07
   2.250    0.98 | 8.333    2.31 |14.417    2.67 | 20.50    1.07
   2.333    1.16 | 8.417    2.31 |14.500    2.67 | 20.58    1.07
   2.417    1.16 | 8.500    2.31 |14.583    2.67 | 20.67    1.07
   2.500    1.16 | 8.583    2.31 |14.667    2.67 | 20.75    1.07
   2.583    1.16 | 8.667    2.31 |14.750    2.67 | 20.83    1.07
   2.667    1.16 | 8.750    2.31 |14.833    2.67 | 20.92    1.07
   2.750    1.16 | 8.833    2.49 |14.917    2.67 | 21.00    1.07
   2.833    1.16 | 8.917    2.49 |15.000    2.67 | 21.08    1.07
   2.917    1.16 | 9.000    2.49 |15.083    2.67 | 21.17    1.07
   3.000    1.16 | 9.083    2.49 |15.167    2.67 | 21.25    1.07
   3.083    1.16 | 9.167    2.49 |15.250    2.67 | 21.33    1.07
   3.167    1.16 | 9.250    2.49 |15.333    2.67 | 21.42    1.07
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          3.250    1.16 | 9.333    2.85 |15.417    2.67 | 21.50    1.07
          3.333    1.16 | 9.417    2.85 |15.500    2.67 | 21.58    1.07
          3.417    1.16 | 9.500    2.85 |15.583    2.67 | 21.67    1.07
          3.500    1.16 | 9.583    2.85 |15.667    2.67 | 21.75    1.07
          3.583    1.16 | 9.667    2.85 |15.750    2.67 | 21.83    1.07
          3.667    1.16 | 9.750    2.85 |15.833    2.67 | 21.92    1.07
          3.750    1.16 | 9.833    3.20 |15.917    2.67 | 22.00    1.07
          3.833    1.16 | 9.917    3.20 |16.000    2.67 | 22.08    1.07
          3.917    1.16 |10.000    3.20 |16.083    2.67 | 22.17    1.07
          4.000    1.16 |10.083    3.20 |16.167    2.67 | 22.25    1.07
          4.083    1.16 |10.167    3.20 |16.250    2.67 | 22.33    1.07
          4.167    1.16 |10.250    3.20 |16.333    1.60 | 22.42    1.07
          4.250    1.16 |10.333    4.09 |16.417    1.60 | 22.50    1.07
          4.333    1.42 |10.417    4.09 |16.500    1.60 | 22.58    1.07
          4.417    1.42 |10.500    4.09 |16.583    1.60 | 22.67    1.07
          4.500    1.42 |10.583    4.09 |16.667    1.60 | 22.75    1.07
          4.583    1.42 |10.667    4.09 |16.750    1.60 | 22.83    1.07
          4.667    1.42 |10.750    4.09 |16.833    1.60 | 22.92    1.07
          4.750    1.42 |10.833    5.51 |16.917    1.60 | 23.00    1.07
          4.833    1.42 |10.917    5.51 |17.000    1.60 | 23.08    1.07
          4.917    1.42 |11.000    5.51 |17.083    1.60 | 23.17    1.07
          5.000    1.42 |11.083    5.51 |17.167    1.60 | 23.25    1.07
          5.083    1.42 |11.167    5.51 |17.250    1.60 | 23.33    1.07
          5.167    1.42 |11.250    5.51 |17.333    1.60 | 23.42    1.07
          5.250    1.42 |11.333    8.54 |17.417    1.60 | 23.50    1.07
          5.333    1.42 |11.417    8.54 |17.500    1.60 | 23.58    1.07
          5.417    1.42 |11.500    8.54 |17.583    1.60 | 23.67    1.07
          5.500    1.42 |11.583    8.54 |17.667    1.60 | 23.75    1.07
          5.583    1.42 |11.667    8.54 |17.750    1.60 | 23.83    1.07
          5.667    1.42 |11.750    8.54 |17.833    1.60 | 23.92    1.07
          5.750    1.42 |11.833   26.33 |17.917    1.60 | 24.00    1.07
          5.833    1.42 |11.917   26.33 |18.000    1.60 | 24.08    1.07
          5.917    1.42 |12.000   26.33 |18.083    1.60 | 24.17    1.07
          6.000    1.42 |12.083  108.86 |18.167    1.60 | 24.25    1.07
          6.083    1.42 |12.167  108.87 |18.250    1.60 |

     Unit Hyd Qpeak  (cms)=   1.858

     PEAK FLOW       (cms)=   1.789 (i)
     TIME TO PEAK    (hrs)=  13.083
     RUNOFF VOLUME    (mm)=  46.261
     TOTAL RAINFALL   (mm)=  88.950
     RUNOFF COEFFICIENT   =   0.520

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB              |
| NASHYD   (  0105)|   Area    (ha)=   9.10   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.35

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                         ---- TRANSFORMED HYETOGRAPH ----
          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
          0.083    0.00 | 6.167    1.42 |12.250  108.87 | 18.33    1.60
          0.167    0.00 | 6.250    1.42 |12.333   12.82 | 18.42    1.60
          0.250    0.00 | 6.333    1.60 |12.417   12.81 | 18.50    1.60
          0.333    0.98 | 6.417    1.60 |12.500   12.81 | 18.58    1.60
          0.417    0.98 | 6.500    1.60 |12.583   12.81 | 18.67    1.60
          0.500    0.98 | 6.583    1.60 |12.667   12.81 | 18.75    1.60
          0.583    0.98 | 6.667    1.60 |12.750   12.81 | 18.83    1.60
          0.667    0.98 | 6.750    1.60 |12.833    6.58 | 18.92    1.60
          0.750    0.98 | 6.833    1.60 |12.917    6.58 | 19.00    1.60
          0.833    0.98 | 6.917    1.60 |13.000    6.58 | 19.08    1.60
          0.917    0.98 | 7.000    1.60 |13.083    6.58 | 19.17    1.60
          1.000    0.98 | 7.083    1.60 |13.167    6.58 | 19.25    1.60
          1.083    0.98 | 7.167    1.60 |13.250    6.58 | 19.33    1.60
          1.167    0.98 | 7.250    1.60 |13.333    4.80 | 19.42    1.60
          1.250    0.98 | 7.333    1.96 |13.417    4.80 | 19.50    1.60
          1.333    0.98 | 7.417    1.96 |13.500    4.80 | 19.58    1.60
          1.417    0.98 | 7.500    1.96 |13.583    4.80 | 19.67    1.60
          1.500    0.98 | 7.583    1.96 |13.667    4.80 | 19.75    1.60
          1.583    0.98 | 7.667    1.96 |13.750    4.80 | 19.83    1.60
          1.667    0.98 | 7.750    1.96 |13.833    3.74 | 19.92    1.60
          1.750    0.98 | 7.833    1.96 |13.917    3.74 | 20.00    1.60
          1.833    0.98 | 7.917    1.96 |14.000    3.74 | 20.08    1.60
          1.917    0.98 | 8.000    1.96 |14.083    3.74 | 20.17    1.60
          2.000    0.98 | 8.083    1.96 |14.167    3.74 | 20.25    1.60
          2.083    0.98 | 8.167    1.96 |14.250    3.74 | 20.33    1.07
          2.167    0.98 | 8.250    1.96 |14.333    2.67 | 20.42    1.07
          2.250    0.98 | 8.333    2.31 |14.417    2.67 | 20.50    1.07
          2.333    1.16 | 8.417    2.31 |14.500    2.67 | 20.58    1.07
          2.417    1.16 | 8.500    2.31 |14.583    2.67 | 20.67    1.07
          2.500    1.16 | 8.583    2.31 |14.667    2.67 | 20.75    1.07
          2.583    1.16 | 8.667    2.31 |14.750    2.67 | 20.83    1.07
          2.667    1.16 | 8.750    2.31 |14.833    2.67 | 20.92    1.07
          2.750    1.16 | 8.833    2.49 |14.917    2.67 | 21.00    1.07
          2.833    1.16 | 8.917    2.49 |15.000    2.67 | 21.08    1.07
          2.917    1.16 | 9.000    2.49 |15.083    2.67 | 21.17    1.07
          3.000    1.16 | 9.083    2.49 |15.167    2.67 | 21.25    1.07
          3.083    1.16 | 9.167    2.49 |15.250    2.67 | 21.33    1.07
          3.167    1.16 | 9.250    2.49 |15.333    2.67 | 21.42    1.07
          3.250    1.16 | 9.333    2.85 |15.417    2.67 | 21.50    1.07
          3.333    1.16 | 9.417    2.85 |15.500    2.67 | 21.58    1.07
          3.417    1.16 | 9.500    2.85 |15.583    2.67 | 21.67    1.07
          3.500    1.16 | 9.583    2.85 |15.667    2.67 | 21.75    1.07
          3.583    1.16 | 9.667    2.85 |15.750    2.67 | 21.83    1.07
          3.667    1.16 | 9.750    2.85 |15.833    2.67 | 21.92    1.07
          3.750    1.16 | 9.833    3.20 |15.917    2.67 | 22.00    1.07
          3.833    1.16 | 9.917    3.20 |16.000    2.67 | 22.08    1.07
          3.917    1.16 |10.000    3.20 |16.083    2.67 | 22.17    1.07
          4.000    1.16 |10.083    3.20 |16.167    2.67 | 22.25    1.07
          4.083    1.16 |10.167    3.20 |16.250    2.67 | 22.33    1.07
          4.167    1.16 |10.250    3.20 |16.333    1.60 | 22.42    1.07
          4.250    1.16 |10.333    4.09 |16.417    1.60 | 22.50    1.07
          4.333    1.42 |10.417    4.09 |16.500    1.60 | 22.58    1.07
          4.417    1.42 |10.500    4.09 |16.583    1.60 | 22.67    1.07
          4.500    1.42 |10.583    4.09 |16.667    1.60 | 22.75    1.07
          4.583    1.42 |10.667    4.09 |16.750    1.60 | 22.83    1.07
          4.667    1.42 |10.750    4.09 |16.833    1.60 | 22.92    1.07
          4.750    1.42 |10.833    5.51 |16.917    1.60 | 23.00    1.07
          4.833    1.42 |10.917    5.51 |17.000    1.60 | 23.08    1.07
          4.917    1.42 |11.000    5.51 |17.083    1.60 | 23.17    1.07
          5.000    1.42 |11.083    5.51 |17.167    1.60 | 23.25    1.07
          5.083    1.42 |11.167    5.51 |17.250    1.60 | 23.33    1.07
          5.167    1.42 |11.250    5.51 |17.333    1.60 | 23.42    1.07
          5.250    1.42 |11.333    8.54 |17.417    1.60 | 23.50    1.07
          5.333    1.42 |11.417    8.54 |17.500    1.60 | 23.58    1.07
          5.417    1.42 |11.500    8.54 |17.583    1.60 | 23.67    1.07
          5.500    1.42 |11.583    8.54 |17.667    1.60 | 23.75    1.07
          5.583    1.42 |11.667    8.54 |17.750    1.60 | 23.83    1.07
          5.667    1.42 |11.750    8.54 |17.833    1.60 | 23.92    1.07
          5.750    1.42 |11.833   26.33 |17.917    1.60 | 24.00    1.07
          5.833    1.42 |11.917   26.33 |18.000    1.60 | 24.08    1.07
          5.917    1.42 |12.000   26.33 |18.083    1.60 | 24.17    1.07
          6.000    1.42 |12.083  108.86 |18.167    1.60 | 24.25    1.07
          6.083    1.42 |12.167  108.87 |18.250    1.60 |

     Unit Hyd Qpeak  (cms)=   0.993

     PEAK FLOW       (cms)=   0.745 (i)
     TIME TO PEAK    (hrs)=  12.500
     RUNOFF VOLUME    (mm)=  46.163
     TOTAL RAINFALL   (mm)=  88.950
     RUNOFF COEFFICIENT   =   0.519

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0103):    31.63   1.017    13.42    44.91
      + ID2= 2 (  0104):    42.80   1.789    13.08    46.26
        ===================================================
        ID = 3 (  0030):    74.43   2.755    13.17    45.69

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0030):    74.43   2.755    13.17    45.69
      + ID2= 2 (  0105):     9.10   0.745    12.50    46.16
        ===================================================
        ID = 1 (  0030):    83.53   3.054    13.00    45.74

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB              |
| NASHYD   (  0101)|   Area    (ha)=  22.02   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.77   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.51

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                         ---- TRANSFORMED HYETOGRAPH ----
          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
          0.083    0.00 | 6.167    1.42 |12.250  108.87 | 18.33    1.60
          0.167    0.00 | 6.250    1.42 |12.333   12.82 | 18.42    1.60
          0.250    0.00 | 6.333    1.60 |12.417   12.81 | 18.50    1.60
          0.333    0.98 | 6.417    1.60 |12.500   12.81 | 18.58    1.60
          0.417    0.98 | 6.500    1.60 |12.583   12.81 | 18.67    1.60
          0.500    0.98 | 6.583    1.60 |12.667   12.81 | 18.75    1.60
          0.583    0.98 | 6.667    1.60 |12.750   12.81 | 18.83    1.60
          0.667    0.98 | 6.750    1.60 |12.833    6.58 | 18.92    1.60
          0.750    0.98 | 6.833    1.60 |12.917    6.58 | 19.00    1.60
          0.833    0.98 | 6.917    1.60 |13.000    6.58 | 19.08    1.60
          0.917    0.98 | 7.000    1.60 |13.083    6.58 | 19.17    1.60
          1.000    0.98 | 7.083    1.60 |13.167    6.58 | 19.25    1.60
          1.083    0.98 | 7.167    1.60 |13.250    6.58 | 19.33    1.60
          1.167    0.98 | 7.250    1.60 |13.333    4.80 | 19.42    1.60
          1.250    0.98 | 7.333    1.96 |13.417    4.80 | 19.50    1.60
          1.333    0.98 | 7.417    1.96 |13.500    4.80 | 19.58    1.60
          1.417    0.98 | 7.500    1.96 |13.583    4.80 | 19.67    1.60
          1.500    0.98 | 7.583    1.96 |13.667    4.80 | 19.75    1.60
          1.583    0.98 | 7.667    1.96 |13.750    4.80 | 19.83    1.60
          1.667    0.98 | 7.750    1.96 |13.833    3.74 | 19.92    1.60
          1.750    0.98 | 7.833    1.96 |13.917    3.74 | 20.00    1.60
          1.833    0.98 | 7.917    1.96 |14.000    3.74 | 20.08    1.60
          1.917    0.98 | 8.000    1.96 |14.083    3.74 | 20.17    1.60
          2.000    0.98 | 8.083    1.96 |14.167    3.74 | 20.25    1.60
          2.083    0.98 | 8.167    1.96 |14.250    3.74 | 20.33    1.07
          2.167    0.98 | 8.250    1.96 |14.333    2.67 | 20.42    1.07
          2.250    0.98 | 8.333    2.31 |14.417    2.67 | 20.50    1.07
          2.333    1.16 | 8.417    2.31 |14.500    2.67 | 20.58    1.07
          2.417    1.16 | 8.500    2.31 |14.583    2.67 | 20.67    1.07
          2.500    1.16 | 8.583    2.31 |14.667    2.67 | 20.75    1.07
          2.583    1.16 | 8.667    2.31 |14.750    2.67 | 20.83    1.07
          2.667    1.16 | 8.750    2.31 |14.833    2.67 | 20.92    1.07
          2.750    1.16 | 8.833    2.49 |14.917    2.67 | 21.00    1.07
          2.833    1.16 | 8.917    2.49 |15.000    2.67 | 21.08    1.07
          2.917    1.16 | 9.000    2.49 |15.083    2.67 | 21.17    1.07
          3.000    1.16 | 9.083    2.49 |15.167    2.67 | 21.25    1.07
          3.083    1.16 | 9.167    2.49 |15.250    2.67 | 21.33    1.07
          3.167    1.16 | 9.250    2.49 |15.333    2.67 | 21.42    1.07
          3.250    1.16 | 9.333    2.85 |15.417    2.67 | 21.50    1.07
          3.333    1.16 | 9.417    2.85 |15.500    2.67 | 21.58    1.07
          3.417    1.16 | 9.500    2.85 |15.583    2.67 | 21.67    1.07
          3.500    1.16 | 9.583    2.85 |15.667    2.67 | 21.75    1.07
          3.583    1.16 | 9.667    2.85 |15.750    2.67 | 21.83    1.07
          3.667    1.16 | 9.750    2.85 |15.833    2.67 | 21.92    1.07
          3.750    1.16 | 9.833    3.20 |15.917    2.67 | 22.00    1.07
          3.833    1.16 | 9.917    3.20 |16.000    2.67 | 22.08    1.07
          3.917    1.16 |10.000    3.20 |16.083    2.67 | 22.17    1.07
          4.000    1.16 |10.083    3.20 |16.167    2.67 | 22.25    1.07
          4.083    1.16 |10.167    3.20 |16.250    2.67 | 22.33    1.07
          4.167    1.16 |10.250    3.20 |16.333    1.60 | 22.42    1.07
          4.250    1.16 |10.333    4.09 |16.417    1.60 | 22.50    1.07
          4.333    1.42 |10.417    4.09 |16.500    1.60 | 22.58    1.07
          4.417    1.42 |10.500    4.09 |16.583    1.60 | 22.67    1.07
          4.500    1.42 |10.583    4.09 |16.667    1.60 | 22.75    1.07
          4.583    1.42 |10.667    4.09 |16.750    1.60 | 22.83    1.07
          4.667    1.42 |10.750    4.09 |16.833    1.60 | 22.92    1.07
          4.750    1.42 |10.833    5.51 |16.917    1.60 | 23.00    1.07
          4.833    1.42 |10.917    5.51 |17.000    1.60 | 23.08    1.07
          4.917    1.42 |11.000    5.51 |17.083    1.60 | 23.17    1.07
          5.000    1.42 |11.083    5.51 |17.167    1.60 | 23.25    1.07
          5.083    1.42 |11.167    5.51 |17.250    1.60 | 23.33    1.07
          5.167    1.42 |11.250    5.51 |17.333    1.60 | 23.42    1.07
          5.250    1.42 |11.333    8.54 |17.417    1.60 | 23.50    1.07
          5.333    1.42 |11.417    8.54 |17.500    1.60 | 23.58    1.07
          5.417    1.42 |11.500    8.54 |17.583    1.60 | 23.67    1.07
          5.500    1.42 |11.583    8.54 |17.667    1.60 | 23.75    1.07
          5.583    1.42 |11.667    8.54 |17.750    1.60 | 23.83    1.07
          5.667    1.42 |11.750    8.54 |17.833    1.60 | 23.92    1.07
          5.750    1.42 |11.833   26.33 |17.917    1.60 | 24.00    1.07
          5.833    1.42 |11.917   26.33 |18.000    1.60 | 24.08    1.07
          5.917    1.42 |12.000   26.33 |18.083    1.60 | 24.17    1.07
          6.000    1.42 |12.083  108.86 |18.167    1.60 | 24.25    1.07
          6.083    1.42 |12.167  108.87 |18.250    1.60 |

     Unit Hyd Qpeak  (cms)=   1.649

     PEAK FLOW       (cms)=   1.421 (i)
     TIME TO PEAK    (hrs)=  12.667
     RUNOFF VOLUME    (mm)=  47.638
     TOTAL RAINFALL   (mm)=  88.950
     RUNOFF COEFFICIENT   =   0.536

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
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                   *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\82
a642f2-1f89-4f49-8bbc-3807875b19d0\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\82
a642f2-1f89-4f49-8bbc-3807875b19d0\sc


DATE: 11-27-2024                          TIME: 08:40:18

USER:


COMMENTS: ____________________________________________________________


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  ***********************************************
  ** SIMULATION : 3C - 10yr 24hr 15min SCS Type **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jfletcher\AppD
|                  |              ata\Local\Temp\
|                  |              c740c1c5-319b-42e5-9217-47a86f8e726c\741e36ee
| Ptotal=101.97 mm |    Comments: 10yr 24hr 15min SCS Type II (MTO)
--------------------
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                  0.00    0.00 |  6.25    1.84 | 12.50   14.68 | 18.75    1.84
                  0.25    1.12 |  6.50    1.84 | 12.75    7.55 | 19.00    1.84
                  0.50    1.12 |  6.75    1.84 | 13.00    7.55 | 19.25    1.84
                  0.75    1.12 |  7.00    1.84 | 13.25    5.51 | 19.50    1.84
                  1.00    1.12 |  7.25    2.24 | 13.50    5.51 | 19.75    1.84
                  1.25    1.12 |  7.50    2.24 | 13.75    4.28 | 20.00    1.84
                  1.50    1.12 |  7.75    2.24 | 14.00    4.28 | 20.25    1.22
                  1.75    1.12 |  8.00    2.24 | 14.25    3.06 | 20.50    1.22
                  2.00    1.12 |  8.25    2.65 | 14.50    3.06 | 20.75    1.22
                  2.25    1.33 |  8.50    2.65 | 14.75    3.06 | 21.00    1.22
                  2.50    1.33 |  8.75    2.86 | 15.00    3.06 | 21.25    1.22
                  2.75    1.33 |  9.00    2.86 | 15.25    3.06 | 21.50    1.22
                  3.00    1.33 |  9.25    3.26 | 15.50    3.06 | 21.75    1.22
                  3.25    1.33 |  9.50    3.26 | 15.75    3.06 | 22.00    1.22
                  3.50    1.33 |  9.75    3.67 | 16.00    3.06 | 22.25    1.22
                  3.75    1.33 | 10.00    3.67 | 16.25    1.84 | 22.50    1.22
                  4.00    1.33 | 10.25    4.69 | 16.50    1.84 | 22.75    1.22
                  4.25    1.63 | 10.50    4.69 | 16.75    1.84 | 23.00    1.22
                  4.50    1.63 | 10.75    6.32 | 17.00    1.84 | 23.25    1.22
                  4.75    1.63 | 11.00    6.32 | 17.25    1.84 | 23.50    1.22
                  5.00    1.63 | 11.25    9.79 | 17.50    1.84 | 23.75    1.22
                  5.25    1.63 | 11.50    9.79 | 17.75    1.84 | 24.00    1.22
                  5.50    1.63 | 11.75   30.18 | 18.00    1.84 |
                  5.75    1.63 | 12.00  124.81 | 18.25    1.84 |
                  6.00    1.63 | 12.25   14.68 | 18.50    1.84 |

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| CALIB              |
| NASHYD   (  0102)|   Area    (ha)=  58.69   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.79   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.95

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                         ---- TRANSFORMED HYETOGRAPH ----
          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
          0.083    0.00 | 6.167    1.63 |12.250  124.81 | 18.33    1.84
          0.167    0.00 | 6.250    1.63 |12.333   14.70 | 18.42    1.84
          0.250    0.00 | 6.333    1.84 |12.417   14.68 | 18.50    1.84
          0.333    1.12 | 6.417    1.84 |12.500   14.68 | 18.58    1.84
          0.417    1.12 | 6.500    1.84 |12.583   14.68 | 18.67    1.84
          0.500    1.12 | 6.583    1.84 |12.667   14.68 | 18.75    1.84
          0.583    1.12 | 6.667    1.84 |12.750   14.68 | 18.83    1.84
          0.667    1.12 | 6.750    1.84 |12.833    7.55 | 18.92    1.84
          0.750    1.12 | 6.833    1.84 |12.917    7.55 | 19.00    1.84
          0.833    1.12 | 6.917    1.84 |13.000    7.55 | 19.08    1.84
          0.917    1.12 | 7.000    1.84 |13.083    7.55 | 19.17    1.84
          1.000    1.12 | 7.083    1.84 |13.167    7.55 | 19.25    1.84
          1.083    1.12 | 7.167    1.84 |13.250    7.55 | 19.33    1.84
          1.167    1.12 | 7.250    1.84 |13.333    5.51 | 19.42    1.84
          1.250    1.12 | 7.333    2.24 |13.417    5.51 | 19.50    1.84
          1.333    1.12 | 7.417    2.24 |13.500    5.51 | 19.58    1.84
          1.417    1.12 | 7.500    2.24 |13.583    5.51 | 19.67    1.84
          1.500    1.12 | 7.583    2.24 |13.667    5.51 | 19.75    1.84
          1.583    1.12 | 7.667    2.24 |13.750    5.51 | 19.83    1.84
          1.667    1.12 | 7.750    2.24 |13.833    4.28 | 19.92    1.84
          1.750    1.12 | 7.833    2.24 |13.917    4.28 | 20.00    1.84
          1.833    1.12 | 7.917    2.24 |14.000    4.28 | 20.08    1.84
          1.917    1.12 | 8.000    2.24 |14.083    4.28 | 20.17    1.84
          2.000    1.12 | 8.083    2.24 |14.167    4.28 | 20.25    1.84
          2.083    1.12 | 8.167    2.24 |14.250    4.28 | 20.33    1.22
          2.167    1.12 | 8.250    2.24 |14.333    3.06 | 20.42    1.22
          2.250    1.12 | 8.333    2.65 |14.417    3.06 | 20.50    1.22
          2.333    1.33 | 8.417    2.65 |14.500    3.06 | 20.58    1.22
          2.417    1.33 | 8.500    2.65 |14.583    3.06 | 20.67    1.22
          2.500    1.33 | 8.583    2.65 |14.667    3.06 | 20.75    1.22
          2.583    1.33 | 8.667    2.65 |14.750    3.06 | 20.83    1.22
          2.667    1.33 | 8.750    2.65 |14.833    3.06 | 20.92    1.22
          2.750    1.33 | 8.833    2.86 |14.917    3.06 | 21.00    1.22
          2.833    1.33 | 8.917    2.86 |15.000    3.06 | 21.08    1.22
          2.917    1.33 | 9.000    2.86 |15.083    3.06 | 21.17    1.22
          3.000    1.33 | 9.083    2.86 |15.167    3.06 | 21.25    1.22
          3.083    1.33 | 9.167    2.86 |15.250    3.06 | 21.33    1.22
          3.167    1.33 | 9.250    2.86 |15.333    3.06 | 21.42    1.22
          3.250    1.33 | 9.333    3.26 |15.417    3.06 | 21.50    1.22
          3.333    1.33 | 9.417    3.26 |15.500    3.06 | 21.58    1.22
          3.417    1.33 | 9.500    3.26 |15.583    3.06 | 21.67    1.22
          3.500    1.33 | 9.583    3.26 |15.667    3.06 | 21.75    1.22
          3.583    1.33 | 9.667    3.26 |15.750    3.06 | 21.83    1.22
          3.667    1.33 | 9.750    3.26 |15.833    3.06 | 21.92    1.22
          3.750    1.33 | 9.833    3.67 |15.917    3.06 | 22.00    1.22
          3.833    1.33 | 9.917    3.67 |16.000    3.06 | 22.08    1.22
          3.917    1.33 |10.000    3.67 |16.083    3.06 | 22.17    1.22
          4.000    1.33 |10.083    3.67 |16.167    3.06 | 22.25    1.22
          4.083    1.33 |10.167    3.67 |16.250    3.06 | 22.33    1.22
          4.167    1.33 |10.250    3.67 |16.333    1.84 | 22.42    1.22
          4.250    1.33 |10.333    4.69 |16.417    1.84 | 22.50    1.22
          4.333    1.63 |10.417    4.69 |16.500    1.84 | 22.58    1.22
          4.417    1.63 |10.500    4.69 |16.583    1.84 | 22.67    1.22
          4.500    1.63 |10.583    4.69 |16.667    1.84 | 22.75    1.22
          4.583    1.63 |10.667    4.69 |16.750    1.84 | 22.83    1.22
          4.667    1.63 |10.750    4.69 |16.833    1.84 | 22.92    1.22
          4.750    1.63 |10.833    6.32 |16.917    1.84 | 23.00    1.22
          4.833    1.63 |10.917    6.32 |17.000    1.84 | 23.08    1.22
          4.917    1.63 |11.000    6.32 |17.083    1.84 | 23.17    1.22
          5.000    1.63 |11.083    6.32 |17.167    1.84 | 23.25    1.22
          5.083    1.63 |11.167    6.32 |17.250    1.84 | 23.33    1.22
          5.167    1.63 |11.250    6.32 |17.333    1.84 | 23.42    1.22
          5.250    1.63 |11.333    9.79 |17.417    1.84 | 23.50    1.22
          5.333    1.63 |11.417    9.79 |17.500    1.84 | 23.58    1.22
          5.417    1.63 |11.500    9.79 |17.583    1.84 | 23.67    1.22
          5.500    1.63 |11.583    9.79 |17.667    1.84 | 23.75    1.22
          5.583    1.63 |11.667    9.79 |17.750    1.84 | 23.83    1.22
          5.667    1.63 |11.750    9.79 |17.833    1.84 | 23.92    1.22
          5.750    1.63 |11.833   30.18 |17.917    1.84 | 24.00    1.22
          5.833    1.63 |11.917   30.18 |18.000    1.84 | 24.08    1.22
          5.917    1.63 |12.000   30.18 |18.083    1.84 | 24.17    1.22
          6.000    1.63 |12.083  124.80 |18.167    1.84 | 24.25    1.22
          6.083    1.63 |12.167  124.81 |18.250    1.84 |

     Unit Hyd Qpeak  (cms)=   2.360

     PEAK FLOW       (cms)=   2.951 (i)
     TIME TO PEAK    (hrs)=  13.167
     RUNOFF VOLUME    (mm)=  58.537
     TOTAL RAINFALL   (mm)= 101.970
     RUNOFF COEFFICIENT   =   0.574

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB              |
| NASHYD   (  0103)|   Area    (ha)=  31.63   Curve Number   (CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.03   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.19
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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.63	12.250	124.81	18.33	1.84
0.167	0.00	6.250	1.63	12.333	14.70	18.42	1.84
0.250	0.00	6.333	1.84	12.417	14.68	18.50	1.84
0.333	1.12	6.417	1.84	12.500	14.68	18.58	1.84
0.417	1.12	6.500	1.84	12.583	14.68	18.67	1.84
0.500	1.12	6.583	1.84	12.667	14.68	18.75	1.84
0.583	1.12	6.667	1.84	12.750	14.68	18.83	1.84
0.667	1.12	6.750	1.84	12.833	7.55	18.92	1.84
0.750	1.12	6.833	1.84	12.917	7.55	19.00	1.84
0.833	1.12	6.917	1.84	13.000	7.55	19.08	1.84
0.917	1.12	7.000	1.84	13.083	7.55	19.17	1.84
1.000	1.12	7.083	1.84	13.167	7.55	19.25	1.84
1.083	1.12	7.167	1.84	13.250	7.55	19.33	1.84
1.167	1.12	7.250	1.84	13.333	5.51	19.42	1.84
1.250	1.12	7.333	2.24	13.417	5.51	19.50	1.84
1.333	1.12	7.417	2.24	13.500	5.51	19.58	1.84
1.417	1.12	7.500	2.24	13.583	5.51	19.67	1.84
1.500	1.12	7.583	2.24	13.667	5.51	19.75	1.84
1.583	1.12	7.667	2.24	13.750	5.51	19.83	1.84
1.667	1.12	7.750	2.24	13.833	4.28	19.92	1.84
1.750	1.12	7.833	2.24	13.917	4.28	20.00	1.84
1.833	1.12	7.917	2.24	14.000	4.28	20.08	1.84
1.917	1.12	8.000	2.24	14.083	4.28	20.17	1.84
2.000	1.12	8.083	2.24	14.167	4.28	20.25	1.84
2.083	1.12	8.167	2.24	14.250	4.28	20.33	1.22
2.167	1.12	8.250	2.24	14.333	3.06	20.42	1.22
2.250	1.12	8.333	2.65	14.417	3.06	20.50	1.22
2.333	1.33	8.417	2.65	14.500	3.06	20.58	1.22
2.417	1.33	8.500	2.65	14.583	3.06	20.67	1.22
2.500	1.33	8.583	2.65	14.667	3.06	20.75	1.22
2.583	1.33	8.667	2.65	14.750	3.06	20.83	1.22
2.667	1.33	8.750	2.65	14.833	3.06	20.92	1.22
2.750	1.33	8.833	2.86	14.917	3.06	21.00	1.22
2.833	1.33	8.917	2.86	15.000	3.06	21.08	1.22
2.917	1.33	9.000	2.86	15.083	3.06	21.17	1.22
3.000	1.33	9.083	2.86	15.167	3.06	21.25	1.22
3.083	1.33	9.167	2.86	15.250	3.06	21.33	1.22
3.167	1.33	9.250	2.86	15.333	3.06	21.42	1.22
3.250	1.33	9.333	3.26	15.417	3.06	21.50	1.22
3.333	1.33	9.417	3.26	15.500	3.06	21.58	1.22
3.417	1.33	9.500	3.26	15.583	3.06	21.67	1.22
3.500	1.33	9.583	3.26	15.667	3.06	21.75	1.22
3.583	1.33	9.667	3.26	15.750	3.06	21.83	1.22
3.667	1.33	9.750	3.26	15.833	3.06	21.92	1.22
3.750	1.33	9.833	3.67	15.917	3.06	22.00	1.22
3.833	1.33	9.917	3.67	16.000	3.06	22.08	1.22
3.917	1.33	10.000	3.67	16.083	3.06	22.17	1.22
4.000	1.33	10.083	3.67	16.167	3.06	22.25	1.22
4.083	1.33	10.167	3.67	16.250	3.06	22.33	1.22
4.167	1.33	10.250	3.67	16.333	1.84	22.42	1.22
4.250	1.33	10.333	4.69	16.417	1.84	22.50	1.22
4.333	1.63	10.417	4.69	16.500	1.84	22.58	1.22
4.417	1.63	10.500	4.69	16.583	1.84	22.67	1.22
4.500	1.63	10.583	4.69	16.667	1.84	22.75	1.22
4.583	1.63	10.667	4.69	16.750	1.84	22.83	1.22
4.667	1.63	10.750	4.69	16.833	1.84	22.92	1.22
4.750	1.63	10.833	6.32	16.917	1.84	23.00	1.22
4.833	1.63	10.917	6.32	17.000	1.84	23.08	1.22
4.917	1.63	11.000	6.32	17.083	1.84	23.17	1.22
5.000	1.63	11.083	6.32	17.167	1.84	23.25	1.22
5.083	1.63	11.167	6.32	17.250	1.84	23.33	1.22
5.167	1.63	11.250	6.32	17.333	1.84	23.42	1.22
5.250	1.63	11.333	9.79	17.417	1.84	23.50	1.22
5.333	1.63	11.417	9.79	17.500	1.84	23.58	1.22
5.417	1.63	11.500	9.79	17.583	1.84	23.67	1.22
5.500	1.63	11.583	9.79	17.667	1.84	23.75	1.22
5.583	1.63	11.667	9.79	17.750	1.84	23.83	1.22
5.667	1.63	11.750	9.79	17.833	1.84	23.92	1.22
5.750	1.63	11.833	30.18	17.917	1.84	24.00	1.22
5.833	1.63	11.917	30.18	18.000	1.84	24.08	1.22
5.917	1.63	12.000	30.18	18.083	1.84	24.17	1.22
6.000	1.63	12.083	124.80	18.167	1.84	24.25	1.22
6.083	1.63	12.167	124.81	18.250	1.84		

Unit Hyd Qpeak (cms)= 1.015

PEAK FLOW (cms)= 1.264 (i)
TIME TO PEAK (hrs)= 13.417
RUNOFF VOLUME (mm)= 55.482
TOTAL RAINFALL (mm)= 101.970
RUNOFF COEFFICIENT = 0.544

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0104)	ID= 1 DT= 5.0 min	Area (ha)= 42.80	Ia (mm)= 6.89	U.H. Tp(hrs)= 0.88	Curve Number (CN)= 80.0	# of Linear Res.(N)= 3.00	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.63	12.250	124.81	18.33	1.84
0.167	0.00	6.250	1.63	12.333	14.70	18.42	1.84
0.250	0.00	6.333	1.84	12.417	14.68	18.50	1.84
0.333	1.12	6.417	1.84	12.500	14.68	18.58	1.84
0.417	1.12	6.500	1.84	12.583	14.68	18.67	1.84
0.500	1.12	6.583	1.84	12.667	14.68	18.75	1.84
0.583	1.12	6.667	1.84	12.750	14.68	18.83	1.84
0.667	1.12	6.750	1.84	12.833	7.55	18.92	1.84
0.750	1.12	6.833	1.84	12.917	7.55	19.00	1.84
0.833	1.12	6.917	1.84	13.000	7.55	19.08	1.84
0.917	1.12	7.000	1.84	13.083	7.55	19.17	1.84
1.000	1.12	7.083	1.84	13.167	7.55	19.25	1.84
1.083	1.12	7.167	1.84	13.250	7.55	19.33	1.84
1.167	1.12	7.250	1.84	13.333	5.51	19.42	1.84
1.250	1.12	7.333	2.24	13.417	5.51	19.50	1.84
1.333	1.12	7.417	2.24	13.500	5.51	19.58	1.84
1.417	1.12	7.500	2.24	13.583	5.51	19.67	1.84
1.500	1.12	7.583	2.24	13.667	5.51	19.75	1.84
1.583	1.12	7.667	2.24	13.750	5.51	19.83	1.84
1.667	1.12	7.750	2.24	13.833	4.28	19.92	1.84
1.750	1.12	7.833	2.24	13.917	4.28	20.00	1.84
1.833	1.12	7.917	2.24	14.000	4.28	20.08	1.84
1.917	1.12	8.000	2.24	14.083	4.28	20.17	1.84
2.000	1.12	8.083	2.24	14.167	4.28	20.25	1.84
2.083	1.12	8.167	2.24	14.250	4.28	20.33	1.22
2.167	1.12	8.250	2.24	14.333	3.06	20.42	1.22
2.250	1.12	8.333	2.65	14.417	3.06	20.50	1.22
2.333	1.33	8.417	2.65	14.500	3.06	20.58	1.22
2.417	1.33	8.500	2.65	14.583	3.06	20.67	1.22
2.500	1.33	8.583	2.65	14.667	3.06	20.75	1.22
2.583	1.33	8.667	2.65	14.750	3.06	20.83	1.22
2.667	1.33	8.750	2.65	14.833	3.06	20.92	1.22
2.750	1.33	8.833	2.86	14.917	3.06	21.00	1.22
2.833	1.33	8.917	2.86	15.000	3.06	21.08	1.22
2.917	1.33	9.000	2.86	15.083	3.06	21.17	1.22
3.000	1.33	9.083	2.86	15.167	3.06	21.25	1.22
3.083	1.33	9.167	2.86	15.250	3.06	21.33	1.22
3.167	1.33	9.250	2.86	15.333	3.06	21.42	1.22
3.250	1.33	9.333	3.26	15.417	3.06	21.50	1.22
3.333	1.33	9.417	3.26	15.500	3.06	21.58	1.22
3.417	1.33	9.500	3.26	15.583	3.06	21.67	1.22
3.500	1.33	9.583	3.26	15.667	3.06	21.75	1.22
3.583	1.33	9.667	3.26	15.750	3.06	21.83	1.22
3.667	1.33	9.750	3.26	15.833	3.06	21.92	1.22
3.750	1.33	9.833	3.67	15.917	3.06	22.00	1.22
3.833	1.33	9.917	3.67	16.000	3.06	22.08	1.22
3.917	1.33	10.000	3.67	16.083	3.06	22.17	1.22
4.000	1.33	10.083	3.67	16.167	3.06	22.25	1.22
4.083	1.33	10.167	3.67	16.250	3.06	22.33	1.22
4.167	1.33	10.250	3.67	16.333	1.84	22.42	1.22
4.250	1.33	10.333	4.69	16.417	1.84	22.50	1.22
4.333	1.63	10.417	4.69	16.500	1.84	22.58	1.22
4.417	1.63	10.500	4.69	16.583	1.84	22.67	1.22
4.500	1.63	10.583	4.69	16.667	1.84	22.75	1.22
4.583	1.63	10.667	4.69	16.750	1.84	22.83	1.22
4.667	1.63	10.750	4.69	16.833	1.84	22.92	1.22
4.750	1.63	10.833	6.32	16.917	1.84	23.00	1.22
4.833	1.63	10.917	6.32	17.000	1.84	23.08	1.22
4.917	1.63	11.000	6.32	17.083	1.84	23.17	1.22
5.000	1.63	11.083	6.32	17.167	1.84	23.25	1.22
5.083	1.63	11.167	6.32	17.250	1.84	23.33	1.22
5.167	1.63	11.250	6.32	17.333	1.84	23.42	1.22
5.250	1.63	11.333	9.79	17.417	1.84	23.50	1.22
5.333	1.63	11.417	9.79	17.500	1.84	23.58	1.22
5.417	1.63	11.500	9.79	17.583	1.84	23.67	1.22
5.500	1.63	11.583	9.79	17.667	1.84	23.75	1.22
5.583	1.63	11.667	9.79	17.750	1.84	23.83	1.22
5.667	1.63	11.750	9.79	17.833	1.84	23.92	1.22
5.750	1.63	11.833	30.18	17.917	1.84	24.00	1.22
5.833	1.63	11.917	30.18	18.000	1.84	24.08	1.22
5.917	1.63	12.000	30.18	18.083	1.84	24.17	1.22
6.000	1.63	12.083	124.80	18.167	1.84	24.25	1.22
6.083	1.63	12.167	124.81	18.250	1.84		

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 0.921 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 56.903
TOTAL RAINFALL (mm)= 101.970
RUNOFF COEFFICIENT = 0.558

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0103):	31.63	1.264	13.42	55.48
+ ID2= 2 (0104):	42.80	2.215	13.08	57.01
ID = 3 (0030):	74.43	3.417	13.17	56.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
3.917	1.33	10.000	3.67	16.083	3.06	22.17	1.22
4.000	1.33	10.083	3.67	16.167	3.06	22.25	1.22
4.083	1.33	10.167	3.67	16.250	3.06	22.33	1.22
4.167	1.33	10.250	3.67	16.333	1.84	22.42	1.22
4.250	1.33	10.333	4.69	16.417	1.84	22.50	1.22
4.333	1.63	10.417	4.69	16.500	1.84	22.58	1.22
4.417	1.63	10.500	4.69	16.583	1.84	22.67	1.22
4.500	1.63	10.583	4.69	16.667	1.84	22.75	1.22
4.583	1.63	10.667	4.69	16.750	1.84	22.83	1.22
4.667	1.63	10.750	4.69	16.833	1.84	22.92	1.22
4.750	1.63	10.833	6.32	16.917	1.84	23.00	1.22
4.833	1.63	10.917	6.32	17.000	1.84	23.08	1.22
4.917	1.63	11.000	6.32	17.083	1.84	23.17	1.22
5.000	1.63	11.083	6.32	17.167	1.84	23.25	1.22
5.083	1.63	11.167	6.32	17.250	1.84	23.33	1.22
5.167	1.63	11.250	6.32	17.333	1.84	23.42	1.22
5.250	1.63	11.333	9.79	17.417	1.84	23.50	1.22
5.333	1.63	11.417	9.79	17.500	1.84	23.58	1.22
5.417	1.63	11.500	9.79	17.583	1.84	23.67	1.22
5.500	1.63	11.583	9.79	17.667	1.84	23.75	1.22
5.583	1.63	11.667	9.79	17.750	1.84	23.83	1.22
5.667	1.63	11.750	9.79	17.833	1.84	23.92	1.22
5.750	1.63	11.833	30.18	17.917	1.84	24.00	1.22
5.833	1.63	11.917	30.18	18.000	1.84	24.08	1.22
5.917	1.63	12.000	30.18	18.083	1.84	24.17	1.22
6.000	1.63	12.083	124.80	18.167	1.84	24.25	1.22
6.083	1.63	12.167	124.81	18.250	1.84		

Unit Hyd Qpeak (cms)= 1.858

PEAK FLOW (cms)= 2.215 (i)
TIME TO PEAK (hrs)= 13.083
RUNOFF VOLUME (mm)= 57.007
TOTAL RAINFALL (mm)= 101.970
RUNOFF COEFFICIENT = 0.559

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0105)	ID= 1 DT= 5.0 min	Area (ha)= 9.10	Ia (mm)= 7.00	U.H. Tp(hrs)= 0.35	Curve Number (CN)= 80.0	# of Linear Res.(N)= 3.00	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.63	12.250	124.81	18.33	1.84
0.167	0.00	6.250	1.63	12.333	14.70	18.42	1.84
0.250	0.00	6.333	1.84	12.417	14.68	18.50	1.84
0.333	1.12	6.417	1.84	12.500	14.68	18.58	1.84
0.417	1.12	6.500	1.84	12.583	14.68	18.67	1.84
0.500	1.12	6.583	1.84	12.667	14.68	18.75	1.84
0.583	1.12	6.667	1.84	12.750	14.68	18.83	1.84
0.667	1.12	6.750	1.84	12.833	7.55	18.92	1.84
0.750	1.12	6.833	1.84	12.917	7.55	19.00	1.84
0.833	1.12	6.917	1.84	13.000	7.55	19.08	1.84
0.917	1.12	7.000	1.84	13.083	7.55	19.17	1.84
1.000	1.12	7.083	1.84	13.167	7.55	19.25	1.84
1.083	1.12	7.167	1.84	13.250	7.55	19.33	1.84
1.167	1.12	7.250	1.84	13.333	5.51	19.42	1.84
1.250	1.12	7.333	2.24	13.417	5.51	19.50	1.84
1.333	1.12	7.417	2.24	13.500	5.51	19.58	1.84
1.417	1.12	7.500	2.24	13.583	5.51	19.67	1.84
1.500	1.12	7.583	2.24	13.667	5.51	19.75	1.84
1.583	1.12	7.667	2.24	13.750	5.51	19.83	1.84
1.667	1.12	7.750	2.24	13.833	4.28	19.92	1.84
1.750	1.12	7.833	2.24	13.917	4.28	20.00	1.84
1.833	1.12	7.917	2.24	14.000	4.28	20.08	1.84
1.917	1.12	8.000	2.24	14.083	4.28	20.17	1.84
2.000	1.12	8.083	2.24	14.167	4.28	20.25	1.84
2.083	1.12	8.167	2.24	14.250	4.28	20.33	1.22
2.167	1.12	8.250	2.24	14.333	3.06	20.42	1.22
2.250	1.12	8.333	2.65	14.417	3.06	20.50	1.22
2.333	1.33	8.417	2.65	14.500	3.06	20.58	1.22
2.417	1.33	8.500	2.65	14.583	3.06	20.67	1.22
2.500	1.33	8.583	2.65	14.667	3.06	20.75	1.22
2.583	1.33	8.667	2.65	14.750	3.06	20.83	1.22
2.667	1.33	8.750	2.65	14.833	3.06	20.92	1.22
2.750	1.33	8.833	2.86	14.917	3.06	21.00	1.22
2.833	1.33	8.917	2.86	15.000	3.06	21.08	1.22
2.917	1.33	9.000	2.86	15.083	3.06	21.17	1.22
3.000	1.33	9.083	2.86	15.167	3.06	21.25	1.22
3.083	1.33	9.167	2.86	15.250	3.06	21.33	1.22
3.167	1.33	9.250	2.86	15.333	3.06	21.42	1.22
3.250	1.33	9.333	3.26	15.417	3.06	21.50	1.22
3.333	1.33	9.417	3.26	15.500	3.06	21.58	1.22
3.417	1.33	9.500	3.26	15.583	3.06	21.67	1.22
3.500	1.33	9.583	3.26	15.667	3.06	21.75	1.22
3.583	1.33	9.667	3.26	15.750	3.06	21.83	1.22
3.667	1.33	9.750	3.26	15.833	3.06	21.92	1.22
3.750	1.33	9.833	3.67	15.917	3.06	22.00	1.22
3.833	1.33	9.917	3.67	16.000	3.06	22.08	1.22
3.917	1.33	10.000	3.67	16.083	3.06	22.17	1.22
4.000	1.33	10.083	3.67	16.167	3.06	22.25	1.22
4.083	1.33	10.167	3.67	16.250	3.06	22.33	1.22
4.167	1.33	10.250	3.67	16.333	1.84	22.42	1.22
4.250	1.33	10.333	4.69	16.417	1.84	22.50	1.22
4.333	1.63	10.417	4.69	16.500	1.84	22.58	1.22
4.417	1.63	10.500	4.69	16.583	1.84	22.67	1.22
4.500	1.63	10.583	4.69	16.667	1.84	22.75	1.22
4.583	1.63	10.667	4.69	16.750	1.84	22.83	1.22
4.667	1.63	10.750	4.69	16.833	1.84	22.92	1.22
4.750	1.63	10.833	6.32	16.917	1.84	23.00	1.22
4.833	1.63	10.917	6.32	17.000	1.84	23.08	1.22
4.917	1.63	11.000	6.32	17.083	1.84	23.17	1.22
5.000	1.63	11.083	6.32	17.167	1.84	23.25	1.22
5.083	1.63	11.167	6.32	17.250	1.84	23.33	1.22
5.167	1.63	11.250	6.32	17.333	1.84	23.42	1.22
5.250	1.63	11.333	9.79	17.417	1.84	23.50	1.22
5.333	1.63	11.417	9.79	17.500	1.84	23.58	1.22
5.417	1.63	11.500	9.79	17.583	1.84	23.67	1.22
5.500	1.63	11.583	9.79	17.667	1.84	23.75	1.22
5.583	1.63	11.667	9.79	17.750	1.84	23.83	1.22
5.667	1.63	11.750	9.79	17.833	1.84	23.92	1.22
5.750	1.63	11.833	30.18	17.917	1.84	24.00	1.22
5.833	1.63	11.917	30.18	18.000	1.84	24.08	1.22
5.917	1.63	12.000	30.18	18.083	1.84	24.17	1.22
6.000	1.63	12.083	124.80	18.167	1.84	24.25	1.22
6.083	1.63	12.167	124.81	18.250	1.84		

Unit Hyd Qpeak (cms)= 1.649

PEAK FLOW (cms)= 1.753 (i)
TIME TO PEAK (hrs)= 12.667

RUNOFF VOLUME (mm)= 58.551
TOTAL RAINFALL (mm)= 101.970
RUNOFF COEFFICIENT = 0.574

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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      V    V   I    SSSSS  U    U    A    L              (v 6.2.2015)
      V    V   I    SS     U    U   A A   L
       V  V    I      SS   U    U  AAAAA  L
        V V    I      SS   U    U  A   A  L
         V     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    HHHHH    Y    M M M  O   O
       OOO     T      T    H   H    Y    M   M   OOO

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                  ***** D E T A I L E D   O U T P U T *****

  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\e7
c99873-5e7b-4bbf-a655-8d752aaeb39b\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\e7
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DATE: 11-27-2024                          TIME: 08:40:18

USER:


COMMENTS: _____

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** SIMULATION : 3D - 25yr 24hr 15min SCS Type **
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READ STORM	Filename: C:\Users\jfletcher\AppData\Local\Temp\c74bc1c5-319b-42e5-9217-47a86f8e726c\0a940c9e
Ptotal=117.45 mm	Comments: 25yr 24hr 15min SCS Type II (MTO)

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	2.11	12.50	16.91	18.75	2.11
0.25	1.29	6.50	2.11	12.75	8.69	19.00	2.11
0.50	1.29	6.75	2.11	13.00	8.69	19.25	2.11
0.75	1.29	7.00	2.11	13.25	6.34	19.50	2.11
1.00	1.29	7.25	2.58	13.50	6.34	19.75	2.11
1.25	1.29	7.50	2.58	13.75	4.93	20.00	2.11
1.50	1.29	7.75	2.58	14.00	4.93	20.25	1.41
1.75	1.29	8.00	2.58	14.25	3.52	20.50	1.41
2.00	1.29	8.25	3.05	14.50	3.52	20.75	1.41
2.25	1.53	8.50	3.05	14.75	3.52	21.00	1.41
2.50	1.53	8.75	3.29	15.00	3.52	21.25	1.41
2.75	1.53	9.00	3.29	15.25	3.52	21.50	1.41
3.00	1.53	9.25	3.76	15.50	3.52	21.75	1.41
3.25	1.53	9.50	3.76	15.75	3.52	22.00	1.41
3.50	1.53	9.75	4.23	16.00	3.52	22.25	1.41
3.75	1.53	10.00	4.23	16.25	2.11	22.50	1.41
4.00	1.53	10.25	5.40	16.50	2.11	22.75	1.41
4.25	1.88	10.50	5.40	16.75	2.11	23.00	1.41
4.50	1.88	10.75	7.28	17.00	2.11	23.25	1.41
4.75	1.88	11.00	7.28	17.25	2.11	23.50	1.41
5.00	1.88	11.25	11.28	17.50	2.11	23.75	1.41
5.25	1.88	11.50	11.28	17.75	2.11	24.00	1.41
5.50	1.88	11.75	34.77	18.00	2.11		
5.75	1.88	12.00	143.76	18.25	2.11		
6.00	1.88	12.25	16.91	18.50	2.11		

CALIB					
NASHYD (0102)	Area (ha)= 58.69	Curve Number (CN)= 81.0			
ID= 1 DT= 5.0 min	Ia (mm)= 6.79	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 0.95				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.88	12.250	143.76	18.33	2.11
0.167	0.00	6.250	1.88	12.333	16.93	18.42	2.11
0.250	0.00	6.333	2.11	12.417	16.91	18.50	2.11
0.333	1.29	6.417	2.11	12.500	16.91	18.58	2.11
0.417	1.29	6.500	2.11	12.583	16.91	18.67	2.11
0.500	1.29	6.583	2.11	12.667	16.91	18.75	2.11
0.583	1.29	6.667	2.11	12.750	16.91	18.83	2.11
0.667	1.29	6.750	2.11	12.833	8.69	18.92	2.11
0.750	1.29	6.833	2.11	12.917	8.69	19.00	2.11
0.833	1.29	6.917	2.11	13.000	8.69	19.08	2.11
0.917	1.29	7.000	2.11	13.083	8.69	19.17	2.11
1.000	1.29	7.083	2.11	13.167	8.69	19.25	2.11
1.083	1.29	7.167	2.11	13.250	8.69	19.33	2.11
1.167	1.29	7.250	2.11	13.333	6.34	19.42	2.11
1.250	1.29	7.333	2.58	13.417	6.34	19.50	2.11
1.333	1.29	7.417	2.58	13.500	6.34	19.58	2.11
1.417	1.29	7.500	2.58	13.583	6.34	19.67	2.11
1.500	1.29	7.583	2.58	13.667	6.34	19.75	2.11
1.583	1.29	7.667	2.58	13.750	6.34	19.83	2.11
1.667	1.29	7.750	2.58	13.833	4.93	19.92	2.11
1.750	1.29	7.833	2.58	13.917	4.93	20.00	2.11
1.833	1.29	7.917	2.58	14.000	4.93	20.08	2.11
1.917	1.29	8.000	2.58	14.083	4.93	20.17	2.11
2.000	1.29	8.083	2.58	14.167	4.93	20.25	2.11
2.083	1.29	8.167	2.58	14.250	4.93	20.33	2.11
2.167	1.29	8.250	2.58	14.333	3.52	20.42	1.41
2.250	1.29	8.333	3.05	14.417	3.52	20.50	1.41
2.333	1.53	8.417	3.05	14.500	3.52	20.58	1.41
2.417	1.53	8.500	3.05	14.583	3.52	20.67	1.41
2.500	1.53	8.583	3.05	14.667	3.52	20.75	1.41
2.583	1.53	8.667	3.05	14.750	3.52	20.83	1.41
2.667	1.53	8.750	3.05	14.833	3.52	20.92	1.41
2.750	1.53	8.833	3.29	14.917	3.52	21.00	1.41
2.833	1.53	8.917	3.29	15.000	3.52	21.08	1.41
2.917	1.53	9.000	3.29	15.083	3.52	21.17	1.41
3.000	1.53	9.083	3.29	15.167	3.52	21.25	1.41
3.083	1.53	9.167	3.29	15.250	3.52	21.33	1.41
3.167	1.53	9.250	3.29	15.333	3.52	21.42	1.41
3.250	1.53	9.333	3.76	15.417	3.52	21.50	1.41
3.333	1.53	9.417	3.76	15.500	3.52	21.58	1.41
3.417	1.53	9.500	3.76	15.583	3.52	21.67	1.41
3.500	1.53	9.583	3.76	15.667	3.52	21.75	1.41
3.583	1.53	9.667	3.76	15.750	3.52	21.83	1.41
3.667	1.53	9.750	3.76	15.833	3.52	21.92	1.41
3.750	1.53	9.833	4.23	15.917	3.52	22.00	1.41
3.833	1.53	9.917	4.23	16.000	3.52	22.08	1.41
3.917	1.53	10.000	4.23	16.083	3.52	22.17	1.41
4.000	1.53	10.083	4.23	16.167	3.52	22.25	1.41
4.083	1.53	10.167	4.23	16.250	3.52	22.33	1.41
4.167	1.53	10.250	4.23	16.333	2.11	22.42	1.41
4.250	1.53	10.333	5.40	16.417	2.11	22.50	1.41

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.88	12.250	143.76	18.33	2.11
0.167	0.00	6.250	1.88	12.333	16.93	18.42	2.11
0.250	0.00	6.333	2.11	12.417	16.91	18.50	2.11
0.333	1.29	6.417	2.11	12.500	16.91	18.58	2.11
0.417	1.29	6.500	2.11	12.583	16.91	18.67	2.11
0.500	1.29	6.583	2.11	12.667	16.91	18.75	2.11
0.583	1.29	6.667	2.11	12.750	16.91	18.83	2.11
0.667	1.29	6.750	2.11	12.833	8.69	18.92	2.11
0.750	1.29	6.833	2.11	12.917	8.69	19.00	2.11
0.833	1.29	6.917	2.11	13.000	8.69	19.08	2.11
0.917	1.29	7.000	2.11	13.083	8.69	19.17	2.11
1.000	1.29	7.083	2.11	13.167	8.69	19.25	2.11
1.083	1.29	7.167	2.11	13.250	8.69	19.33	2.11
1.167	1.29	7.250	2.11	13.333	6.34	19.42	2.11
1.250	1.29	7.333	2.58	13.417	6.34	19.50	2.11
1.333	1.29	7.417	2.58	13.500	6.34	19.58	2.11
1.417	1.29	7.500	2.58	13.583	6.34	19.67	2.11
1.500	1.29	7.583	2.58	13.667	6.34	19.75	2.11
1.583	1.29	7.667	2.58	13.750	6.34	19.83	2.11
1.667	1.29	7.750	2.58	13.833	4.93	19.92	2.11
1.750	1.29	7.833	2.58	13.917	4.93	20.00	2.11
1.833	1.29	7.917	2.58	14.000	4.93	20.08	2.11
1.917	1.29	8.000	2.58	14.083	4.93	20.17	2.11
2.000	1.29	8.083	2.58	14.167	4.93	20.25	2.11
2.083	1.29	8.167	2.58	14.250	4.93	20.33	2.11
2.167	1.29	8.250	2.58	14.333	3.52	20.42	1.41
2.250	1.29	8.333	3.05	14.417	3.52	20.50	1.41
2.333	1.53	8.417	3.05	14.500	3.52	20.58	1.41
2.417	1.53	8.500	3.05	14.583	3.52	20.67	1.41
2.500	1.53	8.583	3.05	14.667	3.52	20.75	1.41
2.583	1.53	8.667	3.05	14.750	3.52	20.83	1.41
2.667	1.53	8.750	3.05	14.833	3.52	20.92	1.41
2.750	1.53	8.833	3.29	14.917	3.52	21.00	1.41
2.833	1.53	8.917	3.29	15.000	3.52	21.08	1.41
2.917	1.53	9.000	3.29	15.083	3.52	21.17	1.41
3.000	1.53	9.083	3.29	15.167	3.52	21.25	1.41
3.083	1.53	9.167	3.29	15.250	3.52	21.33	1.41
3.167	1.53	9.250	3.29	15.333	3.52	21.42	1.41
3.250	1.53	9.333	3.76	15.417	3.52	21.50	1.41
3.333	1.53	9.417	3.76	15.500	3.52	21.58	1.41
3.417	1.53	9.500	3.76	15.583	3.52	21.67	1.41
3.500	1.53	9.583	3.76	15.667	3.52	21.75	1.41
3.583	1.53	9.667	3.76	15.750	3.52	21.83	1.41
3.667	1.53	9.750	3.76	15.833	3.52	21.92	1.41
3.750	1.53	9.833	4.23	15.917	3.52	22.00	1.41
3.833	1.53	9.917	4.23	16.000	3.52	22.08	1.41
3.917	1.53	10.000	4.23	16.083	3.52	22.17	1.41
4.000	1.53	10.083	4.23	16.167	3.52	22.25	1.41
4.083	1.53	10.167	4.23	16.250	3.52	22.33	1.41
4.167	1.53	10.250	4.23	16.333	2.11	22.42	1.41
4.250	1.53	10.333	5.40	16.417	2.11	22.50	1.41
4.333	1.88	10.417	5.40	16.500	2.11	22.58	1.41
4.417	1.88	10.500	5.40	16.583	2.11	22.67	1.41
4.500	1.88	10.583	5.40	16.667	2.11	22.75	1.41
4.583	1.88	10.667	5.40	16.750	2.11	22.83	1.41
4.667	1.88	10.750	5.40	16.833	2.11	22.92	1.41
4.750	1.88	10.833	7.28	16.917	2.11	23.00	1.41
4.833	1.88	10.917	7.28	17.000	2.11	23.08	1.41
4.917	1.88	11.000	7.28	17.083	2.11	23.17	1.41
5.000	1.88	11.083	7.28	17.167	2.11	23.25	1.41
5.083	1.88	11.167	7.28	17.250	2.11	23.33	1.41
5.167	1.88	11.250	7.28	17.333	2.11	23.42	1.41
5.250	1.88	11.333	11.27	17.417	2.11	23.50	1.41
5.333	1.88	11.417	11.28	17.500	2.11	23.58	1.41
5.417	1.88	11.500	11.28	17.583	2.11	23.67	1.41
5.500	1.88	11.583	11.28	17.667	2.11	23.75	1.41
5.583	1.88	11.667	11.28	17.750	2.11	23.83	1.41
5.667	1.88	11.750	11.28	17.833	2.11	23.92	1.41
5.750	1.88	11.833	34.76	17.917	2.11	24.00	1.41
5.833	1.88	11.917	34.77	18.000	2.11	24.08	1.41
5.917	1.88	12.000	34.77	18.083	2.11	24.17	1.41
6.000	1.88	12.083	143.75	18.167	2.11	24.25	1.41
6.083	1.88	12.167	143.76	18.250	2.11		

Unit Hyd Qpeak (cms)= 1.015

PEAK FLOW (cms)= 1.567 (i)
TIME TO PEAK (hrs)= 13.417
RUNOFF VOLUME (mm)= 68.521
TOTAL RAINFALL (mm)= 117.450
RUNOFF COEFFICIENT = 0.583

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0104)	Area (ha)= 42.80	Curve Number (CN)= 80.0			
ID= 1 DT= 5.0 min	Ia (mm)= 6.89	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 0.88				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.88	12.250	143.76	18.33	2.11
0.167	0.00	6.250	1.88	12.333	16.93	18.42	2.11
0.250	0.00	6.333	2.11	12.417	16.91	18.50	2.11
0.333	1.29	6.417	2.11	12.500	16.91	18.58	2.11
0.417	1.29	6.500	2.11	12.583	16.91	18.67	2.11
0.500	1.29	6.583	2.11	12.667	16.91	18.75	2.11
0.583	1.29	6.667	2.11	12.750	16.91	18.83	2.11
0.667	1.29	6.750	2.11	12.833	8.69	18.92	2.11
0.750	1.29	6.833	2.11	12.917	8.69	19.00	2.11
0.833	1.29	6.917	2.11	13.000	8.69	19.08	2.11
0.917	1.29	7.000	2.11	13.083	8.69	19.17	2.11
1.000	1.29	7.083	2.11	13.167	8.69	19.25	2.11
1.083	1.29	7.167	2.11	13.250	8.69	19.33	2.11
1.167	1.29	7.250	2.11	13.333	6.34	19.42	2.11
1.250	1.29	7.333	2.58	13.417	6.34	19.50	2.11
1.333	1.29	7.417	2.58	13.500	6.34	19.58	2.11
1.417	1.29	7.500	2.58	13.583	6.34	19.67	2.11
1.500	1.29	7.583	2.58	13.667	6.34	19.75	2.11
1.583	1.29	7.667	2.58	13.750	6.34	19.83	2.11
1.667	1.29	7.750	2.58	13.833	4.93	19.92	2.11
1.750	1.29	7.833	2.58	13.917	4.93	20.00	2.11
1.833	1.29	7.917	2.58	14.000	4.93	20.08	2.11
1.917	1.29	8.000	2.58	14.083	4.93	20.17	2.11
2.000	1.29	8.083	2.58	14.167	4.93	20.25	2.11
2.083	1.29	8.167	2.58	14.250	4.93	20.33	2.11
2.167	1.29	8.250	2.58	14.333	3.52	20.42	1.41
2.250	1.29	8.333	3.05	14.417	3.52	20.50	1.41
2.333	1.53	8.417	3.05	14.500	3.52	20.58	1.41
2.417	1.53	8.500	3.05	14.583	3.52	20.67	1.41
2.500	1.53	8.583	3.05	14.667	3.52	20.75	1.41
2.583	1.53	8.667	3.05	14.750	3.52	20.83	1.41
2.667	1.53	8.750	3.05	14.833	3.52	20.92	1.41
2.750	1.53	8.833	3.29	14.917	3.52	21.00	1.41
2.833	1.53	8.917	3.29	15.000	3.52	21.08	1.41
2.917	1.53	9.000	3.29	15.083	3.52	21.17	1.41
3.000	1.53	9.083	3.29	15.167	3.52	21.25	1.41
3.083	1.53	9.167	3.29	15.250	3.52	21.33	1.41
3.167	1.53	9.250	3.29	15.333	3.52	21.42	1.41
3.250	1.53	9.333	3.76	15.417	3.52	21.50	1.41
3.333	1.53	9.417	3.76	15.500	3.52	21.58	1.41
3.417	1.53	9.500	3.76	15.583	3.52	21.67	1.41
3.500	1.53	9.583	3.76	15.667	3.52	21.75	1.41
3.583	1.53	9.667	3.76	15.750	3.52	21.83	1.41
3.667	1.53	9.750	3.76	15.833	3.52	21.92	1.41
3.750	1.53	9.833	4.23	15.917	3.52	22.00	1.41
3.833	1.53	9.917	4.23	16.000	3.52	22.08	1.41
3.917	1.53	10.000	4.23	16.083	3.52	22.17	1.41
4.000	1.53	10.083	4.23	16.167	3.52	22.25	1.41
4.083	1.53	10.167	4.23	16.250	3.52	22.33	1.41
4.167	1.53	10.250	4.23	16.333	2.11	22.42	1.41
4.250	1.53	10.333	5.40	16.417	2.11	22.50	1.41
4.333	1.88	10.417	5.40	16.500	2.11	22.58	1.41
4.417	1.88	10.500	5.40	16.583	2.11	22.67	1.41
4.500	1.88	10.583	5.40	16.667	2.11	22.75	1.41
4.583	1.88	10.667	5.40	16.750	2.11	22.83	1.41
4.667	1.88	10.750	5.40	16.833	2.11	22.92	1.41
4.750	1.88	10.833	7.28	16.917	2.11	23.00	1.41
4.833	1.88	10.917	7.28	17.000	2.11	23.08	1.41
4.917	1.88	11.000	7.28	17.083	2.11	23.17	1.41
5.000	1.88	11.083	7.28	17.167	2.11	23.25	1.41
5.083	1.88	11.167	7.28	17.250	2.11	23.33	1.41
5.167	1.88	11.250	7.28	17.333	2.11	23.42	1.41
5.250	1.88	11.333	11.27	17.417	2.11	23.50	1.41
5.333	1.88	11.417	11.28	17.500	2.11	23.58	1.41
5.417	1.88	11.500	11.28	17.583	2.11	23.67	1.41
5.500	1.88	11.583	11.28	17.667	2.11	23.75	1.41
5.583	1.88	11.667	11.28	17.750	2.11	23.83	1.41
5.667	1.88	11.750	11.28	17.833	2.11	23.92	1.41
5.750	1.88	11.833	34.76	17.917	2.11	24.00	1.41
5.833	1.88	11.917	34.77	18.000	2.11	24.08	1.41
5.917	1.88	12.000	34.77	18.083	2.11	24.17	1.41
6.000	1.88	12.083	143.75	18.167	2.11	24.25	1.41
6.083	1.88	12.167	143.76	18.250	2.11		

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 1.137 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 70.116
TOTAL RAINFALL (mm)= 117.450
RUNOFF COEFFICIENT = 0.597

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0030)			
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0103):	31.63	1.567	13.42	68.52
+ ID2= 2 (0104):	42.80	2.738	13.08	70.23
ID = 3 (0030):	74.43	4.230	13.17	69.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)			
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	74.43	4.230	13.17	69.50
+ ID2= 2 (0105):	9.10	1.137	12.50	70.12
ID = 1 (0030):	83.53	4.691	13.00	69.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
NASHYD (0101)	Area (ha)= 22.02 Curve Number (CN)= 81.0
ID= 1 DT= 5.0 min	Ia (mm)= 6.77 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.51

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.88	12.250	143.76	18.33	2.11
0.167	0.00	6.250	1.88	12.333	16.93	18.42	2.11
0.250	0.00	6.333	2.11	12.417	16.91	18.50	2.11
0.333	1.29	6.417	2.11	12.500	16.91	18.58	2.11
0.417	1.29	6.500	2.11	12.583	16.91	18.67	2.11
0.500	1.29	6.583	2.11	12.667	16.91	18.75	2.11
0.583	1.29	6.667	2.11	12.750	16.91	18.83	2.11
0.667	1.29	6.750	2.11	12.833	8.69	18.92	2.11
0.750	1.29	6.833	2.11	12.917	8.69	19.00	2.11
0.833	1.29	6.917	2.11	13.000	8.69	19.08	2.11
0.917	1.29	7.000	2.11	13.083	8.69	19.17	2.11
1.000	1.29	7.083	2.11	13.167	8.69	19.25	2.11
1.083	1.29	7.167	2.11	13.250	8.69	19.33	2.11
1.167	1.29	7.250	2.11	13.333	6.34	19.42	2.11
1.250	1.29	7.333	2.58	13.417	6.34	19.50	2.11
1.333	1.29	7.417	2.58	13.500	6.34	19.58	2.11
1.417	1.29	7.500	2.58	13.583	6.34	19.67	2.11
1.500	1.29	7.583	2.58	13.667	6.34	19.75	2.11
1.583	1.29	7.667	2.58	13.750	6.34	19.83	2.11
1.667	1.29	7.750	2.58	13.833	4.93	19.92	2.11
1.750	1.29	7.833	2.58	13.917	4.93	20.00	2.11
1.833	1.29	7.917	2.58	14.000	4.93	20.08	2.11
1.917	1.29	8.000	2.58	14.083	4.93	20.17	2.11
2.000	1.29	8.083	2.58	14.167	4.93	20.25	2.11
2.083	1.29	8.167	2.58	14.250	4.93	20.33	1.41
2.167	1.29	8.250	2.58	14.333	3.52	20.42	1.41
2.250	1.29	8.333	3.05	14.417	3.52	20.50	1.41
2.333	1.53	8.417	3.05	14.500	3.52	20.58	1.41
2.417	1.53	8.500	3.05	14.583	3.52	20.67	1.41
2.500	1.53	8.583	3.05	14.667	3.52	20.75	1.41
2.583	1.53	8.667	3.05	14.750	3.52	20.83	1.41
2.667	1.53	8.750	3.05	14.833	3.52	20.92	1.41
2.750	1.53	8.833	3.29	14.917	3.52	21.00	1.41
2.833	1.53	8.917	3.29	15.000	3.52	21.08	1.41
2.917	1.53	9.000	3.29	15.083	3.52	21.17	1.41
3.000	1.53	9.083	3.29	15.167	3.52	21.25	1.41
3.083	1.53	9.167	3.29	15.250	3.52	21.33	1.41
3.167	1.53	9.250	3.29	15.333	3.52	21.42	1.41
3.250	1.53	9.333	3.76	15.417	3.52	21.50	1.41
3.333	1.53	9.417	3.76	15.500	3.52	21.58	1.41
3.417	1.53	9.500	3.76	15.583	3.52	21.67	1.41
3.500	1.53	9.583	3.76	15.667	3.52	21.75	1.41
3.583	1.53	9.667	3.76	15.750	3.52	21.83	1.41
3.667	1.53	9.750	3.76	15.833	3.52	21.92	1.41
3.750	1.53	9.833	4.23	15.917	3.52	22.00	1.41
3.833	1.53	9.917	4.23	16.000	3.52	22.08	1.41
3.917	1.53	10.000	4.23	16.083	3.52	22.17	1.41
4.000	1.53	10.083	4.23	16.167	3.52	22.25	1.41
4.083	1.53	10.167	4.23	16.250	3.52	22.33	1.41
4.167	1.53	10.250	4.23	16.333	2.11	22.42	1.41
4.250	1.53	10.333	5.40	16.417	2.11	22.50	1.41
4.333	1.88	10.417	5.40	16.500	2.11	22.58	1.41
4.417	1.88	10.500	5.40	16.583	2.11	22.67	1.41
4.500	1.88	10.583	5.40	16.667	2.11	22.75	1.41
4.583	1.88	10.667	5.40	16.750	2.11	22.83	1.41
4.667	1.88	10.750	5.40	16.833	2.11	22.92	1.41
4.750	1.88	10.833	7.28	16.917	2.11	23.00	1.41
4.833	1.88	10.917	7.28	17.000	2.11	23.08	1.41
4.917	1.88	11.000	7.28	17.083	2.11	23.17	1.41
5.000	1.88	11.083	7.28	17.167	2.11	23.25	1.41
5.083	1.88	11.167	7.28	17.250	2.11	23.33	1.41
5.167	1.88	11.250	7.28	17.333	2.11	23.42	1.41
5.250	1.88	11.333	11.27	17.417	2.11	23.50	1.41
5.333	1.88	11.417	11.28	17.500	2.11	23.58	1.41
5.417	1.88	11.500	11.28	17.583	2.11	23.67	1.41
5.500	1.88	11.583	11.28	17.667	2.11	23.75	1.41
5.583	1.88	11.667	11.28	17.750	2.11	23.83	1.41
5.667	1.88	11.750	11.28	17.833	2.11	23.92	1.41
5.750	1.88	11.833	34.76	17.917	2.11	24.00	1.41
5.833	1.88	11.917	34.77	18.000	2.11	24.08	1.41
5.917	1.88	12.000	34.77	18.083	2.11	24.17	1.41
6.000	1.88	12.083	143.75	18.167	2.11	24.25	1.41
6.083	1.88	12.167	143.76	18.250	2.11		

Unit Hyd Qpeak (cms)= 1.649

PEAK FLOW (cms)= 2.159 (i)
TIME TO PEAK (hrs)= 12.667
RUNOFF VOLUME (mm)= 71.946
TOTAL RAINFALL (mm)= 117.450
RUNOFF COEFFICIENT = 0.613

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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        V    V   I    SSSSS  U   U     A     L                    (v 6.2.2015)
        V    V   I   SS      U   U    A A    L
         V  V    I     SS    U   U   AAAAA   L
          V V    I      SS   U   U  A     A  L
           VV    I    SSSSS   UUUUU  A     A  LLLLL

    OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
   O   O    T      T    H   H   Y Y   MM MM  O   O
   O   O    T      T    H   H    Y    M M M  O   O
    OOO     T      T    H   H    Y    M   M   OOO

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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
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638fcb-a482-4045-be8c-e69f1784ee65\sc
   Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\b6
638fcb-a482-4045-be8c-e69f1784ee65\sc

DATE: 11-27-2024                          TIME: 08:40:18

USER:


COMMENTS: _____

-------------------------------------------------------------------------------
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  ********************************************
  ** SIMULATION : 3E - 50yr 24hr 15min SCS Type **
  ********************************************


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|    READ STORM    |    Filename: C:\Users\jfletcher\AppD
|                  |              ata\Local\Temp\
|                  |              c740c1c5-319b-42e5-9217-47a86f8e726c\557e7cbb
```

| Ptotal=129.38 mm | Comments: 50yr 24hr 15min SCS Type II (MTO)

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	2.33	12.50	18.63	18.75	2.33
0.25	1.42	6.50	2.33	12.75	9.57	19.00	2.33
0.50	1.42	6.75	2.33	13.00	9.57	19.25	2.33
0.75	1.42	7.00	2.33	13.25	6.99	19.50	2.33
1.00	1.42	7.25	2.85	13.50	6.99	19.75	2.33
1.25	1.42	7.50	2.85	13.75	5.43	20.00	2.33
1.50	1.42	7.75	2.85	14.00	5.43	20.25	1.55
1.75	1.42	8.00	2.85	14.25	3.88	20.50	1.55
2.00	1.42	8.25	3.36	14.50	3.88	20.75	1.55
2.25	1.68	8.50	3.36	14.75	3.88	21.00	1.55
2.50	1.68	8.75	3.62	15.00	3.88	21.25	1.55
2.75	1.68	9.00	3.62	15.25	3.88	21.50	1.55
3.00	1.68	9.25	4.14	15.50	3.88	21.75	1.55
3.25	1.68	9.50	4.14	15.75	3.88	22.00	1.55
3.50	1.68	9.75	4.66	16.00	3.88	22.25	1.55
3.75	1.68	10.00	4.66	16.25	2.33	22.50	1.55
4.00	1.68	10.25	5.95	16.50	2.33	22.75	1.55
4.25	2.07	10.50	5.95	16.75	2.33	23.00	1.55
4.50	2.07	10.75	8.02	17.00	2.33	23.25	1.55
4.75	2.07	11.00	8.02	17.25	2.33	23.50	1.55
5.00	2.07	11.25	12.42	17.50	2.33	23.75	1.55
5.25	2.07	11.50	12.42	17.75	2.33	24.00	1.55
5.50	2.07	11.75	38.30	18.00	2.33		
5.75	2.07	12.00	158.36	18.25	2.33		
6.00	2.07	12.25	18.63	18.50	2.33		

CALIB	
NASHYD (0102)	Area (ha)= 58.69 Curve Number (CN)= 81.0
ID= 1 DT= 5.0 min	Ia (mm)= 6.79 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.95

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.07	12.250	158.36	18.33	2.33
0.167	0.00	6.250	2.07	12.333	18.65	18.42	2.33
0.250	0.00	6.333	2.33	12.417	18.63	18.50	2.33
0.333	1.42	6.417	2.33	12.500	18.63	18.58	2.33
0.417	1.42	6.500	2.33	12.583	18.63	18.67	2.33
0.500	1.42	6.583	2.33	12.667	18.63	18.75	2.33
0.583	1.42	6.667	2.33	12.750	18.63	18.83	2.33
0.667	1.42	6.750	2.33	12.833	9.58	18.92	2.33
0.750	1.42	6.833	2.33	12.917	9.57	19.00	2.33
0.833	1.42	6.917	2.33	13.000	9.57	19.08	2.33
0.917	1.42	7.000	2.33	13.083	9.57	19.17	2.33
1.000	1.42	7.083	2.33	13.167	9.57	19.25	2.33
1.083	1.42	7.167	2.33	13.250	9.57	19.33	2.33
1.167	1.42	7.250	2.33	13.333	6.99	19.42	2.33
1.250	1.42	7.333	2.85	13.417	6.99	19.50	2.33
1.333	1.42	7.417	2.85	13.500	6.99	19.58	2.33
1.417	1.42	7.500	2.85	13.583	6.99	19.67	2.33
1.500	1.42	7.583	2.85	13.667	6.99	19.75	2.33
1.583	1.42	7.667	2.85	13.750	6.99	19.83	2.33
1.667	1.42	7.750	2.85	13.833	5.43	19.92	2.33
1.750	1.42	7.833	2.85	13.917	5.43	20.00	2.33
1.833	1.42	7.917	2.85	14.000	5.43	20.08	2.33
1.917	1.42	8.000	2.85	14.083	5.43	20.17	2.33
2.000	1.42	8.083	2.85	14.167	5.43	20.25	2.33
2.083	1.42	8.167	2.85	14.250	5.43	20.33	1.55
2.167	1.42	8.250	2.85	14.333	3.88	20.42	1.55
2.250	1.42	8.333	3.36	14.417	3.88	20.50	1.55
2.333	1.68	8.417	3.36	14.500	3.88	20.58	1.55
2.417	1.68	8.500	3.36	14.583	3.88	20.67	1.55
2.500	1.68	8.583	3.36	14.667	3.88	20.75	1.55
2.583	1.68	8.667	3.36	14.750	3.88	20.83	1.55
2.667	1.68	8.750	3.36	14.833	3.88	20.92	1.55
2.750	1.68	8.833	3.62	14.917	3.88	21.00	1.55
2.833	1.68	8.917	3.62	15.000	3.88	21.08	1.55
2.917	1.68	9.000	3.62	15.083	3.88	21.17	1.55
3.000	1.68	9.083	3.62	15.167	3.88	21.25	1.55
3.083	1.68	9.167	3.62	15.250	3.88	21.33	1.55
3.167	1.68	9.250	3.62	15.333	3.88	21.42	1.55
3.250	1.68	9.333	4.14	15.417	3.88	21.50	1.55
3.333	1.68	9.417	4.14	15.500	3.88	21.58	1.55
3.417	1.68	9.500	4.14	15.583	3.88	21.67	1.55
3.500	1.68	9.583	4.14	15.667	3.88	21.75	1.55
3.583	1.68	9.667	4.14	15.750	3.88	21.83	1.55
3.667	1.68	9.750	4.14	15.833	3.88	21.92	1.55
3.750	1.68	9.833	4.66	15.917	3.88	22.00	1.55
3.833	1.68	9.917	4.66	16.000	3.88	22.08	1.55
3.917	1.68	10.000	4.66	16.083	3.88	22.17	1.55
4.000	1.68	10.083	4.66	16.167	3.88	22.25	1.55
4.083	1.68	10.167	4.66	16.250	3.88	22.33	1.55
4.167	1.68	10.250	4.66	16.333	2.33	22.42	1.55
4.250	1.68	10.333	5.95	16.417	2.33	22.50	1.55
4.333	2.07	10.417	5.95	16.500	2.33	22.58	1.55
4.417	2.07	10.500	5.95	16.583	2.33	22.67	1.55
4.500	2.07	10.583	5.95	16.667	2.33	22.75	1.55
4.583	2.07	10.667	5.95	16.750	2.33	22.83	1.55
4.667	2.07	10.750	5.95	16.833	2.33	22.92	1.55
4.750	2.07	10.833	8.02	16.917	2.33	23.00	1.55
4.833	2.07	10.917	8.02	17.000	2.33	23.08	1.55
4.917	2.07	11.000	8.02	17.083	2.33	23.17	1.55
5.000	2.07	11.083	8.02	17.167	2.33	23.25	1.55
5.083	2.07	11.167	8.02	17.250	2.33	23.33	1.55
5.167	2.07	11.250	8.02	17.333	2.33	23.42	1.55
5.250	2.07	11.333	12.42	17.417	2.33	23.50	1.55
5.333	2.07	11.417	12.42	17.500	2.33	23.58	1.55
5.417	2.07	11.500	12.42	17.583	2.33	23.67	1.55
5.500	2.07	11.583	12.42	17.667	2.33	23.75	1.55
5.583	2.07	11.667	12.42	17.750	2.33	23.83	1.55
5.667	2.07	11.750	12.42	17.833	2.33	23.92	1.55
5.750	2.07	11.833	38.29	17.917	2.33	24.00	1.55
5.833	2.07	11.917	38.30	18.000	2.33	24.08	1.55
5.917	2.07	12.000	38.30	18.083	2.33	24.17	1.55
6.000	2.07	12.083	158.35	18.167	2.33	24.25	1.55
6.083	2.07	12.167	158.36	18.250	2.33		

Unit Hyd Qpeak (cms)= 2.360

PEAK FLOW (cms)= 4.175 (i)
TIME TO PEAK (hrs)= 13.167
RUNOFF VOLUME (mm)= 82.496
TOTAL RAINFALL (mm)= 129.380
RUNOFF COEFFICIENT = 0.638

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0103)	Area (ha)= 31.63 Curve Number (CN)= 79.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.03 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.19

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.07	12.250	158.36	18.33	2.33
0.167	0.00	6.250	2.07	12.333	18.65	18.42	2.33
0.250	0.00	6.333	2.33	12.417	18.63	18.50	2.33
0.333	1.42	6.417	2.33	12.500	18.63	18.58	2.33
0.417	1.42	6.500	2.33	12.583	18.63	18.67	2.33
0.500	1.42	6.583	2.33	12.667	18.63	18.75	2.33
0.583	1.42	6.667	2.33	12.750	18.63	18.83	2.33
0.667	1.42	6.750	2.33	12.833	9.58	18.92	2.33
0.750	1.42	6.833	2.33	12.917	9.57	19.00	2.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
NASHYD (0104)	Area (ha)= 42.80 Curve Number (CN)= 80.0
ID= 1 DT= 5.0 min	Ia (mm)= 6.89 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.88

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.07	12.250	158.36	18.33	2.33
0.167	0.00	6.250	2.07	12.333	18.65	18.42	2.33
0.250	0.00	6.333	2.33	12.417	18.63	18.50	2.33
0.333	1.42	6.417	2.33	12.500	18.63	18.58	2.33
0.417	1.42	6.500	2.33	12.583	18.63	18.67	2.33
0.500	1.42	6.583	2.33	12.667	18.63	18.75	2.33
0.583	1.42	6.667	2.33	12.750	18.63	18.83	2.33
0.667	1.42	6.750	2.33	12.833	9.58	18.92	2.33
0.750	1.42	6.833	2.33	12.917	9.57	19.00	2.33
0.833	1.42	6.917	2.33	13.000	9.57	19.08	2.33
0.917	1.42	7.000	2.33	13.083	9.57	19.17	2.33
1.000	1.42	7.083	2.33	13.167	9.57	19.25	2.33
1.083	1.42	7.167	2.33	13.250	9.57	19.33	2.33
1.167	1.42	7.250	2.33	13.333	6.99	19.42	2.33
1.250	1.42	7.333	2.85	13.417	6.99	19.50	2.33
1.333	1.42	7.417	2.85	13.500	6.99	19.58	2.33
1.417	1.42	7.500	2.85	13.583	6.99	19.67	2.33
1.500	1.42	7.583	2.85	13.667	6.99	19.75	2.33
1.583	1.42	7.667	2.85	13.750	6.99	19.83	2.33
1.667	1.42	7.750	2.85	13.833	5.43	19.92	2.33
1.750	1.42	7.833	2.85	13.917	5.43	20.00	2.33
1.833	1.42	7.917	2.85	14.000	5.43	20.08	2.33
1.917	1.42	8.000	2.85	14.083	5.43	20.17	2.33
2.000	1.42	8.083	2.85	14.167	5.43	20.25	2.33
2.083	1.42	8.167	2.85	14.250	5.43	20.33	1.55
2.167	1.42	8.250	2.85	14.333	3.88	20.42	1.55
2.250	1.42	8.333	3.36	14.417	3.88	20.50	1.55
2.333	1.68	8.417	3.36	14.500	3.88	20.58	1.55
2.417	1.68	8.500	3.36	14.583	3.88	20.67	1.55
2.500	1.68	8.583	3.36	14.667	3.88	20.75	1.55
2.583	1.68	8.667	3.36	14.750	3.88	20.83	1.55
2.667	1.68	8.750	3.36	14.833	3.88	20.92	1.55
2.750	1.68	8.833	3.62	14.917	3.88	21.00	1.55
2.833	1.68	8.917	3.62	15.000	3.88	21.08	1.55
2.917	1.68	9.000	3.62	15.083	3.88	21.17	1.55
3.000	1.68	9.083	3.62	15.167	3.88	21.25	1.55
3.083	1.68	9.167	3.62	15.250	3.88	21.33	1.55
3.167	1.68	9.250	3.62	15.333	3.88	21.42	1.55
3.250	1.68	9.333	4.14	15.417	3.88	21.50	1.55
3.333	1.68	9.417	4.14	15.500	3.88	21.58	1.55
3.417	1.68	9.500	4.14	15.583	3.88	21.67	1.55
3.500	1.68	9.583	4.14	15.667	3.88	21.75	1.55
3.583	1.68	9.667	4.14	15.750	3.88	21.83	1.55
3.667	1.68	9.750	4.14	15.833	3.88	21.92	1.55
3.750	1.68	9.833	4.66	15.917	3.88	22.00	1.55
3.833	1.68	9.917	4.66	16.000	3.88	22.08	1.55
3.917	1.68	10.000	4.66	16.083	3.88	22.17	1.55
4.000	1.68	10.083	4.66	16.167	3.88	22.25	1.55
4.083	1.68	10.167	4.66	16.250	3.88	22.33	1.55
4.167	1.68	10.250	4.66	16.333	2.33	22.42	1.55
4.250	1.68	10.333	5.95	16.417	2.33	22.50	1.55
4.333	2.07	10.417	5.95	16.500	2.33	22.58	1.55
4.417	2.07	10.500	5.95	16.583	2.33	22.67	1.55
4.500	2.07	10.583	5.95	16.667	2.33	22.75	1.55
4.583	2.07	10.667	5.95	16.750	2.33	22.83	1.55
4.667	2.07	10.750	5.95	16.833	2.33	22.92	1.55
4.750	2.07	10.833	8.02	16.917	2.33	23.00	1.55
4.833	2.07	10.917	8.02	17.000	2.33	23.08	1.55
4.917	2.07	11.000	8.02	17.083	2.33	23.17	1.55
5.000	2.07	11.083	8.02	17.167	2.33	23.25	1.55
5.083	2.07	11.167	8.02	17.250	2.33	23.33	1.55
5.167	2.07	11.250	8.02	17.333	2.33	23.42	1.55
5.250	2.07	11.333	12.42	17.417	2.33	23.50	1.55
5.333	2.07	11.417	12.42	17.500	2.33	23.58	1.55
5.417	2.07	11.500	12.42	17.583	2.33	23.67	1.55
5.500	2.07	11.583	12.42	17.667	2.33	23.75	1.55
5.583	2.07	11.667	12.42	17.750	2.33	23.83	1.55
5.667	2.07	11.750	12.42	17.833	2.33	23.92	1.55
5.750	2.07	11.833	38.29	17.917	2.33	24.00	1.55
5.833	2.07	11.917	38.30	18.000	2.33	24.08	1.55
5.917	2.07	12.000	38.30	18.083	2.33	24.17	1.55
6.000	2.07	12.083	158.35	18.167	2.33	24.25	1.55
6.083	2.07	12.167	158.36	18.250	2.33		

Unit Hyd Qpeak (cms)= 1.015

PEAK FLOW (cms)= 1.807 (i)
TIME TO PEAK (hrs)= 13.417
RUNOFF VOLUME (mm)= 78.841
TOTAL RAINFALL (mm)= 129.380
RUNOFF COEFFICIENT = 0.609

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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            5.250    2.07 |11.333   12.42 |17.417    2.33 | 23.50    1.55
            5.333    2.07 |11.417   12.42 |17.500    2.33 | 23.58    1.55
            5.417    2.07 |11.500   12.42 |17.583    2.33 | 23.67    1.55
            5.500    2.07 |11.583   12.42 |17.667    2.33 | 23.75    1.55
            5.583    2.07 |11.667   12.42 |17.750    2.33 | 23.83    1.55
            5.667    2.07 |11.750   12.42 |17.833    2.33 | 23.92    1.55
            5.750    2.07 |11.833   38.29 |17.917    2.33 | 24.00    1.55
            5.833    2.07 |11.917   38.30 |18.000    2.33 | 24.08    1.55
            5.917    2.07 |12.000   38.30 |18.083    2.33 | 24.17    1.55
            6.000    2.07 |12.083  158.35 |18.167    2.33 | 24.25    1.55
            6.083    2.07 |12.167  158.36 |18.250    2.33 |

    Unit Hyd Qpeak  (cms)=   1.858

    PEAK FLOW       (cms)=   3.150 (i)
    TIME TO PEAK    (hrs)=  13.083
    RUNOFF VOLUME    (mm)=  80.669
    TOTAL RAINFALL   (mm)= 129.380
    RUNOFF COEFFICIENT   =   0.624

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| NASHYD   (  0105)|   Area    (ha)=   9.10   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.35

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                            ---- TRANSFORMED HYETOGRAPH ----
             TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
              hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
            0.083    0.00 | 6.167    2.07 |12.250  158.36 | 18.33    2.33
            0.167    0.00 | 6.250    2.07 |12.333   18.65 | 18.42    2.33
            0.250    0.00 | 6.333    2.33 |12.417   18.63 | 18.50    2.33
            0.333    1.42 | 6.417    2.33 |12.500   18.63 | 18.58    2.33
            0.417    1.42 | 6.500    2.33 |12.583   18.63 | 18.67    2.33
            0.500    1.42 | 6.583    2.33 |12.667   18.63 | 18.75    2.33
            0.583    1.42 | 6.667    2.33 |12.750   18.63 | 18.83    2.33
            0.667    1.42 | 6.750    2.33 |12.833    9.58 | 18.92    2.33
            0.750    1.42 | 6.833    2.33 |12.917    9.57 | 19.00    2.33
            0.833    1.42 | 6.917    2.33 |13.000    9.57 | 19.08    2.33
            0.917    1.42 | 7.000    2.33 |13.083    9.57 | 19.17    2.33
            1.000    1.42 | 7.083    2.33 |13.167    9.57 | 19.25    2.33
            1.083    1.42 | 7.167    2.33 |13.250    9.57 | 19.33    2.33
            1.167    1.42 | 7.250    2.33 |13.333    6.99 | 19.42    2.33
            1.250    1.42 | 7.333    2.85 |13.417    6.99 | 19.50    2.33
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            1.333    1.42 | 7.417    2.85 |13.500    6.99 | 19.58    2.33
            1.417    1.42 | 7.500    2.85 |13.583    6.99 | 19.67    2.33
            1.500    1.42 | 7.583    2.85 |13.667    6.99 | 19.75    2.33
            1.583    1.42 | 7.667    2.85 |13.750    6.99 | 19.83    2.33
            1.667    1.42 | 7.750    2.85 |13.833    5.43 | 19.92    2.33
            1.750    1.42 | 7.833    2.85 |13.917    5.43 | 20.00    2.33
            1.833    1.42 | 7.917    2.85 |14.000    5.43 | 20.08    2.33
            1.917    1.42 | 8.000    2.85 |14.083    5.43 | 20.17    2.33
            2.000    1.42 | 8.083    2.85 |14.167    5.43 | 20.25    2.33
            2.083    1.42 | 8.167    2.85 |14.250    5.43 | 20.33    1.55
            2.167    1.42 | 8.250    2.85 |14.333    3.88 | 20.42    1.55
            2.250    1.42 | 8.333    3.36 |14.417    3.88 | 20.50    1.55
            2.333    1.68 | 8.417    3.36 |14.500    3.88 | 20.58    1.55
            2.417    1.68 | 8.500    3.36 |14.583    3.88 | 20.67    1.55
            2.500    1.68 | 8.583    3.36 |14.667    3.88 | 20.75    1.55
            2.583    1.68 | 8.667    3.36 |14.750    3.88 | 20.83    1.55
            2.667    1.68 | 8.750    3.36 |14.833    3.88 | 20.92    1.55
            2.750    1.68 | 8.833    3.62 |14.917    3.88 | 21.00    1.55
            2.833    1.68 | 8.917    3.62 |15.000    3.88 | 21.08    1.55
            2.917    1.68 | 9.000    3.62 |15.083    3.88 | 21.17    1.55
            3.000    1.68 | 9.083    3.62 |15.167    3.88 | 21.25    1.55
            3.083    1.68 | 9.167    3.62 |15.250    3.88 | 21.33    1.55
            3.167    1.68 | 9.250    3.62 |15.333    3.88 | 21.42    1.55
            3.250    1.68 | 9.333    4.14 |15.417    3.88 | 21.50    1.55
            3.333    1.68 | 9.417    4.14 |15.500    3.88 | 21.58    1.55
            3.417    1.68 | 9.500    4.14 |15.583    3.88 | 21.67    1.55
            3.500    1.68 | 9.583    4.14 |15.667    3.88 | 21.75    1.55
            3.583    1.68 | 9.667    4.14 |15.750    3.88 | 21.83    1.55
            3.667    1.68 | 9.750    4.14 |15.833    3.88 | 21.92    1.55
            3.750    1.68 | 9.833    4.66 |15.917    3.88 | 22.00    1.55
            3.833    1.68 | 9.917    4.66 |16.000    3.88 | 22.08    1.55
            3.917    1.68 |10.000    4.66 |16.083    3.88 | 22.17    1.55
            4.000    1.68 |10.083    4.66 |16.167    3.88 | 22.25    1.55
            4.083    1.68 |10.167    4.66 |16.250    3.88 | 22.33    1.55
            4.167    1.68 |10.250    4.66 |16.333    2.33 | 22.42    1.55
            4.250    1.68 |10.333    5.95 |16.417    2.33 | 22.50    1.55
            4.333    2.07 |10.417    5.95 |16.500    2.33 | 22.58    1.55
            4.417    2.07 |10.500    5.95 |16.583    2.33 | 22.67    1.55
            4.500    2.07 |10.583    5.95 |16.667    2.33 | 22.75    1.55
            4.583    2.07 |10.667    5.95 |16.750    2.33 | 22.83    1.55
            4.667    2.07 |10.750    5.95 |16.833    2.33 | 22.92    1.55
            4.750    2.07 |10.833    8.02 |16.917    2.33 | 23.00    1.55
            4.833    2.07 |10.917    8.02 |17.000    2.33 | 23.08    1.55
            4.917    2.07 |11.000    8.02 |17.083    2.33 | 23.17    1.55
            5.000    2.07 |11.083    8.02 |17.167    2.33 | 23.25    1.55
            5.083    2.07 |11.167    8.02 |17.250    2.33 | 23.33    1.55
            5.167    2.07 |11.250    8.02 |17.333    2.33 | 23.42    1.55
            5.250    2.07 |11.333   12.42 |17.417    2.33 | 23.50    1.55
            5.333    2.07 |11.417   12.42 |17.500    2.33 | 23.58    1.55
            5.417    2.07 |11.500   12.42 |17.583    2.33 | 23.67    1.55
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            5.500    2.07 |11.583   12.42 |17.667    2.33 | 23.75    1.55
            5.583    2.07 |11.667   12.42 |17.750    2.33 | 23.83    1.55
            5.667    2.07 |11.750   12.42 |17.833    2.33 | 23.92    1.55
            5.750    2.07 |11.833   38.29 |17.917    2.33 | 24.00    1.55
            5.833    2.07 |11.917   38.30 |18.000    2.33 | 24.08    1.55
            5.917    2.07 |12.000   38.30 |18.083    2.33 | 24.17    1.55
            6.000    2.07 |12.083  158.35 |18.167    2.33 | 24.25    1.55
            6.083    2.07 |12.167  158.36 |18.250    2.33 |

    Unit Hyd Qpeak  (cms)=   0.993

    PEAK FLOW       (cms)=   1.308 (i)
    TIME TO PEAK    (hrs)=  12.417
    RUNOFF VOLUME    (mm)=  80.556
    TOTAL RAINFALL   (mm)= 129.380
    RUNOFF COEFFICIENT   =   0.623

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0103):    31.63   1.807    13.42    78.84
      + ID2= 2 (  0104):    42.80   3.150    13.08    80.67
        ==================================================
        ID = 3 (  0030):    74.43   4.872    13.17    79.89

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0030):    74.43   4.872    13.17    79.89
      + ID2= 2 (  0105):     9.10   1.308    12.42    80.56
        ==================================================
        ID = 1 (  0030):    83.53   5.404    13.00    79.96

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| CALIB              |
| NASHYD   (  0101)|   Area    (ha)=  22.02   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.77   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.51
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        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                            ---- TRANSFORMED HYETOGRAPH ----
             TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
              hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
            0.083    0.00 | 6.167    2.07 |12.250  158.36 | 18.33    2.33
            0.167    0.00 | 6.250    2.07 |12.333   18.65 | 18.42    2.33
            0.250    0.00 | 6.333    2.33 |12.417   18.63 | 18.50    2.33
            0.333    1.42 | 6.417    2.33 |12.500   18.63 | 18.58    2.33
            0.417    1.42 | 6.500    2.33 |12.583   18.63 | 18.67    2.33
            0.500    1.42 | 6.583    2.33 |12.667   18.63 | 18.75    2.33
            0.583    1.42 | 6.667    2.33 |12.750   18.63 | 18.83    2.33
            0.667    1.42 | 6.750    2.33 |12.833    9.58 | 18.92    2.33
            0.750    1.42 | 6.833    2.33 |12.917    9.57 | 19.00    2.33
            0.833    1.42 | 6.917    2.33 |13.000    9.57 | 19.08    2.33
            0.917    1.42 | 7.000    2.33 |13.083    9.57 | 19.17    2.33
            1.000    1.42 | 7.083    2.33 |13.167    9.57 | 19.25    2.33
            1.083    1.42 | 7.167    2.33 |13.250    9.57 | 19.33    2.33
            1.167    1.42 | 7.250    2.33 |13.333    6.99 | 19.42    2.33
            1.250    1.42 | 7.333    2.85 |13.417    6.99 | 19.50    2.33
            1.333    1.42 | 7.417    2.85 |13.500    6.99 | 19.58    2.33
            1.417    1.42 | 7.500    2.85 |13.583    6.99 | 19.67    2.33
            1.500    1.42 | 7.583    2.85 |13.667    6.99 | 19.75    2.33
            1.583    1.42 | 7.667    2.85 |13.750    6.99 | 19.83    2.33
            1.667    1.42 | 7.750    2.85 |13.833    5.43 | 19.92    2.33
            1.750    1.42 | 7.833    2.85 |13.917    5.43 | 20.00    2.33
            1.833    1.42 | 7.917    2.85 |14.000    5.43 | 20.08    2.33
            1.917    1.42 | 8.000    2.85 |14.083    5.43 | 20.17    2.33
            2.000    1.42 | 8.083    2.85 |14.167    5.43 | 20.25    2.33
            2.083    1.42 | 8.167    2.85 |14.250    5.43 | 20.33    1.55
            2.167    1.42 | 8.250    2.85 |14.333    3.88 | 20.42    1.55
            2.250    1.42 | 8.333    3.36 |14.417    3.88 | 20.50    1.55
            2.333    1.68 | 8.417    3.36 |14.500    3.88 | 20.58    1.55
            2.417    1.68 | 8.500    3.36 |14.583    3.88 | 20.67    1.55
            2.500    1.68 | 8.583    3.36 |14.667    3.88 | 20.75    1.55
            2.583    1.68 | 8.667    3.36 |14.750    3.88 | 20.83    1.55
            2.667    1.68 | 8.750    3.36 |14.833    3.88 | 20.92    1.55
            2.750    1.68 | 8.833    3.62 |14.917    3.88 | 21.00    1.55
            2.833    1.68 | 8.917    3.62 |15.000    3.88 | 21.08    1.55
            2.917    1.68 | 9.000    3.62 |15.083    3.88 | 21.17    1.55
            3.000    1.68 | 9.083    3.62 |15.167    3.88 | 21.25    1.55
            3.083    1.68 | 9.167    3.62 |15.250    3.88 | 21.33    1.55
            3.167    1.68 | 9.250    3.62 |15.333    3.88 | 21.42    1.55
            3.250    1.68 | 9.333    4.14 |15.417    3.88 | 21.50    1.55
            3.333    1.68 | 9.417    4.14 |15.500    3.88 | 21.58    1.55
            3.417    1.68 | 9.500    4.14 |15.583    3.88 | 21.67    1.55
            3.500    1.68 | 9.583    4.14 |15.667    3.88 | 21.75    1.55
            3.583    1.68 | 9.667    4.14 |15.750    3.88 | 21.83    1.55
            3.667    1.68 | 9.750    4.14 |15.833    3.88 | 21.92    1.55
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            3.750    1.68 | 9.833    4.66 |15.917    3.88 | 22.00    1.55
            3.833    1.68 | 9.917    4.66 |16.000    3.88 | 22.08    1.55
            3.917    1.68 |10.000    4.66 |16.083    3.88 | 22.17    1.55
            4.000    1.68 |10.083    4.66 |16.167    3.88 | 22.25    1.55
            4.083    1.68 |10.167    4.66 |16.250    3.88 | 22.33    1.55
            4.167    1.68 |10.250    4.66 |16.333    2.33 | 22.42    1.55
            4.250    1.68 |10.333    5.95 |16.417    2.33 | 22.50    1.55
            4.333    2.07 |10.417    5.95 |16.500    2.33 | 22.58    1.55
            4.417    2.07 |10.500    5.95 |16.583    2.33 | 22.67    1.55
            4.500    2.07 |10.583    5.95 |16.667    2.33 | 22.75    1.55
            4.583    2.07 |10.667    5.95 |16.750    2.33 | 22.83    1.55
            4.667    2.07 |10.750    5.95 |16.833    2.33 | 22.92    1.55
            4.750    2.07 |10.833    8.02 |16.917    2.33 | 23.00    1.55
            4.833    2.07 |10.917    8.02 |17.000    2.33 | 23.08    1.55
            4.917    2.07 |11.000    8.02 |17.083    2.33 | 23.17    1.55
            5.000    2.07 |11.083    8.02 |17.167    2.33 | 23.25    1.55
            5.083    2.07 |11.167    8.02 |17.250    2.33 | 23.33    1.55
            5.167    2.07 |11.250    8.02 |17.333    2.33 | 23.42    1.55
            5.250    2.07 |11.333   12.42 |17.417    2.33 | 23.50    1.55
            5.333    2.07 |11.417   12.42 |17.500    2.33 | 23.58    1.55
            5.417    2.07 |11.500   12.42 |17.583    2.33 | 23.67    1.55
            5.500    2.07 |11.583   12.42 |17.667    2.33 | 23.75    1.55
            5.583    2.07 |11.667   12.42 |17.750    2.33 | 23.83    1.55
            5.667    2.07 |11.750   12.42 |17.833    2.33 | 23.92    1.55
            5.750    2.07 |11.833   38.29 |17.917    2.33 | 24.00    1.55
            5.833    2.07 |11.917   38.30 |18.000    2.33 | 24.08    1.55
            5.917    2.07 |12.000   38.30 |18.083    2.33 | 24.17    1.55
            6.000    2.07 |12.083  158.35 |18.167    2.33 | 24.25    1.55
            6.083    2.07 |12.167  158.36 |18.250    2.33 |

    Unit Hyd Qpeak  (cms)=   1.649

    PEAK FLOW       (cms)=   2.477 (i)
    TIME TO PEAK    (hrs)=  12.667
    RUNOFF VOLUME    (mm)=  82.510
    TOTAL RAINFALL   (mm)= 129.380
    RUNOFF COEFFICIENT   =   0.638

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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==================================================================================
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     V    V   I   SSSSS  U   U    A    L                (v 6.2.2015)
     V    V   I   SS     U   U   A A   L
      V  V    I    SS    U   U  AAAAA  L
      V  V    I     SS   U   U  A   A  L
       VV     I   SSSSS  UUUUU  A   A  LLLLL
```

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      OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
     O   O    T      T    H   H   Y Y   MM MM  O   O
     O   O    T      T    H   H    Y    M   M  O   O
      OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\34
38d50c-7167-4608-a1c2-7deea137c1a9\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\34
38d50c-7167-4608-a1c2-7deea137c1a9\sc


DATE: 11-27-2024                           TIME: 08:40:17

USER:



COMMENTS: ____________________________________________________________


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  **********************************************
  ** SIMULATION : 3F - 100yr 24hr 15min SCS Typ **
  **********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jfletcher\AppD
|                  |              ata\Local\Temp\
|                  |              c740c1c5-319b-42e5-9217-47a86f8e726c\9c936a26
| Ptotal=141.42 mm |    Comments: 100yr 24hr 15min SCS Type II (MTO)
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.00    0.00 |  6.25    2.55 | 12.50   20.36 | 18.75    2.55
                 0.25    1.56 |  6.50    2.55 | 12.75   10.47 | 19.00    2.55
                 0.50    1.56 |  6.75    2.55 | 13.00   10.47 | 19.25    2.55
                 0.75    1.56 |  7.00    2.55 | 13.25    7.64 | 19.50    2.55
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                 1.00    1.56 |  7.25    3.11 | 13.50    7.64 | 19.75    2.55
                 1.25    1.56 |  7.50    3.11 | 13.75    5.94 | 20.00    2.55
                 1.50    1.56 |  7.75    3.11 | 14.00    5.94 | 20.25    1.70
                 1.75    1.56 |  8.00    3.11 | 14.25    4.24 | 20.50    1.70
                 2.00    1.56 |  8.25    3.68 | 14.50    4.24 | 20.75    1.70
                 2.25    1.84 |  8.50    3.68 | 14.75    4.24 | 21.00    1.70
                 2.50    1.84 |  8.75    3.96 | 15.00    4.24 | 21.25    1.70
                 2.75    1.84 |  9.00    3.96 | 15.25    4.24 | 21.50    1.70
                 3.00    1.84 |  9.25    4.53 | 15.50    4.24 | 21.75    1.70
                 3.25    1.84 |  9.50    4.53 | 15.75    4.24 | 22.00    1.70
                 3.50    1.84 |  9.75    5.09 | 16.00    4.24 | 22.25    1.70
                 3.75    1.84 | 10.00    5.09 | 16.25    2.55 | 22.50    1.70
                 4.00    1.84 | 10.25    6.51 | 16.50    2.55 | 22.75    1.70
                 4.25    2.26 | 10.50    6.51 | 16.75    2.55 | 23.00    1.70
                 4.50    2.26 | 10.75    8.77 | 17.00    2.55 | 23.25    1.70
                 4.75    2.26 | 11.00    8.77 | 17.25    2.55 | 23.50    1.70
                 5.00    2.26 | 11.25   13.58 | 17.50    2.55 | 23.75    1.70
                 5.25    2.26 | 11.50   13.58 | 17.75    2.55 | 24.00    1.70
                 5.50    2.26 | 11.75   41.86 | 18.00    2.55 |
                 5.75    2.26 | 12.00  173.10 | 18.25    2.55 |
                 6.00    2.26 | 12.25   20.36 | 18.50    2.55 |

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| CALIB              |
| NASHYD   (  0102)|   Area    (ha)=  58.69   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.79   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.95

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                            ---- TRANSFORMED HYETOGRAPH ----
             TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
              hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
            0.083    0.00 | 6.167    2.26 |12.250  173.10 | 18.33    2.55
            0.167    0.00 | 6.250    2.26 |12.333   20.38 | 18.42    2.55
            0.250    0.00 | 6.333    2.55 |12.417   20.36 | 18.50    2.55
            0.333    1.56 | 6.417    2.55 |12.500   20.36 | 18.58    2.55
            0.417    1.56 | 6.500    2.55 |12.583   20.36 | 18.67    2.55
            0.500    1.56 | 6.583    2.55 |12.667   20.36 | 18.75    2.55
            0.583    1.56 | 6.667    2.55 |12.750   20.36 | 18.83    2.55
            0.667    1.56 | 6.750    2.55 |12.833   10.47 | 18.92    2.55
            0.750    1.56 | 6.833    2.55 |12.917   10.47 | 19.00    2.55
            0.833    1.56 | 6.917    2.55 |13.000   10.47 | 19.08    2.55
            0.917    1.56 | 7.000    2.55 |13.083   10.47 | 19.17    2.55
            1.000    1.56 | 7.083    2.55 |13.167   10.47 | 19.25    2.55
            1.083    1.56 | 7.167    2.55 |13.250   10.47 | 19.33    2.55
            1.167    1.56 | 7.250    2.55 |13.333    7.64 | 19.42    2.55
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            1.250    1.56 | 7.333    3.11 |13.417    7.64 | 19.50    2.55
            1.333    1.56 | 7.417    3.11 |13.500    7.64 | 19.58    2.55
            1.417    1.56 | 7.500    3.11 |13.583    7.64 | 19.67    2.55
            1.500    1.56 | 7.583    3.11 |13.667    7.64 | 19.75    2.55
            1.583    1.56 | 7.667    3.11 |13.750    7.64 | 19.83    2.55
            1.667    1.56 | 7.750    3.11 |13.833    5.94 | 19.92    2.55
            1.750    1.56 | 7.833    3.11 |13.917    5.94 | 20.00    2.55
            1.833    1.56 | 7.917    3.11 |14.000    5.94 | 20.08    2.55
            1.917    1.56 | 8.000    3.11 |14.083    5.94 | 20.17    2.55
            2.000    1.56 | 8.083    3.11 |14.167    5.94 | 20.25    2.55
            2.083    1.56 | 8.167    3.11 |14.250    5.94 | 20.33    1.70
            2.167    1.56 | 8.250    3.11 |14.333    4.24 | 20.42    1.70
            2.250    1.56 | 8.333    3.68 |14.417    4.24 | 20.50    1.70
            2.333    1.84 | 8.417    3.68 |14.500    4.24 | 20.58    1.70
            2.417    1.84 | 8.500    3.68 |14.583    4.24 | 20.67    1.70
            2.500    1.84 | 8.583    3.68 |14.667    4.24 | 20.75    1.70
            2.583    1.84 | 8.667    3.68 |14.750    4.24 | 20.83    1.70
            2.667    1.84 | 8.750    3.68 |14.833    4.24 | 20.92    1.70
            2.750    1.84 | 8.833    3.96 |14.917    4.24 | 21.00    1.70
            2.833    1.84 | 8.917    3.96 |15.000    4.24 | 21.08    1.70
            2.917    1.84 | 9.000    3.96 |15.083    4.24 | 21.17    1.70
            3.000    1.84 | 9.083    3.96 |15.167    4.24 | 21.25    1.70
            3.083    1.84 | 9.167    3.96 |15.250    4.24 | 21.33    1.70
            3.167    1.84 | 9.250    3.96 |15.333    4.24 | 21.42    1.70
            3.250    1.84 | 9.333    4.53 |15.417    4.24 | 21.50    1.70
            3.333    1.84 | 9.417    4.53 |15.500    4.24 | 21.58    1.70
            3.417    1.84 | 9.500    4.53 |15.583    4.24 | 21.67    1.70
            3.500    1.84 | 9.583    4.53 |15.667    4.24 | 21.75    1.70
            3.583    1.84 | 9.667    4.53 |15.750    4.24 | 21.83    1.70
            3.667    1.84 | 9.750    4.53 |15.833    4.24 | 21.92    1.70
            3.750    1.84 | 9.833    5.09 |15.917    4.24 | 22.00    1.70
            3.833    1.84 | 9.917    5.09 |16.000    4.24 | 22.08    1.70
            3.917    1.84 |10.000    5.09 |16.083    4.24 | 22.17    1.70
            4.000    1.84 |10.083    5.09 |16.167    4.24 | 22.25    1.70
            4.083    1.84 |10.167    5.09 |16.250    4.24 | 22.33    1.70
            4.167    1.84 |10.250    5.09 |16.333    2.55 | 22.42    1.70
            4.250    1.84 |10.333    6.51 |16.417    2.55 | 22.50    1.70
            4.333    2.26 |10.417    6.51 |16.500    2.55 | 22.58    1.70
            4.417    2.26 |10.500    6.51 |16.583    2.55 | 22.67    1.70
            4.500    2.26 |10.583    6.51 |16.667    2.55 | 22.75    1.70
            4.583    2.26 |10.667    6.51 |16.750    2.55 | 22.83    1.70
            4.667    2.26 |10.750    6.51 |16.833    2.55 | 22.92    1.70
            4.750    2.26 |10.833    8.77 |16.917    2.55 | 23.00    1.70
            4.833    2.26 |10.917    8.77 |17.000    2.55 | 23.08    1.70
            4.917    2.26 |11.000    8.77 |17.083    2.55 | 23.17    1.70
            5.000    2.26 |11.083    8.77 |17.167    2.55 | 23.25    1.70
            5.083    2.26 |11.167    8.77 |17.250    2.55 | 23.33    1.70
            5.167    2.26 |11.250    8.77 |17.333    2.55 | 23.42    1.70
            5.250    2.26 |11.333   13.58 |17.417    2.55 | 23.50    1.70
            5.333    2.26 |11.417   13.58 |17.500    2.55 | 23.58    1.70
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            5.417    2.26 |11.500   13.58 |17.583    2.55 | 23.67    1.70
            5.500    2.26 |11.583   13.58 |17.667    2.55 | 23.75    1.70
            5.583    2.26 |11.667   13.58 |17.750    2.55 | 23.83    1.70
            5.667    2.26 |11.750   13.58 |17.833    2.55 | 23.92    1.70
            5.750    2.26 |11.833   41.86 |17.917    2.55 | 24.00    1.70
            5.833    2.26 |11.917   41.86 |18.000    2.55 | 24.08    1.70
            5.917    2.26 |12.000   41.86 |18.083    2.55 | 24.17    1.70
            6.000    2.26 |12.083  173.08 |18.167    2.55 | 24.25    1.70
            6.083    2.26 |12.167  173.10 |18.250    2.55 |

    Unit Hyd Qpeak  (cms)=   2.360

    PEAK FLOW       (cms)=   4.727 (i)
    TIME TO PEAK    (hrs)=  13.083
    RUNOFF VOLUME    (mm)=  93.328
    TOTAL RAINFALL   (mm)= 141.420
    RUNOFF COEFFICIENT   =   0.660

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB              |
| NASHYD   (  0103)|   Area    (ha)=  31.63   Curve Number   (CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.03   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.19

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                            ---- TRANSFORMED HYETOGRAPH ----
             TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
              hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
            0.083    0.00 | 6.167    2.26 |12.250  173.10 | 18.33    2.55
            0.167    0.00 | 6.250    2.26 |12.333   20.38 | 18.42    2.55
            0.250    0.00 | 6.333    2.55 |12.417   20.36 | 18.50    2.55
            0.333    1.56 | 6.417    2.55 |12.500   20.36 | 18.58    2.55
            0.417    1.56 | 6.500    2.55 |12.583   20.36 | 18.67    2.55
            0.500    1.56 | 6.583    2.55 |12.667   20.36 | 18.75    2.55
            0.583    1.56 | 6.667    2.55 |12.750   20.36 | 18.83    2.55
            0.667    1.56 | 6.750    2.55 |12.833   10.47 | 18.92    2.55
            0.750    1.56 | 6.833    2.55 |12.917   10.47 | 19.00    2.55
            0.833    1.56 | 6.917    2.55 |13.000   10.47 | 19.08    2.55
            0.917    1.56 | 7.000    2.55 |13.083   10.47 | 19.17    2.55
            1.000    1.56 | 7.083    2.55 |13.167   10.47 | 19.25    2.55
            1.083    1.56 | 7.167    2.55 |13.250   10.47 | 19.33    2.55
            1.167    1.56 | 7.250    2.55 |13.333    7.64 | 19.42    2.55
            1.250    1.56 | 7.333    3.11 |13.417    7.64 | 19.50    2.55
            1.333    1.56 | 7.417    3.11 |13.500    7.64 | 19.58    2.55
            1.417    1.56 | 7.500    3.11 |13.583    7.64 | 19.67    2.55
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   1.500    1.56 | 7.583    3.11 |13.667    7.64 | 19.75    2.55
   1.583    1.56 | 7.667    3.11 |13.750    7.64 | 19.83    2.55
   1.667    1.56 | 7.750    3.11 |13.833    5.94 | 19.92    2.55
   1.750    1.56 | 7.833    3.11 |13.917    5.94 | 20.00    2.55
   1.833    1.56 | 7.917    3.11 |14.000    5.94 | 20.08    2.55
   1.917    1.56 | 8.000    3.11 |14.083    5.94 | 20.17    2.55
   2.000    1.56 | 8.083    3.11 |14.167    5.94 | 20.25    2.55
   2.083    1.56 | 8.167    3.11 |14.250    5.94 | 20.33    1.70
   2.167    1.56 | 8.250    3.11 |14.333    4.24 | 20.42    1.70
   2.250    1.56 | 8.333    3.68 |14.417    4.24 | 20.50    1.70
   2.333    1.84 | 8.417    3.68 |14.500    4.24 | 20.58    1.70
   2.417    1.84 | 8.500    3.68 |14.583    4.24 | 20.67    1.70
   2.500    1.84 | 8.583    3.68 |14.667    4.24 | 20.75    1.70
   2.583    1.84 | 8.667    3.68 |14.750    4.24 | 20.83    1.70
   2.667    1.84 | 8.750    3.68 |14.833    4.24 | 20.92    1.70
   2.750    1.84 | 8.833    3.96 |14.917    4.24 | 21.00    1.70
   2.833    1.84 | 8.917    3.96 |15.000    4.24 | 21.08    1.70
   2.917    1.84 | 9.000    3.96 |15.083    4.24 | 21.17    1.70
   3.000    1.84 | 9.083    3.96 |15.167    4.24 | 21.25    1.70
   3.083    1.84 | 9.167    3.96 |15.250    4.24 | 21.33    1.70
   3.167    1.84 | 9.250    3.96 |15.333    4.24 | 21.42    1.70
   3.250    1.84 | 9.333    4.53 |15.417    4.24 | 21.50    1.70
   3.333    1.84 | 9.417    4.53 |15.500    4.24 | 21.58    1.70
   3.417    1.84 | 9.500    4.53 |15.583    4.24 | 21.67    1.70
   3.500    1.84 | 9.583    4.53 |15.667    4.24 | 21.75    1.70
   3.583    1.84 | 9.667    4.53 |15.750    4.24 | 21.83    1.70
   3.667    1.84 | 9.750    4.53 |15.833    4.24 | 21.92    1.70
   3.750    1.84 | 9.833    5.09 |15.917    4.24 | 22.00    1.70
   3.833    1.84 | 9.917    5.09 |16.000    4.24 | 22.08    1.70
   3.917    1.84 |10.000    5.09 |16.083    4.24 | 22.17    1.70
   4.000    1.84 |10.083    5.09 |16.167    4.24 | 22.25    1.70
   4.083    1.84 |10.167    5.09 |16.250    4.24 | 22.33    1.70
   4.167    1.84 |10.250    5.09 |16.333    2.55 | 22.42    1.70
   4.250    1.84 |10.333    6.51 |16.417    2.55 | 22.50    1.70
   4.333    2.26 |10.417    6.51 |16.500    2.55 | 22.58    1.70
   4.417    2.26 |10.500    6.51 |16.583    2.55 | 22.67    1.70
   4.500    2.26 |10.583    6.51 |16.667    2.55 | 22.75    1.70
   4.583    2.26 |10.667    6.51 |16.750    2.55 | 22.83    1.70
   4.667    2.26 |10.750    6.51 |16.833    2.55 | 22.92    1.70
   4.750    2.26 |10.833    8.77 |16.917    2.55 | 23.00    1.70
   4.833    2.26 |10.917    8.77 |17.000    2.55 | 23.08    1.70
   4.917    2.26 |11.000    8.77 |17.083    2.55 | 23.17    1.70
   5.000    2.26 |11.083    8.77 |17.167    2.55 | 23.25    1.70
   5.083    2.26 |11.167    8.77 |17.250    2.55 | 23.33    1.70
   5.167    2.26 |11.250    8.77 |17.333    2.55 | 23.42    1.70
   5.250    2.26 |11.333   13.58 |17.417    2.55 | 23.50    1.70
   5.333    2.26 |11.417   13.58 |17.500    2.55 | 23.58    1.70
   5.417    2.26 |11.500   13.58 |17.583    2.55 | 23.67    1.70
   5.500    2.26 |11.583   13.58 |17.667    2.55 | 23.75    1.70
   5.583    2.26 |11.667   13.58 |17.750    2.55 | 23.83    1.70
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   5.667    2.26 |11.750   13.58 |17.833    2.55 | 23.92    1.70
   5.750    2.26 |11.833   41.86 |17.917    2.55 | 24.00    1.70
   5.833    2.26 |11.917   41.86 |18.000    2.55 | 24.08    1.70
   5.917    2.26 |12.000   41.86 |18.083    2.55 | 24.17    1.70
   6.000    2.26 |12.083  173.08 |18.167    2.55 | 24.25    1.70
   6.083    2.26 |12.167  173.10 |18.250    2.55 |

     Unit Hyd Qpeak  (cms)=   1.015

     PEAK FLOW       (cms)=   2.053 (i)
     TIME TO PEAK    (hrs)=  13.417
     RUNOFF VOLUME    (mm)=  89.450
     TOTAL RAINFALL   (mm)= 141.420
     RUNOFF COEFFICIENT   =   0.633

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| NASHYD   (  0104)|   Area    (ha)=  42.80   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.89   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.88

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                             ---- TRANSFORMED HYETOGRAPH ----
                   TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                    hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                  0.083    0.00 | 6.167    2.26 |12.250  173.10 | 18.33    2.55
                  0.167    0.00 | 6.250    2.26 |12.333   20.38 | 18.42    2.55
                  0.250    0.00 | 6.333    2.55 |12.417   20.36 | 18.50    2.55
                  0.333    1.56 | 6.417    2.55 |12.500   20.36 | 18.58    2.55
                  0.417    1.56 | 6.500    2.55 |12.583   20.36 | 18.67    2.55
                  0.500    1.56 | 6.583    2.55 |12.667   20.36 | 18.75    2.55
                  0.583    1.56 | 6.667    2.55 |12.750   20.36 | 18.83    2.55
                  0.667    1.56 | 6.750    2.55 |12.833   10.47 | 18.92    2.55
                  0.750    1.56 | 6.833    2.55 |12.917   10.47 | 19.00    2.55
                  0.833    1.56 | 6.917    2.55 |13.000   10.47 | 19.08    2.55
                  0.917    1.56 | 7.000    2.55 |13.083   10.47 | 19.17    2.55
                  1.000    1.56 | 7.083    2.55 |13.167   10.47 | 19.25    2.55
                  1.083    1.56 | 7.167    2.55 |13.250   10.47 | 19.33    2.55
                  1.167    1.56 | 7.250    2.55 |13.333    7.64 | 19.42    2.55
                  1.250    1.56 | 7.333    3.11 |13.417    7.64 | 19.50    2.55
                  1.333    1.56 | 7.417    3.11 |13.500    7.64 | 19.58    2.55
                  1.417    1.56 | 7.500    3.11 |13.583    7.64 | 19.67    2.55
                  1.500    1.56 | 7.583    3.11 |13.667    7.64 | 19.75    2.55
                  1.583    1.56 | 7.667    3.11 |13.750    7.64 | 19.83    2.55
                  1.667    1.56 | 7.750    3.11 |13.833    5.94 | 19.92    2.55
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   1.750    1.56 | 7.833    3.11 |13.917    5.94 | 20.00    2.55
   1.833    1.56 | 7.917    3.11 |14.000    5.94 | 20.08    2.55
   1.917    1.56 | 8.000    3.11 |14.083    5.94 | 20.17    2.55
   2.000    1.56 | 8.083    3.11 |14.167    5.94 | 20.25    2.55
   2.083    1.56 | 8.167    3.11 |14.250    5.94 | 20.33    1.70
   2.167    1.56 | 8.250    3.11 |14.333    4.24 | 20.42    1.70
   2.250    1.56 | 8.333    3.68 |14.417    4.24 | 20.50    1.70
   2.333    1.84 | 8.417    3.68 |14.500    4.24 | 20.58    1.70
   2.417    1.84 | 8.500    3.68 |14.583    4.24 | 20.67    1.70
   2.500    1.84 | 8.583    3.68 |14.667    4.24 | 20.75    1.70
   2.583    1.84 | 8.667    3.68 |14.750    4.24 | 20.83    1.70
   2.667    1.84 | 8.750    3.68 |14.833    4.24 | 20.92    1.70
   2.750    1.84 | 8.833    3.96 |14.917    4.24 | 21.00    1.70
   2.833    1.84 | 8.917    3.96 |15.000    4.24 | 21.08    1.70
   2.917    1.84 | 9.000    3.96 |15.083    4.24 | 21.17    1.70
   3.000    1.84 | 9.083    3.96 |15.167    4.24 | 21.25    1.70
   3.083    1.84 | 9.167    3.96 |15.250    4.24 | 21.33    1.70
   3.167    1.84 | 9.250    3.96 |15.333    4.24 | 21.42    1.70
   3.250    1.84 | 9.333    4.53 |15.417    4.24 | 21.50    1.70
   3.333    1.84 | 9.417    4.53 |15.500    4.24 | 21.58    1.70
   3.417    1.84 | 9.500    4.53 |15.583    4.24 | 21.67    1.70
   3.500    1.84 | 9.583    4.53 |15.667    4.24 | 21.75    1.70
   3.583    1.84 | 9.667    4.53 |15.750    4.24 | 21.83    1.70
   3.667    1.84 | 9.750    4.53 |15.833    4.24 | 21.92    1.70
   3.750    1.84 | 9.833    5.09 |15.917    4.24 | 22.00    1.70
   3.833    1.84 | 9.917    5.09 |16.000    4.24 | 22.08    1.70
   3.917    1.84 |10.000    5.09 |16.083    4.24 | 22.17    1.70
   4.000    1.84 |10.083    5.09 |16.167    4.24 | 22.25    1.70
   4.083    1.84 |10.167    5.09 |16.250    4.24 | 22.33    1.70
   4.167    1.84 |10.250    5.09 |16.333    2.55 | 22.42    1.70
   4.250    1.84 |10.333    6.51 |16.417    2.55 | 22.50    1.70
   4.333    2.26 |10.417    6.51 |16.500    2.55 | 22.58    1.70
   4.417    2.26 |10.500    6.51 |16.583    2.55 | 22.67    1.70
   4.500    2.26 |10.583    6.51 |16.667    2.55 | 22.75    1.70
   4.583    2.26 |10.667    6.51 |16.750    2.55 | 22.83    1.70
   4.667    2.26 |10.750    6.51 |16.833    2.55 | 22.92    1.70
   4.750    2.26 |10.833    8.77 |16.917    2.55 | 23.00    1.70
   4.833    2.26 |10.917    8.77 |17.000    2.55 | 23.08    1.70
   4.917    2.26 |11.000    8.77 |17.083    2.55 | 23.17    1.70
   5.000    2.26 |11.083    8.77 |17.167    2.55 | 23.25    1.70
   5.083    2.26 |11.167    8.77 |17.250    2.55 | 23.33    1.70
   5.167    2.26 |11.250    8.77 |17.333    2.55 | 23.42    1.70
   5.250    2.26 |11.333   13.58 |17.417    2.55 | 23.50    1.70
   5.333    2.26 |11.417   13.58 |17.500    2.55 | 23.58    1.70
   5.417    2.26 |11.500   13.58 |17.583    2.55 | 23.67    1.70
   5.500    2.26 |11.583   13.58 |17.667    2.55 | 23.75    1.70
   5.583    2.26 |11.667   13.58 |17.750    2.55 | 23.83    1.70
   5.667    2.26 |11.750   13.58 |17.833    2.55 | 23.92    1.70
   5.750    2.26 |11.833   41.86 |17.917    2.55 | 24.00    1.70
   5.833    2.26 |11.917   41.86 |18.000    2.55 | 24.08    1.70
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                  5.917    2.26 |12.000   41.86 |18.083    2.55 | 24.17    1.70
                  6.000    2.26 |12.083  173.08 |18.167    2.55 | 24.25    1.70
                  6.083    2.26 |12.167  173.10 |18.250    2.55 |

     Unit Hyd Qpeak  (cms)=   1.858

     PEAK FLOW       (cms)=   3.571 (i)
     TIME TO PEAK    (hrs)=  13.083
     RUNOFF VOLUME    (mm)=  91.391
     TOTAL RAINFALL   (mm)= 141.420
     RUNOFF COEFFICIENT   =   0.646

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| NASHYD   (  0105)|   Area    (ha)=   9.10   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.35

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                             ---- TRANSFORMED HYETOGRAPH ----
                   TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                    hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                  0.083    0.00 | 6.167    2.26 |12.250  173.10 | 18.33    2.55
                  0.167    0.00 | 6.250    2.26 |12.333   20.38 | 18.42    2.55
                  0.250    0.00 | 6.333    2.55 |12.417   20.36 | 18.50    2.55
                  0.333    1.56 | 6.417    2.55 |12.500   20.36 | 18.58    2.55
                  0.417    1.56 | 6.500    2.55 |12.583   20.36 | 18.67    2.55
                  0.500    1.56 | 6.583    2.55 |12.667   20.36 | 18.75    2.55
                  0.583    1.56 | 6.667    2.55 |12.750   20.36 | 18.83    2.55
                  0.667    1.56 | 6.750    2.55 |12.833   10.47 | 18.92    2.55
                  0.750    1.56 | 6.833    2.55 |12.917   10.47 | 19.00    2.55
                  0.833    1.56 | 6.917    2.55 |13.000   10.47 | 19.08    2.55
                  0.917    1.56 | 7.000    2.55 |13.083   10.47 | 19.17    2.55
                  1.000    1.56 | 7.083    2.55 |13.167   10.47 | 19.25    2.55
                  1.083    1.56 | 7.167    2.55 |13.250   10.47 | 19.33    2.55
                  1.167    1.56 | 7.250    2.55 |13.333    7.64 | 19.42    2.55
                  1.250    1.56 | 7.333    3.11 |13.417    7.64 | 19.50    2.55
                  1.333    1.56 | 7.417    3.11 |13.500    7.64 | 19.58    2.55
                  1.417    1.56 | 7.500    3.11 |13.583    7.64 | 19.67    2.55
                  1.500    1.56 | 7.583    3.11 |13.667    7.64 | 19.75    2.55
                  1.583    1.56 | 7.667    3.11 |13.750    7.64 | 19.83    2.55
                  1.667    1.56 | 7.750    3.11 |13.833    5.94 | 19.92    2.55
                  1.750    1.56 | 7.833    3.11 |13.917    5.94 | 20.00    2.55
                  1.833    1.56 | 7.917    3.11 |14.000    5.94 | 20.08    2.55
                  1.917    1.56 | 8.000    3.11 |14.083    5.94 | 20.17    2.55
```

```
   2.000    1.56 | 8.083    3.11 |14.167    5.94 | 20.25    2.55
   2.083    1.56 | 8.167    3.11 |14.250    5.94 | 20.33    1.70
   2.167    1.56 | 8.250    3.11 |14.333    4.24 | 20.42    1.70
   2.250    1.56 | 8.333    3.68 |14.417    4.24 | 20.50    1.70
   2.333    1.84 | 8.417    3.68 |14.500    4.24 | 20.58    1.70
   2.417    1.84 | 8.500    3.68 |14.583    4.24 | 20.67    1.70
   2.500    1.84 | 8.583    3.68 |14.667    4.24 | 20.75    1.70
   2.583    1.84 | 8.667    3.68 |14.750    4.24 | 20.83    1.70
   2.667    1.84 | 8.750    3.68 |14.833    4.24 | 20.92    1.70
   2.750    1.84 | 8.833    3.96 |14.917    4.24 | 21.00    1.70
   2.833    1.84 | 8.917    3.96 |15.000    4.24 | 21.08    1.70
   2.917    1.84 | 9.000    3.96 |15.083    4.24 | 21.17    1.70
   3.000    1.84 | 9.083    3.96 |15.167    4.24 | 21.25    1.70
   3.083    1.84 | 9.167    3.96 |15.250    4.24 | 21.33    1.70
   3.167    1.84 | 9.250    3.96 |15.333    4.24 | 21.42    1.70
   3.250    1.84 | 9.333    4.53 |15.417    4.24 | 21.50    1.70
   3.333    1.84 | 9.417    4.53 |15.500    4.24 | 21.58    1.70
   3.417    1.84 | 9.500    4.53 |15.583    4.24 | 21.67    1.70
   3.500    1.84 | 9.583    4.53 |15.667    4.24 | 21.75    1.70
   3.583    1.84 | 9.667    4.53 |15.750    4.24 | 21.83    1.70
   3.667    1.84 | 9.750    4.53 |15.833    4.24 | 21.92    1.70
   3.750    1.84 | 9.833    5.09 |15.917    4.24 | 22.00    1.70
   3.833    1.84 | 9.917    5.09 |16.000    4.24 | 22.08    1.70
   3.917    1.84 |10.000    5.09 |16.083    4.24 | 22.17    1.70
   4.000    1.84 |10.083    5.09 |16.167    4.24 | 22.25    1.70
   4.083    1.84 |10.167    5.09 |16.250    4.24 | 22.33    1.70
   4.167    1.84 |10.250    5.09 |16.333    2.55 | 22.42    1.70
   4.250    1.84 |10.333    6.51 |16.417    2.55 | 22.50    1.70
   4.333    2.26 |10.417    6.51 |16.500    2.55 | 22.58    1.70
   4.417    2.26 |10.500    6.51 |16.583    2.55 | 22.67    1.70
   4.500    2.26 |10.583    6.51 |16.667    2.55 | 22.75    1.70
   4.583    2.26 |10.667    6.51 |16.750    2.55 | 22.83    1.70
   4.667    2.26 |10.750    6.51 |16.833    2.55 | 22.92    1.70
   4.750    2.26 |10.833    8.77 |16.917    2.55 | 23.00    1.70
   4.833    2.26 |10.917    8.77 |17.000    2.55 | 23.08    1.70
   4.917    2.26 |11.000    8.77 |17.083    2.55 | 23.17    1.70
   5.000    2.26 |11.083    8.77 |17.167    2.55 | 23.25    1.70
   5.083    2.26 |11.167    8.77 |17.250    2.55 | 23.33    1.70
   5.167    2.26 |11.250    8.77 |17.333    2.55 | 23.42    1.70
   5.250    2.26 |11.333   13.58 |17.417    2.55 | 23.50    1.70
   5.333    2.26 |11.417   13.58 |17.500    2.55 | 23.58    1.70
   5.417    2.26 |11.500   13.58 |17.583    2.55 | 23.67    1.70
   5.500    2.26 |11.583   13.58 |17.667    2.55 | 23.75    1.70
   5.583    2.26 |11.667   13.58 |17.750    2.55 | 23.83    1.70
   5.667    2.26 |11.750   13.58 |17.833    2.55 | 23.92    1.70
   5.750    2.26 |11.833   41.86 |17.917    2.55 | 24.00    1.70
   5.833    2.26 |11.917   41.86 |18.000    2.55 | 24.08    1.70
   5.917    2.26 |12.000   41.86 |18.083    2.55 | 24.17    1.70
   6.000    2.26 |12.083  173.08 |18.167    2.55 | 24.25    1.70
   6.083    2.26 |12.167  173.10 |18.250    2.55 |
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     Unit Hyd Qpeak  (cms)=   0.993

     PEAK FLOW       (cms)=   1.484 (i)
     TIME TO PEAK    (hrs)=  12.417
     RUNOFF VOLUME    (mm)=  91.274
     TOTAL RAINFALL   (mm)= 141.420
     RUNOFF COEFFICIENT   =   0.645

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0103):     31.63   2.053    13.42    89.45
      + ID2= 2 (  0104):     42.80   3.571    13.08    91.39
        =====================================================
        ID = 3 (  0030):     74.43   5.529    13.17    90.57

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0030):     74.43   5.529    13.17    90.57
      + ID2= 2 (  0105):      9.10   1.484    12.42    91.27
        =====================================================
        ID = 1 (  0030):     83.53   6.134    13.00    90.64

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB              |
| NASHYD   (  0101)|   Area    (ha)=  22.02   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.77   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.51

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                             ---- TRANSFORMED HYETOGRAPH ----
                   TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                    hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                  0.083    0.00 | 6.167    2.26 |12.250  173.10 | 18.33    2.55
                  0.167    0.00 | 6.250    2.26 |12.333   20.38 | 18.42    2.55
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   0.250    0.00 | 6.333    2.55 |12.417   20.36 | 18.50    2.55
   0.333    1.56 | 6.417    2.55 |12.500   20.36 | 18.58    2.55
   0.417    1.56 | 6.500    2.55 |12.583   20.36 | 18.67    2.55
   0.500    1.56 | 6.583    2.55 |12.667   20.36 | 18.75    2.55
   0.583    1.56 | 6.667    2.55 |12.750   20.36 | 18.83    2.55
   0.667    1.56 | 6.750    2.55 |12.833   10.47 | 18.92    2.55
   0.750    1.56 | 6.833    2.55 |12.917   10.47 | 19.00    2.55
   0.833    1.56 | 6.917    2.55 |13.000   10.47 | 19.08    2.55
   0.917    1.56 | 7.000    2.55 |13.083   10.47 | 19.17    2.55
   1.000    1.56 | 7.083    2.55 |13.167   10.47 | 19.25    2.55
   1.083    1.56 | 7.167    2.55 |13.250   10.47 | 19.33    2.55
   1.167    1.56 | 7.250    2.55 |13.333    7.64 | 19.42    2.55
   1.250    1.56 | 7.333    3.11 |13.417    7.64 | 19.50    2.55
   1.333    1.56 | 7.417    3.11 |13.500    7.64 | 19.58    2.55
   1.417    1.56 | 7.500    3.11 |13.583    7.64 | 19.67    2.55
   1.500    1.56 | 7.583    3.11 |13.667    7.64 | 19.75    2.55
   1.583    1.56 | 7.667    3.11 |13.750    7.64 | 19.83    2.55
   1.667    1.56 | 7.750    3.11 |13.833    5.94 | 19.92    2.55
   1.750    1.56 | 7.833    3.11 |13.917    5.94 | 20.00    2.55
   1.833    1.56 | 7.917    3.11 |14.000    5.94 | 20.08    2.55
   1.917    1.56 | 8.000    3.11 |14.083    5.94 | 20.17    2.55
   2.000    1.56 | 8.083    3.11 |14.167    5.94 | 20.25    2.55
   2.083    1.56 | 8.167    3.11 |14.250    5.94 | 20.33    1.70
   2.167    1.56 | 8.250    3.11 |14.333    4.24 | 20.42    1.70
   2.250    1.56 | 8.333    3.68 |14.417    4.24 | 20.50    1.70
   2.333    1.84 | 8.417    3.68 |14.500    4.24 | 20.58    1.70
   2.417    1.84 | 8.500    3.68 |14.583    4.24 | 20.67    1.70
   2.500    1.84 | 8.583    3.68 |14.667    4.24 | 20.75    1.70
   2.583    1.84 | 8.667    3.68 |14.750    4.24 | 20.83    1.70
   2.667    1.84 | 8.750    3.68 |14.833    4.24 | 20.92    1.70
   2.750    1.84 | 8.833    3.96 |14.917    4.24 | 21.00    1.70
   2.833    1.84 | 8.917    3.96 |15.000    4.24 | 21.08    1.70
   2.917    1.84 | 9.000    3.96 |15.083    4.24 | 21.17    1.70
   3.000    1.84 | 9.083    3.96 |15.167    4.24 | 21.25    1.70
   3.083    1.84 | 9.167    3.96 |15.250    4.24 | 21.33    1.70
   3.167    1.84 | 9.250    3.96 |15.333    4.24 | 21.42    1.70
   3.250    1.84 | 9.333    4.53 |15.417    4.24 | 21.50    1.70
   3.333    1.84 | 9.417    4.53 |15.500    4.24 | 21.58    1.70
   3.417    1.84 | 9.500    4.53 |15.583    4.24 | 21.67    1.70
   3.500    1.84 | 9.583    4.53 |15.667    4.24 | 21.75    1.70
   3.583    1.84 | 9.667    4.53 |15.750    4.24 | 21.83    1.70
   3.667    1.84 | 9.750    4.53 |15.833    4.24 | 21.92    1.70
   3.750    1.84 | 9.833    5.09 |15.917    4.24 | 22.00    1.70
   3.833    1.84 | 9.917    5.09 |16.000    4.24 | 22.08    1.70
   3.917    1.84 |10.000    5.09 |16.083    4.24 | 22.17    1.70
   4.000    1.84 |10.083    5.09 |16.167    4.24 | 22.25    1.70
   4.083    1.84 |10.167    5.09 |16.250    4.24 | 22.33    1.70
   4.167    1.84 |10.250    5.09 |16.333    2.55 | 22.42    1.70
   4.250    1.84 |10.333    6.51 |16.417    2.55 | 22.50    1.70
   4.333    2.26 |10.417    6.51 |16.500    2.55 | 22.58    1.70
```

```
                  4.417    2.26 |10.500    6.51 |16.583    2.55 | 22.67    1.70
                  4.500    2.26 |10.583    6.51 |16.667    2.55 | 22.75    1.70
                  4.583    2.26 |10.667    6.51 |16.750    2.55 | 22.83    1.70
                  4.667    2.26 |10.750    6.51 |16.833    2.55 | 22.92    1.70
                  4.750    2.26 |10.833    8.77 |16.917    2.55 | 23.00    1.70
                  4.833    2.26 |10.917    8.77 |17.000    2.55 | 23.08    1.70
                  4.917    2.26 |11.000    8.77 |17.083    2.55 | 23.17    1.70
                  5.000    2.26 |11.083    8.77 |17.167    2.55 | 23.25    1.70
                  5.083    2.26 |11.167    8.77 |17.250    2.55 | 23.33    1.70
                  5.167    2.26 |11.250    8.77 |17.333    2.55 | 23.42    1.70
                  5.250    2.26 |11.333   13.58 |17.417    2.55 | 23.50    1.70
                  5.333    2.26 |11.417   13.58 |17.500    2.55 | 23.58    1.70
                  5.417    2.26 |11.500   13.58 |17.583    2.55 | 23.67    1.70
                  5.500    2.26 |11.583   13.58 |17.667    2.55 | 23.75    1.70
                  5.583    2.26 |11.667   13.58 |17.750    2.55 | 23.83    1.70
                  5.667    2.26 |11.750   13.58 |17.833    2.55 | 23.92    1.70
                  5.750    2.26 |11.833   41.86 |17.917    2.55 | 24.00    1.70
                  5.833    2.26 |11.917   41.86 |18.000    2.55 | 24.08    1.70
                  5.917    2.26 |12.000   41.86 |18.083    2.55 | 24.17    1.70
                  6.000    2.26 |12.083  173.08 |18.167    2.55 | 24.25    1.70
                  6.083    2.26 |12.167  173.10 |18.250    2.55 |

     Unit Hyd Qpeak  (cms)=   1.649

     PEAK FLOW       (cms)=   2.802 (i)
     TIME TO PEAK    (hrs)=  12.667
     RUNOFF VOLUME    (mm)=  93.342
     TOTAL RAINFALL   (mm)= 141.420
     RUNOFF COEFFICIENT   =   0.660

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
==========================================================================================
========================

       V    V   I   SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I   SS     U   U   A A   L
        V  V    I    SS    U   U  AAAAA  L
        V  V    I     SS   U   U  A   A  L
         VV     I   SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
```

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```
                    *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
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b98d00-2b2a-4a94-9db5-dbc7da25e5a1\sc
  Summary filename:
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b98d00-2b2a-4a94-9db5-dbc7da25e5a1\sc


DATE: 11-27-2024                           TIME: 08:40:18

USER:


COMMENTS: ____________________________________________________________


--------------------------------------------------------------------------------
------------------------
  **********************************************
  ** SIMULATION : 4 - 25 mm Design Storm (4hr 1 **
  **********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jfletcher\AppD
|                  |              ata\Local\Temp\
|                  |              c740c1c5-319b-42e5-9217-47a86f8e726c\aae2a74b
| Ptotal= 25.00 mm |    Comments: 25 mm Design Storm (4hr 10 min Chicago)
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.00    2.21 |  1.00   10.08 |  2.00    4.31 |  3.00    2.54
                 0.17    2.47 |  1.17   54.62 |  2.17    3.82 |  3.17    2.40
                 0.33    2.81 |  1.33   12.32 |  2.33    3.44 |  3.33    2.27
                 0.50    3.29 |  1.50    7.86 |  2.50    3.15 |  3.50    2.16
                 0.67    4.06 |  1.67    6.03 |  2.67    2.91 |  3.67    2.06
                 0.83    5.51 |  1.83    4.99 |  2.83    2.71 |  3.83    1.98

--------------------------------------------------------------------------------

--------------------
| CALIB              |
| NASHYD   (  0102)|   Area    (ha)=  58.69   Curve Number   (CN)= 81.0
```

```
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.79   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.95

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    2.21 | 1.083   10.08 | 2.083    4.31 |  3.08    2.54
               0.167    2.21 | 1.167   10.08 | 2.167    4.31 |  3.17    2.54
               0.250    2.47 | 1.250   54.62 | 2.250    3.82 |  3.25    2.40
               0.333    2.47 | 1.333   54.62 | 2.333    3.82 |  3.33    2.40
               0.417    2.81 | 1.417   12.32 | 2.417    3.44 |  3.42    2.27
               0.500    2.81 | 1.500   12.32 | 2.500    3.44 |  3.50    2.27
               0.583    3.29 | 1.583    7.86 | 2.583    3.15 |  3.58    2.16
               0.667    3.29 | 1.667    7.86 | 2.667    3.15 |  3.67    2.16
               0.750    4.06 | 1.750    6.03 | 2.750    2.91 |  3.75    2.06
               0.833    4.06 | 1.833    6.03 | 2.833    2.91 |  3.83    2.06
               0.917    5.51 | 1.917    4.99 | 2.917    2.71 |  3.92    1.98
               1.000    5.51 | 2.000    4.99 | 3.000    2.71 |  4.00    1.98

    Unit Hyd Qpeak  (cms)=   2.360

    PEAK FLOW       (cms)=   0.229 (i)
    TIME TO PEAK    (hrs)=   2.917
    RUNOFF VOLUME    (mm)=   4.263
    TOTAL RAINFALL   (mm)=  25.000
    RUNOFF COEFFICIENT   =   0.171

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD   (  0103)|   Area    (ha)=  31.63   Curve Number   (CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.03   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.19

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    2.21 | 1.083   10.08 | 2.083    4.31 |  3.08    2.54
               0.167    2.21 | 1.167   10.08 | 2.167    4.31 |  3.17    2.54
               0.250    2.47 | 1.250   54.62 | 2.250    3.82 |  3.25    2.40
               0.333    2.47 | 1.333   54.62 | 2.333    3.82 |  3.33    2.40
               0.417    2.81 | 1.417   12.32 | 2.417    3.44 |  3.42    2.27
               0.500    2.81 | 1.500   12.32 | 2.500    3.44 |  3.50    2.27
               0.583    3.29 | 1.583    7.86 | 2.583    3.15 |  3.58    2.16
               0.667    3.29 | 1.667    7.86 | 2.667    3.15 |  3.67    2.16
               0.750    4.06 | 1.750    6.03 | 2.750    2.91 |  3.75    2.06
               0.833    4.06 | 1.833    6.03 | 2.833    2.91 |  3.83    2.06
               0.917    5.51 | 1.917    4.99 | 2.917    2.71 |  3.92    1.98
               1.000    5.51 | 2.000    4.99 | 3.000    2.71 |  4.00    1.98

    Unit Hyd Qpeak  (cms)=   1.858

    PEAK FLOW       (cms)=   0.163 (i)
    TIME TO PEAK    (hrs)=   2.833
    RUNOFF VOLUME    (mm)=   4.019
    TOTAL RAINFALL   (mm)=  25.000

    RUNOFF COEFFICIENT   =   0.161

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD   (  0105)|   Area    (ha)=   9.10   Curve Number   (CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.35

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    2.21 | 1.083   10.08 | 2.083    4.31 |  3.08    2.54
               0.167    2.21 | 1.167   10.08 | 2.167    4.31 |  3.17    2.54
               0.250    2.47 | 1.250   54.62 | 2.250    3.82 |  3.25    2.40
               0.333    2.47 | 1.333   54.62 | 2.333    3.82 |  3.33    2.40
               0.417    2.81 | 1.417   12.32 | 2.417    3.44 |  3.42    2.27
               0.500    2.81 | 1.500   12.32 | 2.500    3.44 |  3.50    2.27
               0.583    3.29 | 1.583    7.86 | 2.583    3.15 |  3.58    2.16
               0.667    3.29 | 1.667    7.86 | 2.667    3.15 |  3.67    2.16
               0.750    4.06 | 1.750    6.03 | 2.750    2.91 |  3.75    2.06
               0.833    4.06 | 1.833    6.03 | 2.833    2.91 |  3.83    2.06
               0.917    5.51 | 1.917    4.99 | 2.917    2.71 |  3.92    1.98
               1.000    5.51 | 2.000    4.99 | 3.000    2.71 |  4.00    1.98

    Unit Hyd Qpeak  (cms)=   0.993

    PEAK FLOW       (cms)=   0.053 (i)
    TIME TO PEAK    (hrs)=   1.833
    RUNOFF VOLUME    (mm)=   3.975
    TOTAL RAINFALL   (mm)=  25.000
    RUNOFF COEFFICIENT   =   0.159

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0030)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)      (mm)
       ID1= 1 (  0103):    31.63   0.098     3.42     3.78
     + ID2= 2 (  0104):    42.80   0.163     2.83     4.02
       ========================================================
       ID = 3 (  0030):    74.43   0.256     3.00     3.92

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0030)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)      (mm)
       ID1= 3 (  0030):    74.43   0.256     3.00     3.92
     + ID2= 2 (  0105):     9.10   0.053     1.83     3.97
       ========================================================
       ID = 1 (  0030):    83.53   0.285     2.92     3.92

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD   (  0101)|   Area    (ha)=  22.02   Curve Number   (CN)= 81.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.77   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.51

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    2.21 | 1.083   10.08 | 2.083    4.31 |  3.08    2.54
               0.167    2.21 | 1.167   10.08 | 2.167    4.31 |  3.17    2.54
               0.250    2.47 | 1.250   54.62 | 2.250    3.82 |  3.25    2.40
               0.333    2.47 | 1.333   54.62 | 2.333    3.82 |  3.33    2.40
               0.417    2.81 | 1.417   12.32 | 2.417    3.44 |  3.42    2.27
               0.500    2.81 | 1.500   12.32 | 2.500    3.44 |  3.50    2.27
               0.583    3.29 | 1.583    7.86 | 2.583    3.15 |  3.58    2.16
               0.667    3.29 | 1.667    7.86 | 2.667    3.15 |  3.67    2.16
               0.750    4.06 | 1.750    6.03 | 2.750    2.91 |  3.75    2.06
               0.833    4.06 | 1.833    6.03 | 2.833    2.91 |  3.83    2.06
               0.917    5.51 | 1.917    4.99 | 2.917    2.71 |  3.92    1.98
               1.000    5.51 | 2.000    4.99 | 3.000    2.71 |  4.00    1.98

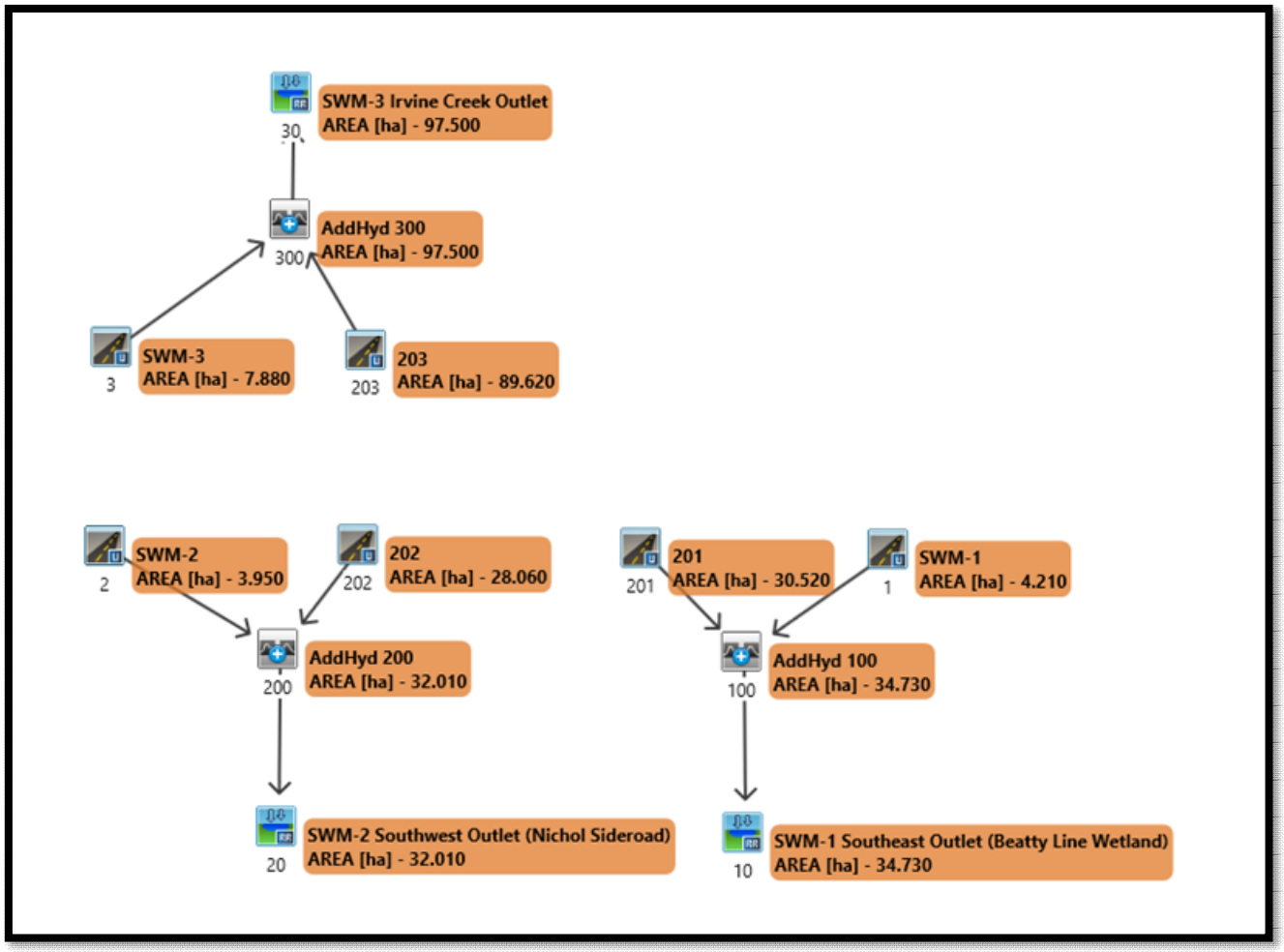
    Unit Hyd Qpeak  (cms)=   1.649

    PEAK FLOW       (cms)=   0.117 (i)
    TIME TO PEAK    (hrs)=   2.083
    RUNOFF VOLUME    (mm)=   4.271
    TOTAL RAINFALL   (mm)=  25.000
    RUNOFF COEFFICIENT   =   0.171

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
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Post-Development VO Modelling Results



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================================================================================
======================

       V    V   I    SSSSS  U   U    A     L                (v 6.2.2015)
       V    V   I    SS     U   U   A A    L
        V  V    I    SS     U   U  AAAAA   L
         V V    I     SS    U   U  A   A   L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\db
1b8b95-c984-45af-8f28-7dce48ae30f7\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\db
1b8b95-c984-45af-8f28-7dce48ae30f7\sc

DATE: 11-27-2024                       TIME: 08:52:05

USER:


COMMENTS: _____________________________________________________


--------------------------------------------------------------------------------
--------------------
  ************************************************
  ** SIMULATION : 1A - 2yr 4hr 10min Chicago    **
  ************************************************

-------------------
| CHICAGO STORM   |     IDF curve parameters: A= 414.345
| Ptotal= 39.44 mm |                           B=   0.000
-------------------                           C=   0.682
```

```
                                                used in:   INTENSITY =  A / (t + B)^C

                                                Duration of storm  =  4.00 hrs
                                                Storm time step    = 10.00 min
                                                Time to peak ratio =  0.33

      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
      0.00    3.49 |  1.00   15.91 |'  2.00    6.80 |  3.00    4.01
      0.17    3.89 |  1.17   86.17 |'  2.17    6.02 |  3.17    3.78
      0.33    4.43 |  1.33   19.44 |'  2.33    5.43 |  3.33    3.58
      0.50    5.19 |  1.50   12.40 |'  2.50    4.97 |  3.50    3.41
      0.67    6.40 |  1.67    9.52 |'  2.67    4.59 |  3.67    3.26
      0.83    8.69 |  1.83    7.88 |'  2.83    4.28 |  3.83    3.12

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0201)|   Area    (ha)=  30.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=  55.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       23.81          6.71
     Dep. Storage     (mm)=        5.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=      451.07         40.00
     Mannings n             =     0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
      0.083   3.49 | 1.083   15.91 |' 2.083   6.80 | 3.08    4.01
      0.167   3.49 | 1.167   15.91 |' 2.167   6.80 | 3.17    4.01
      0.250   3.89 | 1.250   86.17 |' 2.250   6.02 | 3.25    3.78
      0.333   3.89 | 1.333   86.17 |' 2.333   6.02 | 3.33    3.78
      0.417   4.43 | 1.417   19.44 |' 2.417   5.43 | 3.42    3.58
      0.500   4.43 | 1.500   19.44 |' 2.500   5.43 | 3.50    3.58
      0.583   5.19 | 1.583   12.40 |' 2.583   4.97 | 3.58    3.41
      0.667   5.19 | 1.667   12.40 |' 2.667   4.97 | 3.67    3.41
      0.750   6.40 | 1.750    9.52 |' 2.750   4.59 | 3.75    3.26
      0.833   6.40 | 1.833    9.52 |' 2.833   4.59 | 3.83    3.26
      0.917   8.69 | 1.917    7.88 |' 2.917   4.28 | 3.92    3.12
      1.000   8.69 | 2.000    7.88 |' 3.000   4.28 | 4.00    3.12

     Max.Eff.Inten.(mm/hr)=     86.17         54.38
               over (min)        5.00         20.00
```

```
     Storage Coeff.  (min)=       6.69 (ii)   15.70 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.18          0.07
                                                *TOTALS*
     PEAK FLOW       (cms)=       3.25          0.46          3.418 (iii)
     TIME TO PEAK    (hrs)=       1.33          1.58          1.33
     RUNOFF VOLUME    (mm)=      34.44         13.94         25.22
     TOTAL RAINFALL   (mm)=      39.44         39.44         39.44
     RUNOFF COEFFICIENT   =       0.87          0.35          0.64


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0001)|   Area    (ha)=  4.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        2.11          2.11
     Dep. Storage     (mm)=        5.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=      167.53         40.00
     Mannings n             =     0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
      0.083   3.49 | 1.083   15.91 |' 2.083   6.80 | 3.08    4.01
      0.167   3.49 | 1.167   15.91 |' 2.167   6.80 | 3.17    4.01
      0.250   3.89 | 1.250   86.17 |' 2.250   6.02 | 3.25    3.78
      0.333   3.89 | 1.333   86.17 |' 2.333   6.02 | 3.33    3.78
      0.417   4.43 | 1.417   19.44 |' 2.417   5.43 | 3.42    3.58
      0.500   4.43 | 1.500   19.44 |' 2.500   5.43 | 3.50    3.58
      0.583   5.19 | 1.583   12.40 |' 2.583   4.97 | 3.58    3.41
      0.667   5.19 | 1.667   12.40 |' 2.667   4.97 | 3.67    3.41
      0.750   6.40 | 1.750    9.52 |' 2.750   4.59 | 3.75    3.26
      0.833   6.40 | 1.833    9.52 |' 2.833   4.59 | 3.83    3.26
      0.917   8.69 | 1.917    7.88 |' 2.917   4.28 | 3.92    3.12
      1.000   8.69 | 2.000    7.88 |' 3.000   4.28 | 4.00    3.12

     Max.Eff.Inten.(mm/hr)=     86.17          8.53
```

```
               over (min)        5.00         25.00
     Storage Coeff.  (min)=       3.70 (ii)   22.59 (ii)
     Unit Hyd. Tpeak (min)=       5.00         25.00
     Unit Hyd. peak  (cms)=       0.25          0.05
                                                *TOTALS*
     PEAK FLOW       (cms)=       0.48          0.03          0.482 (iii)
     TIME TO PEAK    (hrs)=       1.33          1.67          1.33
     RUNOFF VOLUME    (mm)=      34.44          7.43         20.94
     TOTAL RAINFALL   (mm)=      39.44         39.44         39.44
     RUNOFF COEFFICIENT   =       0.87          0.19          0.53

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0100)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    4.21   0.482     1.33    20.94
     + ID2= 2 (  0201):   30.52   3.418     1.33    25.22
       ========================================================
       ID = 3 (  0100):   34.73   3.900     1.33    24.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000    0.0000    |  1.0900     1.0400
                          0.3100    0.5460    |  1.2700     1.1400
                          0.5250    0.7030    |  2.1100     1.5700
                          0.6900    0.8068    |  2.4450     2.0600
                          0.9000    0.9400    |  0.0000     0.0000

                               AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0100)     34.730     3.900      1.33      24.70
   OUTFLOW: ID= 1 (  0010)     34.730     0.333      3.08      24.69

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  8.53
                TIME SHIFT OF PEAK FLOW         (min)=105.00
```

```
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.5627

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0202)|   Area    (ha)=  28.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  57.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       19.08          8.98
     Dep. Storage     (mm)=        5.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=      432.51         40.00
     Mannings n             =     0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
      0.083   3.49 | 1.083   15.91 |' 2.083   6.80 | 3.08    4.01
      0.167   3.49 | 1.167   15.91 |' 2.167   6.80 | 3.17    4.01
      0.250   3.89 | 1.250   86.17 |' 2.250   6.02 | 3.25    3.78
      0.333   3.89 | 1.333   86.17 |' 2.333   6.02 | 3.33    3.78
      0.417   4.43 | 1.417   19.44 |' 2.417   5.43 | 3.42    3.58
      0.500   4.43 | 1.500   19.44 |' 2.500   5.43 | 3.50    3.58
      0.583   5.19 | 1.583   12.40 |' 2.583   4.97 | 3.58    3.41
      0.667   5.19 | 1.667   12.40 |' 2.667   4.97 | 3.67    3.41
      0.750   6.40 | 1.750    9.52 |' 2.750   4.59 | 3.75    3.26
      0.833   6.40 | 1.833    9.52 |' 2.833   4.59 | 3.83    3.26
      0.917   8.69 | 1.917    7.88 |' 2.917   4.28 | 3.92    3.12
      1.000   8.69 | 2.000    7.88 |' 3.000   4.28 | 4.00    3.12

     Max.Eff.Inten.(mm/hr)=     86.17         18.45
               over (min)        5.00         25.00
     Storage Coeff.  (min)=       6.53 (ii)   20.40 (ii)
     Unit Hyd. Tpeak (min)=       5.00         25.00
     Unit Hyd. peak  (cms)=       0.18          0.05
                                                *TOTALS*
     PEAK FLOW       (cms)=       3.13          0.23          3.182 (iii)
     TIME TO PEAK    (hrs)=       1.33          1.67          1.33
     RUNOFF VOLUME    (mm)=      34.44          9.90         23.89
     TOTAL RAINFALL   (mm)=      39.44         39.44         39.44
     RUNOFF COEFFICIENT   =       0.87          0.25          0.61


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
```

```
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0002)|   Area    (ha)=  3.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.98          1.98
     Dep. Storage     (mm)=        5.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=      162.28         40.00
     Mannings n             =     0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
      0.083   3.49 | 1.083   15.91 |' 2.083   6.80 | 3.08    4.01
      0.167   3.49 | 1.167   15.91 |' 2.167   6.80 | 3.17    4.01
      0.250   3.89 | 1.250   86.17 |' 2.250   6.02 | 3.25    3.78
      0.333   3.89 | 1.333   86.17 |' 2.333   6.02 | 3.33    3.78
      0.417   4.43 | 1.417   19.44 |' 2.417   5.43 | 3.42    3.58
      0.500   4.43 | 1.500   19.44 |' 2.500   5.43 | 3.50    3.58
      0.583   5.19 | 1.583   12.40 |' 2.583   4.97 | 3.58    3.41
      0.667   5.19 | 1.667   12.40 |' 2.667   4.97 | 3.67    3.41
      0.750   6.40 | 1.750    9.52 |' 2.750   4.59 | 3.75    3.26
      0.833   6.40 | 1.833    9.52 |' 2.833   4.59 | 3.83    3.26
      0.917   8.69 | 1.917    7.88 |' 2.917   4.28 | 3.92    3.12
      1.000   8.69 | 2.000    7.88 |' 3.000   4.28 | 4.00    3.12

     Max.Eff.Inten.(mm/hr)=     86.17          8.53
               over (min)        5.00         25.00
     Storage Coeff.  (min)=       3.63 (ii)   22.52 (ii)
     Unit Hyd. Tpeak (min)=       5.00         25.00
     Unit Hyd. peak  (cms)=       0.25          0.05
                                                *TOTALS*
     PEAK FLOW       (cms)=       0.45          0.03          0.454 (iii)
     TIME TO PEAK    (hrs)=       1.33          1.67          1.33
     RUNOFF VOLUME    (mm)=      34.44          7.43         20.93
     TOTAL RAINFALL   (mm)=      39.44         39.44         39.44
     RUNOFF COEFFICIENT   =       0.87          0.19          0.53

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
```

```
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0200)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0002):    3.95   0.454     1.33    20.93
     + ID2= 2 (  0202):   28.06   3.182     1.33    23.89
       ========================================================
       ID = 3 (  0200):   32.01   3.636     1.33    23.53

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000    0.0000    |  1.8250     0.6819
                          0.6400    0.3757    |  2.1650     0.7600
                          1.0700    0.4858    |  4.0750     1.0700
                          1.3800    0.5709    |  4.7000     1.7300

                               AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0200)     32.010     3.636      1.33      23.53
   OUTFLOW: ID= 1 (  0020)     32.010     0.604      2.00      23.52

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 16.61
                TIME SHIFT OF PEAK FLOW         (min)= 40.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.3547

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0203)|   Area    (ha)=  89.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  61.00   Dir. Conn.(%)=  44.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       54.67         34.95
     Dep. Storage     (mm)=        5.00          5.00
     Average Slope     (%)=        2.00          3.00
     Length            (m)=      772.96         40.00
     Mannings n             =     0.013         0.250
```

```
         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
      0.083   3.49 | 1.083   15.91 |' 2.083   6.80 | 3.08    4.01
      0.167   3.49 | 1.167   15.91 |' 2.167   6.80 | 3.17    4.01
      0.250   3.89 | 1.250   86.17 |' 2.250   6.02 | 3.25    3.78
      0.333   3.89 | 1.333   86.17 |' 2.333   6.02 | 3.33    3.78
      0.417   4.43 | 1.417   19.44 |' 2.417   5.43 | 3.42    3.58
      0.500   4.43 | 1.500   19.44 |' 2.500   5.43 | 3.50    3.58
      0.583   5.19 | 1.583   12.40 |' 2.583   4.97 | 3.58    3.41
      0.667   5.19 | 1.667   12.40 |' 2.667   4.97 | 3.67    3.41
      0.750   6.40 | 1.750    9.52 |' 2.750   4.59 | 3.75    3.26
      0.833   6.40 | 1.833    9.52 |' 2.833   4.59 | 3.83    3.26
      0.917   8.69 | 1.917    7.88 |' 2.917   4.28 | 3.92    3.12
      1.000   8.69 | 2.000    7.88 |' 3.000   4.28 | 4.00    3.12

     Max.Eff.Inten.(mm/hr)=     86.17         21.15
               over (min)       10.00         20.00
     Storage Coeff.  (min)=       7.51 (ii)   19.15 (ii)
     Unit Hyd. Tpeak (min)=      10.00         20.00
     Unit Hyd. peak  (cms)=       0.13          0.06
                                                *TOTALS*
     PEAK FLOW       (cms)=       6.29          1.08          6.913 (iii)
     TIME TO PEAK    (hrs)=       1.42          1.58          1.42
     RUNOFF VOLUME    (mm)=      34.44         10.51         21.04
     TOTAL RAINFALL   (mm)=      39.44         39.44         39.44
     RUNOFF COEFFICIENT   =       0.87          0.27          0.53


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0003)|   Area    (ha)=  7.88
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        3.94          3.94
     Dep. Storage     (mm)=        5.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=      229.20         40.00
     Mannings n             =     0.013         0.250
```

```
         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
      0.083   3.49 | 1.083   15.91 |' 2.083   6.80 | 3.08    4.01
      0.167   3.49 | 1.167   15.91 |' 2.167   6.80 | 3.17    4.01
      0.250   3.89 | 1.250   86.17 |' 2.250   6.02 | 3.25    3.78
      0.333   3.89 | 1.333   86.17 |' 2.333   6.02 | 3.33    3.78
      0.417   4.43 | 1.417   19.44 |' 2.417   5.43 | 3.42    3.58
      0.500   4.43 | 1.500   19.44 |' 2.500   5.43 | 3.50    3.58
      0.583   5.19 | 1.583   12.40 |' 2.583   4.97 | 3.58    3.41
      0.667   5.19 | 1.667   12.40 |' 2.667   4.97 | 3.67    3.41
      0.750   6.40 | 1.750    9.52 |' 2.750   4.59 | 3.75    3.26
      0.833   6.40 | 1.833    9.52 |' 2.833   4.59 | 3.83    3.26
      0.917   8.69 | 1.917    7.88 |' 2.917   4.28 | 3.92    3.12
      1.000   8.69 | 2.000    7.88 |' 3.000   4.28 | 4.00    3.12

     Max.Eff.Inten.(mm/hr)=     86.17          8.53
               over (min)        5.00         25.00
     Storage Coeff.  (min)=       4.46 (ii)   23.35 (ii)
     Unit Hyd. Tpeak (min)=       5.00         25.00
     Unit Hyd. peak  (cms)=       0.23          0.05
                                                *TOTALS*
     PEAK FLOW       (cms)=       0.86          0.05          0.871 (iii)
     TIME TO PEAK    (hrs)=       1.33          1.67          1.33
     RUNOFF VOLUME    (mm)=      34.44          7.43         20.94
     TOTAL RAINFALL   (mm)=      39.44         39.44         39.44
     RUNOFF COEFFICIENT   =       0.87          0.19          0.53

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0300)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):    89.62   6.913     1.42    21.04
     + ID2= 2 (  0003):     7.88   0.871     1.33    20.94
       ========================================================
       ID = 3 (  0300):    97.50   7.357     1.42    21.03
```

```
    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0030)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000    0.0000    |  2.7700     2.8400
                          0.8200    1.4400    |  3.2200     3.1300
                          1.3700    1.8900    |  5.2900     4.3700
                          1.7800    2.1800    |  6.1500     5.4900
                          2.3300    2.5500    |  0.0000     0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
  INFLOW : ID= 2 (  0300)     97.500     7.357     1.42       21.03
  OUTFLOW: ID= 1 (  0030)     97.500     0.765     3.42       21.02

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.40
                  TIME SHIFT OF PEAK FLOW         (min)=120.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.3439
-------------------------------------------------------------------------------
================================================================================
========================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
         V V    I      SS   U   U  A   A  L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\10
8e5796-2b0c-4e75-af14-b4909abb9a31\sc

  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\10
8e5796-2b0c-4e75-af14-b4909abb9a31\sc


DATE: 11-27-2024                          TIME: 08:52:05

USER:


COMMENTS: _____

-------------------------------------------------------------------------------
--------------------
****************************************
** SIMULATION : 1B - 5yr 4hr 10min Chicago    **
****************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 543.943
| Ptotal= 50.66 mm |                          B=   0.000
--------------------                          C=   0.686
                                 used in:   INTENSITY =  A / (t + B)^C

                                 Duration of storm  =  4.00 hrs
                                 Storm time step    = 10.00 min
                                 Time to peak ratio =  0.33

                    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                    0.00    4.43 |  1.00   20.37 |  2.00    8.66 |  3.00    5.09
                    0.17    4.94 |  1.17  112.09 |  2.17    7.66 |  3.17    4.80
                    0.33    5.63 |  1.33   24.91 |  2.33    6.91 |  3.33    4.55
                    0.50    6.61 |  1.50   15.85 |  2.50    6.32 |  3.50    4.33
                    0.67    8.15 |  1.67   12.15 |  2.67    5.83 |  3.67    4.13
                    0.83   11.09 |  1.83   10.04 |  2.83    5.43 |  3.83    3.95


-------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=  30.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=  55.00
--------------------

                                 IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       23.81          6.71
      Dep. Storage     (mm)=        5.00          5.00
      Average Slope     (%)=        1.00          2.00
      Length            (m)=      451.07         40.00
      Mannings n            =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
                    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                   0.083    4.43 | 1.083   20.37 | 2.083    8.66 |  3.08    5.09
                   0.167    4.43 | 1.167   20.37 | 2.167    8.66 |  3.17    5.09
                   0.250    4.94 | 1.250  112.09 | 2.250    7.66 |  3.25    4.80
                   0.333    4.94 | 1.333  112.09 | 2.333    7.66 |  3.33    4.80
                   0.417    5.63 | 1.417   24.91 | 2.417    6.91 |  3.42    4.55
                   0.500    5.63 | 1.500   24.91 | 2.500    6.91 |  3.50    4.55
                   0.583    6.61 | 1.583   15.85 | 2.583    6.32 |  3.58    4.33
                   0.667    6.61 | 1.667   15.85 | 2.667    6.32 |  3.67    4.33
                   0.750    8.15 | 1.750   12.15 | 2.750    5.83 |  3.75    4.13
                   0.833    8.15 | 1.833   12.15 | 2.833    5.83 |  3.83    4.13
                   0.917   11.09 | 1.917   10.04 | 2.917    5.43 |  3.92    3.95
                   1.000   11.09 | 2.000   10.04 | 3.000    5.43 |  4.00    3.95

      Max.Eff.Inten.(mm/hr)=     112.09        87.22
                 over (min)=       5.00        15.00
      Storage Coeff.  (min)=       6.03 (ii)   10.70 (ii)
      Unit Hyd. Tpeak (min)=       5.00        15.00
      Unit Hyd. peak  (cms)=       0.19         0.09
                                                      *TOTALS*
      PEAK FLOW       (cms)=       4.39         0.92          4.877 (iii)
      TIME TO PEAK    (hrs)=       1.33         1.50          1.33
      RUNOFF VOLUME    (mm)=      45.66        21.25         34.67
      TOTAL RAINFALL   (mm)=      50.66        50.66         50.66
      RUNOFF COEFFICIENT   =       0.90         0.42          0.68

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0001)|   Area    (ha)=   4.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------

                                 IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=        2.11          2.11
      Dep. Storage     (mm)=        5.00          5.00
      Average Slope     (%)=        1.00          2.00
      Length            (m)=      167.53         40.00
      Mannings n            =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
                    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                   0.083    4.43 | 1.083   20.37 | 2.083    8.66 |  3.08    5.09
                   0.167    4.43 | 1.167   20.37 | 2.167    8.66 |  3.17    5.09
                   0.250    4.94 | 1.250  112.09 | 2.250    7.66 |  3.25    4.80
                   0.333    4.94 | 1.333  112.09 | 2.333    7.66 |  3.33    4.80
                   0.417    5.63 | 1.417   24.91 | 2.417    6.91 |  3.42    4.55
                   0.500    5.63 | 1.500   24.91 | 2.500    6.91 |  3.50    4.55
                   0.583    6.61 | 1.583   15.85 | 2.583    6.32 |  3.58    4.33
                   0.667    6.61 | 1.667   15.85 | 2.667    6.32 |  3.67    4.33
                   0.750    8.15 | 1.750   12.15 | 2.750    5.83 |  3.75    4.13
                   0.833    8.15 | 1.833   12.15 | 2.833    5.83 |  3.83    4.13
                   0.917   11.09 | 1.917   10.04 | 2.917    5.43 |  3.92    3.95
                   1.000   11.09 | 2.000   10.04 | 3.000    5.43 |  4.00    3.95

      Max.Eff.Inten.(mm/hr)=     112.09        30.87
                 over (min)=       5.00        20.00
      Storage Coeff.  (min)=       5.88 (ii)   17.17 (ii)
      Unit Hyd. Tpeak (min)=       5.00        20.00
      Unit Hyd. peak  (cms)=       0.19         0.06
                                                      *TOTALS*
      PEAK FLOW       (cms)=       4.22         0.43          4.370 (iii)
      TIME TO PEAK    (hrs)=       1.33         1.58          1.33
      RUNOFF VOLUME    (mm)=      45.66        15.73         32.79
      TOTAL RAINFALL   (mm)=      50.66        50.66         50.66
      RUNOFF COEFFICIENT   =       0.90         0.31          0.65

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0002)|   Area    (ha)=   3.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------

                                 IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=        1.98          1.98
      Dep. Storage     (mm)=        5.00          5.00
      Average Slope     (%)=        1.00          2.00
      Length            (m)=      162.28         40.00
      Mannings n            =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
                    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                   0.083    4.43 | 1.083   20.37 | 2.083    8.66 |  3.08    5.09
                   0.167    4.43 | 1.167   20.37 | 2.167    8.66 |  3.17    5.09
                   0.250    4.94 | 1.250  112.09 | 2.250    7.66 |  3.25    4.80
                   0.333    4.94 | 1.333  112.09 | 2.333    7.66 |  3.33    4.80
                   0.417    5.63 | 1.417   24.91 | 2.417    6.91 |  3.42    4.55
                   0.500    5.63 | 1.500   24.91 | 2.500    6.91 |  3.50    4.55
                   0.583    6.61 | 1.583   15.85 | 2.583    6.32 |  3.58    4.33
                   0.667    6.61 | 1.667   15.85 | 2.667    6.32 |  3.67    4.33
                   0.750    8.15 | 1.750   12.15 | 2.750    5.83 |  3.75    4.13
                   0.833    8.15 | 1.833   12.15 | 2.833    5.83 |  3.83    4.13
                   0.917   11.09 | 1.917   10.04 | 2.917    5.43 |  3.92    3.95
                   1.000   11.09 | 2.000   10.04 | 3.000    5.43 |  4.00    3.95

      Max.Eff.Inten.(mm/hr)=     112.09        17.01
                 over (min)=       5.00        20.00
      Storage Coeff.  (min)=       3.33 (ii)   17.66 (ii)
      Unit Hyd. Tpeak (min)=       5.00        20.00
      Unit Hyd. peak  (cms)=       0.26         0.06
                                                      *TOTALS*
      PEAK FLOW       (cms)=       0.63         0.05          0.646 (iii)
      TIME TO PEAK    (hrs)=       1.33         1.58          1.33
      RUNOFF VOLUME    (mm)=      45.66        12.21         28.93
      TOTAL RAINFALL   (mm)=      50.66        50.66         50.66
      RUNOFF COEFFICIENT   =       0.90         0.24          0.57

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0100)|
|  1 +  2 =  3     |        AREA    QPEAK    TPEAK    R.V.
--------------------        (ha)    (cms)    (hrs)    (mm)
       ID1= 1 (  0001):    4.21   0.646     1.33    28.93

      + ID2= 2 (  0201):   30.52   4.877     1.33    34.67
        ================================================
        ID = 3 (  0100):   34.73   5.523     1.33    33.98

      NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000    0.0000    |  1.0900     1.0400
                          0.3100    0.5460    |  1.2700     1.1400
                          0.5250    0.7030    |  2.1100     1.5700
                          0.6900    0.8068    |  2.4450     2.0600
                          0.9000    0.9400    |  0.0000     0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
  INFLOW : ID= 2 (  0100)     34.730     5.523     1.33       33.98
  OUTFLOW: ID= 1 (  0010)     34.730     0.571     2.50       33.96

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.34
                  TIME SHIFT OF PEAK FLOW         (min)= 70.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.7323
-------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=  28.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  57.00
--------------------

                                 IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       19.08          8.98
      Dep. Storage     (mm)=        5.00          5.00
      Average Slope     (%)=        1.00          2.00
      Length            (m)=      432.51         40.00
      Mannings n            =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
                    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                   0.083    4.43 | 1.083   20.37 | 2.083    8.66 |  3.08    5.09
                   0.167    4.43 | 1.167   20.37 | 2.167    8.66 |  3.17    5.09
                   0.250    4.94 | 1.250  112.09 | 2.250    7.66 |  3.25    4.80
                   0.333    4.94 | 1.333  112.09 | 2.333    7.66 |  3.33    4.80
                   0.417    5.63 | 1.417   24.91 | 2.417    6.91 |  3.42    4.55
                   0.500    5.63 | 1.500   24.91 | 2.500    6.91 |  3.50    4.55
                   0.583    6.61 | 1.583   15.85 | 2.583    6.32 |  3.58    4.33
                   0.667    6.61 | 1.667   15.85 | 2.667    6.32 |  3.67    4.33
                   0.750    8.15 | 1.750   12.15 | 2.750    5.83 |  3.75    4.13
                   0.833    8.15 | 1.833   12.15 | 2.833    5.83 |  3.83    4.13
                   0.917   11.09 | 1.917   10.04 | 2.917    5.43 |  3.92    3.95
                   1.000   11.09 | 2.000   10.04 | 3.000    5.43 |  4.00    3.95

      Max.Eff.Inten.(mm/hr)=     112.09        17.01
                 over (min)=       5.00        20.00
      Storage Coeff.  (min)=       4.01 (ii)   18.35 (ii)
      Unit Hyd. Tpeak (min)=       5.00        20.00
      Unit Hyd. peak  (cms)=       0.24         0.06
                                                      *TOTALS*
      PEAK FLOW       (cms)=       0.417    5.63 | 1.417   24.91 | 2.417    6.91 |  3.42    4.55
                   0.500    5.63 | 1.500   24.91 | 2.500    6.91 |  3.50    4.55
                   0.583    6.61 | 1.583   15.85 | 2.583    6.32 |  3.58    4.33
                   0.667    6.61 | 1.667   15.85 | 2.667    6.32 |  3.67    4.33
                   0.750    8.15 | 1.750   12.15 | 2.750    5.83 |  3.75    4.13
                   0.833    8.15 | 1.833   12.15 | 2.833    5.83 |  3.83    4.13
                   0.917   11.09 | 1.917   10.04 | 2.917    5.43 |  3.92    3.95
                   1.000   11.09 | 2.000   10.04 | 3.000    5.43 |  4.00    3.95

      Max.Eff.Inten.(mm/hr)=     112.09        17.01
                 over (min)=       5.00        20.00
      Storage Coeff.  (min)=       3.26 (ii)   17.60 (ii)
      Unit Hyd. Tpeak (min)=       5.00        20.00
      Unit Hyd. peak  (cms)=       0.27         0.06
                                                      *TOTALS*
      PEAK FLOW       (cms)=       0.59         0.05          0.608 (iii)
      TIME TO PEAK    (hrs)=       1.33         1.58          1.33
      RUNOFF VOLUME    (mm)=      45.66        12.21         28.93
      TOTAL RAINFALL   (mm)=      50.66        50.66         50.66
      RUNOFF COEFFICIENT   =       0.90         0.24          0.57

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0200)|
|  1 +  2 =  3     |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0002):    3.95   0.608     1.33     28.93
     + ID2= 2 (  0202):   28.06   4.370     1.33     32.79
       ================================================
       ID = 3 (  0200):   32.01   4.978     1.33     32.31

      NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000    0.0000    |  1.8250     0.6819
                          0.6400    0.3757    |  2.1650     0.7600
                          1.0700    0.4858    |  4.0750     1.0700
                          1.3800    0.5709    |  4.7000     1.7300

                                AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
  INFLOW : ID= 2 (  0200)     32.010     4.978     1.33       32.31
  OUTFLOW: ID= 1 (  0020)     32.010     1.013     1.83       32.31

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 20.36
                  TIME SHIFT OF PEAK FLOW         (min)= 30.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.4716
-------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=  89.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  61.00   Dir. Conn.(%)=  44.00
--------------------

                                 IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       54.67         34.95
      Dep. Storage     (mm)=        5.00          5.00
      Average Slope     (%)=        2.00          3.00
      Length            (m)=      772.96         40.00
      Mannings n            =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
                    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                   0.083    4.43 | 1.083   20.37 | 2.083    8.66 |  3.08    5.09
                   0.167    4.43 | 1.167   20.37 | 2.167    8.66 |  3.17    5.09
                   0.250    4.94 | 1.250  112.09 | 2.250    7.66 |  3.25    4.80
                   0.333    4.94 | 1.333  112.09 | 2.333    7.66 |  3.33    4.80
                   0.417    5.63 | 1.417   24.91 | 2.417    6.91 |  3.42    4.55
                   0.500    5.63 | 1.500   24.91 | 2.500    6.91 |  3.50    4.55
                   0.583    6.61 | 1.583   15.85 | 2.583    6.32 |  3.58    4.33
                   0.667    6.61 | 1.667   15.85 | 2.667    6.32 |  3.67    4.33
                   0.750    8.15 | 1.750   12.15 | 2.750    5.83 |  3.75    4.13
                   0.833    8.15 | 1.833   12.15 | 2.833    5.83 |  3.83    4.13
                   0.917   11.09 | 1.917   10.04 | 2.917    5.43 |  3.92    3.95
                   1.000   11.09 | 2.000   10.04 | 3.000    5.43 |  4.00    3.95

      Max.Eff.Inten.(mm/hr)=     112.09        45.26
                 over (min)=       5.00        20.00
      Storage Coeff.  (min)=       6.76 (ii)   15.34 (ii)
      Unit Hyd. Tpeak (min)=       5.00        20.00
      Unit Hyd. peak  (cms)=       0.18         0.07
                                                      *TOTALS*
      PEAK FLOW       (cms)=       9.92         2.01         10.641 (iii)
      TIME TO PEAK    (hrs)=       1.33         1.58          1.33
      RUNOFF VOLUME    (mm)=      45.66        16.57         29.37
      TOTAL RAINFALL   (mm)=      50.66        50.66         50.66
      RUNOFF COEFFICIENT   =       0.90         0.33          0.58

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0003)|   Area    (ha)=   7.88
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------

                                 IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=        3.94          3.94
      Dep. Storage     (mm)=        5.00          5.00
      Average Slope     (%)=        1.00          2.00
      Length            (m)=      229.20         40.00
      Mannings n            =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
                    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                   0.083    4.43 | 1.083   20.37 | 2.083    8.66 |  3.08    5.09
                   0.167    4.43 | 1.167   20.37 | 2.167    8.66 |  3.17    5.09
                   0.250    4.94 | 1.250  112.09 | 2.250    7.66 |  3.25    4.80
                   0.333    4.94 | 1.333  112.09 | 2.333    7.66 |  3.33    4.80
                   0.417    5.63 | 1.417   24.91 | 2.417    6.91 |  3.42    4.55
                   0.500    5.63 | 1.500   24.91 | 2.500    6.91 |  3.50    4.55
                   0.583    6.61 | 1.583   15.85 | 2.583    6.32 |  3.58    4.33
                   0.667    6.61 | 1.667   15.85 | 2.667    6.32 |  3.67    4.33
                   0.750    8.15 | 1.750   12.15 | 2.750    5.83 |  3.75    4.13
                   0.833    8.15 | 1.833   12.15 | 2.833    5.83 |  3.83    4.13
                   0.917   11.09 | 1.917   10.04 | 2.917    5.43 |  3.92    3.95
                   1.000   11.09 | 2.000   10.04 | 3.000    5.43 |  4.00    3.95

      Max.Eff.Inten.(mm/hr)=     112.09        17.01
                 over (min)=       5.00        20.00
      Storage Coeff.  (min)=       4.01 (ii)   18.35 (ii)
      Unit Hyd. Tpeak (min)=       5.00        20.00
      Unit Hyd. peak  (cms)=       0.24         0.06
                                                      *TOTALS*
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     PEAK FLOW      (cms)=       1.14         0.10          1.175 (iii)
     TIME TO PEAK   (hrs)=       1.33         1.58           1.33
     RUNOFF VOLUME   (mm)=      45.66        12.21          28.93
     TOTAL RAINFALL  (mm)=      50.66        50.66          50.66
     RUNOFF COEFFICIENT  =       0.90         0.24           0.57

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0300)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):    89.62  10.641     1.33    29.37
     + ID2= 2 (  0003):     7.88   1.175     1.33    28.93
       ==========================================
       ID = 3 (  0300):    97.50  11.816     1.33    29.33

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0030)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   2.7700     2.8400
                          0.8200     1.4400   |   3.2200     3.1300
                          1.3700     1.8900   |   5.2900     4.3700
                          1.7800     2.1800   |   6.1500     5.4900
                          2.3300     2.5500   |   0.0000     0.0000

                             AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0300)    97.500    11.816     1.33       29.33
   OUTFLOW: ID= 1 (  0030)    97.500     1.260     2.83       29.33

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.66
                TIME SHIFT OF PEAK FLOW          (min)= 90.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  1.8003

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================================================================================
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```

```
        V    V   I    SSSSS  U   U    A     L              (v 6.2.2015)
        V    V   I    SS     U   U   A A    L
         V  V    I      SS   U   U  AAAAA   L
          VV     I    SSSSS   UUUUU  A   A  LLLLL

         OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
        O   O    T      T    H   H   Y Y   MM MM  O   O
        O   O    T      T    H   H    Y    M M M  O   O
         OOO     T      T    H   H    Y    M   M   OOO
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                  ***** D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\7c
d2263a-f678-4f48-9c7c-dcda9633ab3d\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\7c
d2263a-f678-4f48-9c7c-dcda9633ab3d\sc


DATE: 11-27-2024                      TIME: 08:52:05

USER:



COMMENTS: _____

--------------------------------------------------------------------------------
----------------------
  ***********************************************
  ** SIMULATION : 1C - 10yr 4hr 10min Chicago   **
  ***********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 628.126
| Ptotal= 58.18 mm |                          B=   0.000
--------------------                          C=   0.687
                              used in:   INTENSITY =  A / (t + B)^C
```

```
                          Duration of storm  =  4.00 hrs
                          Storm time step    = 10.00 min
                          Time to peak ratio =  0.33

      TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
      0.00    5.08 |  1.00   23.38 |  2.00    9.92 |  3.00    5.83
      0.17    5.66 |  1.17  129.14 |  2.17    8.78 |  3.17    5.50
      0.33    6.45 |  1.33   28.60 |  2.33    7.92 |  3.33    5.21
      0.50    7.57 |  1.50   18.18 |  2.50    7.24 |  3.50    4.95
      0.67    9.34 |  1.67   13.93 |  2.67    6.68 |  3.67    4.73
      0.83   12.71 |  1.83   11.51 |  2.83    6.22 |  3.83    4.52

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=  30.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=  55.00
--------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       23.81         6.71
     Dep. Storage     (mm)=        5.00         5.00
     Average Slope     (%)=        1.00         2.00
     Length            (m)=      451.07        40.00
     Mannings n            =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
      0.083   5.08 | 1.083   23.38 | 2.083    9.92 |  3.08    5.83
      0.167   5.08 | 1.167   23.38 | 2.167    9.92 |  3.17    5.83
      0.250   5.66 | 1.250  129.14 | 2.250    8.78 |  3.25    5.50
      0.333   5.66 | 1.333  129.14 | 2.333    8.78 |  3.33    5.50
      0.417   6.45 | 1.417   28.60 | 2.417    7.92 |  3.42    5.21
      0.500   6.45 | 1.500   28.60 | 2.500    7.92 |  3.50    5.21
      0.583   7.57 | 1.583   18.18 | 2.583    7.24 |  3.58    4.95
      0.667   7.57 | 1.667   18.18 | 2.667    7.24 |  3.67    4.95
      0.750   9.34 | 1.750   13.93 | 2.750    6.68 |  3.75    4.73
      0.833   9.34 | 1.833   13.93 | 2.833    6.68 |  3.83    4.73
      0.917  12.71 | 1.917   11.51 | 2.917    6.22 |  3.92    4.52
      1.000  12.71 | 2.000   11.51 | 3.000    6.22 |  4.00    4.52

     Max.Eff.Inten.(mm/hr)=     129.14       111.51
               over (min)=       5.00        15.00
     Storage Coeff. (min)=       5.69 (ii)   10.11 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
```

```
     Unit Hyd. peak  (cms)=       0.20         0.10
                                                *TOTALS*
     PEAK FLOW       (cms)=       5.15         1.19          5.797 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.50           1.33
     RUNOFF VOLUME    (mm)=      53.18        26.57          41.20
     TOTAL RAINFALL   (mm)=      58.18        58.18          58.18
     RUNOFF COEFFICIENT  =       0.91         0.46           0.71


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0001)|   Area    (ha)=   4.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.11         2.11
     Dep. Storage     (mm)=       5.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     167.53        40.00
     Mannings n            =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
      0.083   5.08 | 1.083   23.38 | 2.083    9.92 |  3.08    5.83
      0.167   5.08 | 1.167   23.38 | 2.167    9.92 |  3.17    5.83
      0.250   5.66 | 1.250  129.14 | 2.250    8.78 |  3.25    5.50
      0.333   5.66 | 1.333  129.14 | 2.333    8.78 |  3.33    5.50
      0.417   6.45 | 1.417   28.60 | 2.417    7.92 |  3.42    5.21
      0.500   6.45 | 1.500   28.60 | 2.500    7.92 |  3.50    5.21
      0.583   7.57 | 1.583   18.18 | 2.583    7.24 |  3.58    4.95
      0.667   7.57 | 1.667   18.18 | 2.667    7.24 |  3.67    4.95
      0.750   9.34 | 1.750   13.93 | 2.750    6.68 |  3.75    4.73
      0.833   9.34 | 1.833   13.93 | 2.833    6.68 |  3.83    4.73
      0.917  12.71 | 1.917   11.51 | 2.917    6.22 |  3.92    4.52
      1.000  12.71 | 2.000   11.51 | 3.000    6.22 |  4.00    4.52

     Max.Eff.Inten.(mm/hr)=     129.14        22.70
               over (min)=       5.00        20.00
     Storage Coeff.  (min)=       3.14 (ii)   15.92 (ii)
```

```
     Unit Hyd. Tpeak (min)=      5.00        20.00
     Unit Hyd. peak  (cms)=      0.27         0.07
                                                *TOTALS*
     PEAK FLOW       (cms)=      0.73         0.08          0.755 (iii)
     TIME TO PEAK    (hrs)=      1.33         1.58           1.33
     RUNOFF VOLUME    (mm)=     53.18        15.86          34.52
     TOTAL RAINFALL   (mm)=     58.18        58.18          58.18
     RUNOFF COEFFICIENT  =       0.91         0.27           0.59

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0100)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):     4.21    0.755     1.33    34.52
     + ID2= 2 (  0201):    30.52    5.797     1.33    41.20
       ==========================================
       ID = 3 (  0100):    34.73    6.553     1.33    40.39

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   1.0900     1.0400
                          0.3100     0.5460   |   1.2700     1.1400
                          0.5250     0.7030   |   2.1100     1.5700
                          0.6900     0.8068   |   2.4450     2.0600
                          0.9000     0.9400   |   0.0000     0.0000

                             AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0100)    34.730     6.553     1.33       40.39
   OUTFLOW: ID= 1 (  0010)    34.730     0.749     2.33       40.38

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 11.43
                TIME SHIFT OF PEAK FLOW          (min)= 60.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.8444
```

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--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0002)|   Area    (ha)=  28.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  57.00
--------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       19.08         8.98
     Dep. Storage     (mm)=        5.00         5.00
     Average Slope     (%)=        1.00         2.00
     Length            (m)=      432.51        40.00
     Mannings n            =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
      0.083   5.08 | 1.083   23.38 | 2.083    9.92 |  3.08    5.83
      0.167   5.08 | 1.167   23.38 | 2.167    9.92 |  3.17    5.83
      0.250   5.66 | 1.250  129.14 | 2.250    8.78 |  3.25    5.50
      0.333   5.66 | 1.333  129.14 | 2.333    8.78 |  3.33    5.50
      0.417   6.45 | 1.417   28.60 | 2.417    7.92 |  3.42    5.21
      0.500   6.45 | 1.500   28.60 | 2.500    7.92 |  3.50    5.21
      0.583   7.57 | 1.583   18.18 | 2.583    7.24 |  3.58    4.95
      0.667   7.57 | 1.667   18.18 | 2.667    7.24 |  3.67    4.95
      0.750   9.34 | 1.750   13.93 | 2.750    6.68 |  3.75    4.73
      0.833   9.34 | 1.833   13.93 | 2.833    6.68 |  3.83    4.73
      0.917  12.71 | 1.917   11.51 | 2.917    6.22 |  3.92    4.52
      1.000  12.71 | 2.000   11.51 | 3.000    6.22 |  4.00    4.52

     Max.Eff.Inten.(mm/hr)=     129.14        52.15
               over (min)=       5.00        15.00
     Storage Coeff. (min)=       5.55 (ii)   14.71 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=      0.20         0.08
                                                *TOTALS*
     PEAK FLOW       (cms)=      4.95         0.63          5.258 (iii)
     TIME TO PEAK    (hrs)=      1.33         1.50           1.33
     RUNOFF VOLUME    (mm)=     53.18        20.10          38.95
     TOTAL RAINFALL   (mm)=     58.18        58.18          58.18
     RUNOFF COEFFICIENT  =       0.91         0.35           0.67


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

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--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0002)|   Area    (ha)=   3.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.98         1.98
     Dep. Storage     (mm)=       5.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     162.28        40.00
     Mannings n            =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                        ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
      0.083   5.08 | 1.083   23.38 | 2.083    9.92 |  3.08    5.83
      0.167   5.08 | 1.167   23.38 | 2.167    9.92 |  3.17    5.83
      0.250   5.66 | 1.250  129.14 | 2.250    8.78 |  3.25    5.50
      0.333   5.66 | 1.333  129.14 | 2.333    8.78 |  3.33    5.50
      0.417   6.45 | 1.417   28.60 | 2.417    7.92 |  3.42    5.21
      0.500   6.45 | 1.500   28.60 | 2.500    7.92 |  3.50    5.21
      0.583   7.57 | 1.583   18.18 | 2.583    7.24 |  3.58    4.95
      0.667   7.57 | 1.667   18.18 | 2.667    7.24 |  3.67    4.95
      0.750   9.34 | 1.750   13.93 | 2.750    6.68 |  3.75    4.73
      0.833   9.34 | 1.833   13.93 | 2.833    6.68 |  3.83    4.73
      0.917  12.71 | 1.917   11.51 | 2.917    6.22 |  3.92    4.52
      1.000  12.71 | 2.000   11.51 | 3.000    6.22 |  4.00    4.52

     Max.Eff.Inten.(mm/hr)=     129.14        22.70
               over (min)=       5.00        20.00
     Storage Coeff.  (min)=       3.08 (ii)   15.86 (ii)
     Unit Hyd. Tpeak (min)=      5.00        20.00
     Unit Hyd. peak  (cms)=      0.27         0.07
                                                *TOTALS*
     PEAK FLOW       (cms)=      0.69         0.07          0.710 (iii)
     TIME TO PEAK    (hrs)=      1.33         1.58           1.33
     RUNOFF VOLUME    (mm)=     53.18        15.86          34.52
     TOTAL RAINFALL   (mm)=     58.18        58.18          58.18
     RUNOFF COEFFICIENT  =       0.91         0.27           0.59

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
```

```
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0200)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0002):     3.95    0.710     1.33    34.52
     + ID2= 2 (  0202):    28.06    5.258     1.33    38.95
       ==========================================
       ID = 3 (  0200):    32.01    5.969     1.33    38.40

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   1.8250     0.6819
                          0.6400     0.3757   |   2.1650     0.7600
                          1.0700     0.4858   |   4.0750     1.0700
                          1.3800     0.5709   |   4.7000     1.7300

                             AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0200)    32.010     5.969     1.33       38.40
   OUTFLOW: ID= 1 (  0020)    32.010     1.308     1.75       38.40

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 21.92
                TIME SHIFT OF PEAK FLOW          (min)= 25.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.5517

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=  89.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  61.00   Dir. Conn.(%)=  44.00
--------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      54.67        34.95
     Dep. Storage     (mm)=       5.00         5.00
     Average Slope     (%)=       2.00         3.00
     Length            (m)=     772.96        40.00
     Mannings n            =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

```
                        ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
      0.083   5.08 | 1.083   23.38 | 2.083    9.92 |  3.08    5.83
      0.167   5.08 | 1.167   23.38 | 2.167    9.92 |  3.17    5.83
      0.250   5.66 | 1.250  129.14 | 2.250    8.78 |  3.25    5.50
      0.333   5.66 | 1.333  129.14 | 2.333    8.78 |  3.33    5.50
      0.417   6.45 | 1.417   28.60 | 2.417    7.92 |  3.42    5.21
      0.500   6.45 | 1.500   28.60 | 2.500    7.92 |  3.50    5.21
      0.583   7.57 | 1.583   18.18 | 2.583    7.24 |  3.58    4.95
      0.667   7.57 | 1.667   18.18 | 2.667    7.24 |  3.67    4.95
      0.750   9.34 | 1.750   13.93 | 2.750    6.68 |  3.75    4.73
      0.833   9.34 | 1.833   13.93 | 2.833    6.68 |  3.83    4.73
      0.917  12.71 | 1.917   11.51 | 2.917    6.22 |  3.92    4.52
      1.000  12.71 | 2.000   11.51 | 3.000    6.22 |  4.00    4.52

     Max.Eff.Inten.(mm/hr)=     129.14        59.10
               over (min)=       5.00        15.00
     Storage Coeff. (min)=       6.39 (ii)   14.10 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=      0.18         0.08
                                                *TOTALS*
     PEAK FLOW       (cms)=     11.66         2.85          13.085 (iii)
     TIME TO PEAK    (hrs)=      1.33         1.50           1.33
     RUNOFF VOLUME    (mm)=     53.18        21.09          35.21
     TOTAL RAINFALL   (mm)=     58.18        58.18          58.18
     RUNOFF COEFFICIENT  =       0.91         0.36           0.61


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0003)|   Area    (ha)=   7.88
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.94         3.94
     Dep. Storage     (mm)=       5.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     229.20        40.00
     Mannings n            =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

```
                    ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    5.08 | 1.083   23.38 | 2.083    9.92 |  3.08    5.83
 0.167    5.08 | 1.167   23.38 | 2.167    9.92 |  3.17    5.83
 0.250    5.66 | 1.250  129.14 | 2.250    8.78 |  3.25    5.50
 0.333    5.66 | 1.333  129.14 | 2.333    8.78 |  3.33    5.50
 0.417    6.45 | 1.417   28.60 | 2.417    7.92 |  3.42    5.21
 0.500    6.45 | 1.500   28.60 | 2.500    7.92 |  3.50    5.21
 0.583    7.57 | 1.583   18.18 | 2.583    7.24 |  3.58    4.95
 0.667    7.57 | 1.667   18.18 | 2.667    7.24 |  3.67    4.95
 0.750    9.34 | 1.750   13.93 | 2.750    6.68 |  3.75    4.73
 0.833    9.34 | 1.833   13.93 | 2.833    6.68 |  3.83    4.73
 0.917   12.71 | 1.917   11.51 | 2.917    6.22 |  3.92    4.52
 1.000   12.71 | 2.000   11.51 | 3.000    6.22 |  4.00    4.52

Max.Eff.Inten.(mm/hr)=     129.14        22.70
          over (min)         5.00        20.00
Storage Coeff.  (min)=       3.79 (ii)   16.57 (ii)
Unit Hyd. Tpeak (min)=       5.00        20.00
Unit Hyd. peak  (cms)=       0.25         0.06
                                        *TOTALS*
PEAK FLOW      (cms)=        1.33         0.14         1.378 (iii)
TIME TO PEAK   (hrs)=        1.33         1.58          1.33
RUNOFF VOLUME   (mm)=       53.18        15.86         34.52
TOTAL RAINFALL  (mm)=       58.18        58.18         58.18
RUNOFF COEFFICIENT   =       0.91         0.27          0.59

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* = 67.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD  (  0300)|
|  1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
      ID1= 1 (  0203):    89.62  13.085     1.33    35.21
    + ID2= 2 (  0003):     7.88   1.378     1.33    34.52
      ==========================================================
      ID = 3 (  0300):    97.50  14.463     1.33    35.15

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0030)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |    OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)    |    (cms)     (ha.m.)
                         0.0000     0.0000    |   2.7700     2.8400
                         0.8200     1.4400    |   3.2200     3.1300
                         1.3700     1.8900    |   5.2900     4.3700
                         1.7800     2.1800    |   6.1500     5.4900
                         2.3300     2.5500    |   0.0000     0.0000

                              AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0300)     97.500    14.463      1.33      35.15
   OUTFLOW: ID= 1 (  0030)     97.500     1.661      2.67      35.15

                        PEAK   FLOW   REDUCTION [Qout/Qin](%)= 11.49
                        TIME SHIFT OF PEAK FLOW         (min)= 80.00
                        MAXIMUM  STORAGE   USED       (ha.m.)=  2.0964

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================================================================================
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I   SS      U   U   A A   L
        V  V    I    SS     U   U  AAAAA  L
         V V    I      SS   U   U  A   A  L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M M M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****

  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\f1
760486-71c3-48ea-b94c-5bc37d400700\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\f1
```

```
760486-71c3-48ea-b94c-5bc37d400700\sc

DATE: 11-27-2024                          TIME: 08:52:05

USER:


COMMENTS: _____

--------------------------------------------------------------------------------
-------------------
  ************************************************
  ** SIMULATION : 1D - 25yr 4hr 10min Chicago   **
  ************************************************

-------------------
| CHICAGO STORM    |    IDF curve parameters: A= 739.425
| Ptotal= 67.37 mm |                          B=   0.000
-------------------                          C=   0.690
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 hrs
                         Storm time step    = 10.00 min
                         Time to peak ratio =  0.33

  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
  0.00    5.83 |  1.00   27.01 |  2.00   11.42 |  3.00    6.70
  0.17    6.50 |  1.17  150.97 |  2.17   10.10 |  3.17    6.31
  0.33    7.41 |  1.33   33.07 |  2.33    9.10 |  3.33    5.98
  0.50    8.70 |  1.50   20.98 |  2.50    8.32 |  3.50    5.68
  0.67   10.75 |  1.67   16.05 |  2.67    7.68 |  3.67    5.42
  0.83   14.64 |  1.83   13.26 |  2.83    7.15 |  3.83    5.19

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=  30.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=  55.00
-------------------

                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       23.81         6.71
     Dep. Storage     (mm)=        5.00         5.00
     Average Slope     (%)=        1.00         2.00
     Length            (m)=      451.07        40.00
     Mannings n            =       0.013        0.250
```

```
      NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                    ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    5.83 | 1.083   27.01 | 2.083   11.42 |  3.08    6.70
 0.167    5.83 | 1.167   27.01 | 2.167   11.42 |  3.17    6.70
 0.250    6.50 | 1.250  150.97 | 2.250   10.10 |  3.25    6.31
 0.333    6.50 | 1.333  150.97 | 2.333   10.10 |  3.33    6.31
 0.417    7.41 | 1.417   33.07 | 2.417    9.10 |  3.42    5.98
 0.500    7.41 | 1.500   33.07 | 2.500    9.10 |  3.50    5.98
 0.583    8.70 | 1.583   20.98 | 2.583    8.32 |  3.58    5.68
 0.667    8.70 | 1.667   20.98 | 2.667    8.32 |  3.67    5.68
 0.750   10.75 | 1.750   16.05 | 2.750    7.68 |  3.75    5.42
 0.833   10.75 | 1.833   16.05 | 2.833    7.68 |  3.83    5.42
 0.917   14.64 | 1.917   13.26 | 2.917    7.15 |  3.92    5.19
 1.000   14.64 | 2.000   13.26 | 3.000    7.15 |  4.00    5.19

Max.Eff.Inten.(mm/hr)=     150.97       144.43
          over (min)         5.00        10.00
Storage Coeff.  (min)=       5.35 (ii)   9.50 (ii)
Unit Hyd. Tpeak (min)=       5.00        10.00
Unit Hyd. peak  (cms)=       0.21         0.12
                                        *TOTALS*
PEAK FLOW      (cms)=        6.13         1.70         7.520 (iii)
TIME TO PEAK   (hrs)=        1.33         1.42          1.33
RUNOFF VOLUME   (mm)=       62.37        33.43         49.34
TOTAL RAINFALL  (mm)=       67.37        67.37         67.37
RUNOFF COEFFICIENT   =       0.93         0.50          0.73


   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN* = 67.0    Ia = Dep. Storage  (Above)
  (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
       THAN THE STORAGE COEFFICIENT.
 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  0001)|   Area    (ha)=   4.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
-------------------

                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        2.11         2.11
     Dep. Storage     (mm)=        5.00         5.00
     Average Slope     (%)=        1.00         2.00
     Length            (m)=      167.53        40.00
```

```
      Mannings n            =       0.013        0.250

      NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                    ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    5.83 | 1.083   27.01 | 2.083   11.42 |  3.08    6.70
 0.167    5.83 | 1.167   27.01 | 2.167   11.42 |  3.17    6.70
 0.250    6.50 | 1.250  150.97 | 2.250   10.10 |  3.25    6.31
 0.333    6.50 | 1.333  150.97 | 2.333   10.10 |  3.33    6.31
 0.417    7.41 | 1.417   33.07 | 2.417    9.10 |  3.42    5.98
 0.500    7.41 | 1.500   33.07 | 2.500    9.10 |  3.50    5.98
 0.583    8.70 | 1.583   20.98 | 2.583    8.32 |  3.58    5.68
 0.667    8.70 | 1.667   20.98 | 2.667    8.32 |  3.67    5.68
 0.750   10.75 | 1.750   16.05 | 2.750    7.68 |  3.75    5.42
 0.833   10.75 | 1.833   16.05 | 2.833    7.68 |  3.83    5.42
 0.917   14.64 | 1.917   13.26 | 2.917    7.15 |  3.92    5.19
 1.000   14.64 | 2.000   13.26 | 3.000    7.15 |  4.00    5.19

Max.Eff.Inten.(mm/hr)=     150.97        69.32
          over (min)         5.00        10.00
Storage Coeff.  (min)=       5.22 (ii)   9.97 (ii)
Unit Hyd. Tpeak (min)=       5.00        10.00
Unit Hyd. peak  (cms)=       0.21         0.11
                                        *TOTALS*
PEAK FLOW      (cms)=        5.88         1.08         6.728 (iii)
TIME TO PEAK   (hrs)=        1.33         1.42          1.33
RUNOFF VOLUME   (mm)=       62.37        25.84         46.66
TOTAL RAINFALL  (mm)=       67.37        67.37         67.37
RUNOFF COEFFICIENT   =       0.93         0.38          0.69


   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN* = 67.0    Ia = Dep. Storage  (Above)
  (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
       THAN THE STORAGE COEFFICIENT.
 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  0002)|   Area    (ha)=   3.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
-------------------

                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.98         1.98
     Dep. Storage     (mm)=        5.00         5.00
     Average Slope     (%)=        1.00         2.00
     Length            (m)=      162.28        40.00
     Mannings n            =       0.013        0.250

      NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                    ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    5.83 | 1.083   27.01 | 2.083   11.42 |  3.08    6.70
 0.167    5.83 | 1.167   27.01 | 2.167   11.42 |  3.17    6.70
 0.250    6.50 | 1.250  150.97 | 2.250   10.10 |  3.25    6.31
 0.333    6.50 | 1.333  150.97 | 2.333   10.10 |  3.33    6.31
 0.417    7.41 | 1.417   33.07 | 2.417    9.10 |  3.42    5.98
 0.500    7.41 | 1.500   33.07 | 2.500    9.10 |  3.50    5.98
```

```
                    ID = 3 (  0100):    34.73   8.433     1.33    48.40

      NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |    OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)    |    (cms)     (ha.m.)
                         0.0000     0.0000    |   1.0900     1.0400
                         0.3100     0.5460    |   1.2700     1.1400
                         0.5250     0.7030    |   2.1100     1.5700
                         0.6900     0.8068    |   2.4450     2.0600
                         0.9000     0.9400    |   0.0000     0.0000

                              AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0100)     34.730     8.433      1.33      48.40
   OUTFLOW: ID= 1 (  0010)     34.730     0.989      2.17      48.39

                        PEAK   FLOW   REDUCTION [Qout/Qin](%)= 11.72
                        TIME SHIFT OF PEAK FLOW         (min)= 50.00
                        MAXIMUM  STORAGE   USED       (ha.m.)=  0.9871

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=  28.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  57.00
-------------------

                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       19.08         8.98
     Dep. Storage     (mm)=        5.00         5.00
     Average Slope     (%)=        1.00         2.00
     Length            (m)=      432.51        40.00
     Mannings n            =       0.013        0.250

      NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                    ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    5.83 | 1.083   27.01 | 2.083   11.42 |  3.08    6.70
 0.167    5.83 | 1.167   27.01 | 2.167   11.42 |  3.17    6.70
 0.250    6.50 | 1.250  150.97 | 2.250   10.10 |  3.25    6.31
 0.333    6.50 | 1.333  150.97 | 2.333   10.10 |  3.33    6.31
 0.417    7.41 | 1.417   33.07 | 2.417    9.10 |  3.42    5.98
 0.500    7.41 | 1.500   33.07 | 2.500    9.10 |  3.50    5.98
 0.583    8.70 | 1.583   20.98 | 2.583    8.32 |  3.58    5.68
```

```
-------------------
| ADD HYD  (  0100)|
|  1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
      ID1= 1 (  0001):    4.21   0.913     1.33    41.56
    + ID2= 2 (  0201):   30.52   7.520     1.33    49.34
      ==========================================================
      ID = 3 (  0100):   34.73   8.433     1.33    48.40

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |    OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)    |    (cms)     (ha.m.)
                         0.0000     0.0000    |   1.8250     0.6819
                         0.6400     0.3757    |   2.1650     0.7600
                         1.0700     0.4858    |   4.0750     1.0700
                         1.3800     0.5709    |   4.7000     1.7300
```

```
                              AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0200)     32.010     7.586      1.33      46.03
   OUTFLOW: ID= 1 (  0020)     32.010     1.743      1.67      46.03

                        PEAK   FLOW   REDUCTION [Qout/Qin](%)= 22.97
                        TIME SHIFT OF PEAK FLOW         (min)= 20.00
                        MAXIMUM  STORAGE   USED       (ha.m.)=  0.6635

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=  89.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  61.00   Dir. Conn.(%)=  44.00
-------------------

                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       54.67        34.95
     Dep. Storage     (mm)=        5.00         5.00
     Average Slope     (%)=        2.00         3.00
     Length            (m)=      772.96        40.00
     Mannings n            =       0.013        0.250

      NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                    ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    5.83 | 1.083   27.01 | 2.083   11.42 |  3.08    6.70
 0.167    5.83 | 1.167   27.01 | 2.167   11.42 |  3.17    6.70
 0.250    6.50 | 1.250  150.97 | 2.250   10.10 |  3.25    6.31
 0.333    6.50 | 1.333  150.97 | 2.333   10.10 |  3.33    6.31
 0.417    7.41 | 1.417   33.07 | 2.417    9.10 |  3.42    5.98
 0.500    7.41 | 1.500   33.07 | 2.500    9.10 |  3.50    5.98
 0.583    8.70 | 1.583   20.98 | 2.583    8.32 |  3.58    5.68
 0.667    8.70 | 1.667   20.98 | 2.667    8.32 |  3.67    5.68
 0.750   10.75 | 1.750   16.05 | 2.750    7.68 |  3.75    5.42
 0.833   10.75 | 1.833   16.05 | 2.833    7.68 |  3.83    5.42
 0.917   14.64 | 1.917   13.26 | 2.917    7.15 |  3.92    5.19
 1.000   14.64 | 2.000   13.26 | 3.000    7.15 |  4.00    5.19

Max.Eff.Inten.(mm/hr)=     150.97        78.21
          over (min)         5.00        15.00
Storage Coeff.  (min)=       6.00 (ii)   12.90 (ii)
Unit Hyd. Tpeak (min)=       5.00        15.00
Unit Hyd. peak  (cms)=       0.19         0.08
                                        *TOTALS*
PEAK FLOW      (cms)=        13.92         3.93        15.927 (iii)
TIME TO PEAK   (hrs)=         1.33         1.50         1.33
RUNOFF VOLUME   (mm)=       62.37        27.03        42.58
```

```
TOTAL RAINFALL   (mm)=      67.37         67.37          67.37
RUNOFF COEFFICIENT   =       0.93          0.40           0.63


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
      CN* = 67.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0003)|   Area    (ha)=  7.88
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------
                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      3.94          3.94
     Dep. Storage     (mm)=      5.00          5.00
     Average Slope    (%)=       1.00          2.00
     Length           (m)=     229.20         40.00
     Mannings n             =    0.013         0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
         0.083    5.83 | 1.083   27.01 | 2.083   11.42 |  3.08    6.70
         0.167    5.83 | 1.167   27.01 | 2.167   11.42 |  3.17    6.70
         0.250    6.50 | 1.250  150.97 | 2.250   10.10 |  3.25    6.31
         0.333    6.50 | 1.333  150.97 | 2.333   10.10 |  3.33    6.31
         0.417    7.41 | 1.417   33.07 | 2.417    9.10 |  3.42    5.98
         0.500    7.41 | 1.500   33.07 | 2.500    9.10 |  3.50    5.98
         0.583    8.70 | 1.583   20.98 | 2.583    8.32 |  3.58    5.68
         0.667    8.70 | 1.667   20.98 | 2.667    8.32 |  3.67    5.68
         0.750   10.75 | 1.750   16.05 | 2.750    7.68 |  3.75    5.42
         0.833   10.75 | 1.833   16.05 | 2.833    7.68 |  3.83    5.42
         0.917   14.64 | 1.917   13.26 | 2.917    7.15 |  3.92    5.19
         1.000   14.64 | 2.000   13.26 | 3.000    7.15 |  4.00    5.19

     Max.Eff.Inten.(mm/hr)=    150.97        30.65
           over (min)          5.00         15.00
     Storage Coeff.  (min)=    3.56 (ii)    14.89 (ii)
     Unit Hyd. Tpeak (min)=    5.00         15.00
     Unit Hyd. peak  (cms)=    0.26          0.08
                                          *TOTALS*
     PEAK FLOW       (cms)=     1.57          0.21          1.670 (iii)
     TIME TO PEAK    (hrs)=     1.33          1.50           1.33
```

```
     RUNOFF VOLUME    (mm)=     62.37         20.75          41.56
     TOTAL RAINFALL   (mm)=     67.37         67.37          67.37
     RUNOFF COEFFICIENT   =      0.93          0.31           0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0300)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):    89.62  15.927     1.33    42.58
     + ID2= 2 (  0003):     7.88   1.670     1.33    41.56
       ========================================================
       ID = 3 (  0300):    97.50  17.597     1.33    42.49

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0030)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |   OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------     (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000    0.0000    |   2.7700     2.8400
                         0.8200    1.4400    |   3.2200     3.1300
                         1.3700    1.8900    |   5.2900     4.3700
                         1.7800    2.1800    |   6.1500     5.4900
                         2.3300    2.5500    |   0.0000     0.0000

                                    AREA     QPEAK     TPEAK      R.V.
                                    (ha)     (cms)     (hrs)      (mm)
   INFLOW : ID= 2 (  0300)      97.500    17.597      1.33      42.49
   OUTFLOW: ID= 1 (  0030)      97.500     2.200      2.42      42.49

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 12.50
                  TIME SHIFT OF PEAK FLOW         (min)= 65.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  2.4633

--------------------------------------------------------------------------------

 FINISH
================================================================================
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
         V V    I      SS   U   U  A   A  L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M M M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\c1
fb7f38-e77f-4479-9892-31e669a823ab\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\c1
fb7f38-e77f-4479-9892-31e669a823ab\sc

DATE: 11-27-2024                          TIME: 08:52:05

USER:


COMMENTS: _____

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  ************************************************
  ** SIMULATION : 1E - 50yr 4hr 10min Chicago   **
  ************************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 820.514
| Ptotal= 74.35 mm |                          B=   0.000
```

```
                        C=   0.691
     used in:   INTENSITY =  A / (t + B)^C

     Duration of storm  =  4.00 hrs
     Storm time step    = 10.00 min
     Time to peak ratio =  0.33

          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
         0.00    6.41 |  1.00   29.78 |  2.00   12.57 |  3.00    7.37
         0.17    7.15 |  1.17  167.14 |  2.17   11.12 |  3.17    6.95
         0.33    8.15 |  1.33   36.47 |  2.33   10.02 |  3.33    6.58
         0.50    9.58 |  1.50   23.12 |  2.50    9.15 |  3.50    6.25
         0.67   11.84 |  1.67   17.69 |  2.67    8.45 |  3.67    5.96
         0.83   16.13 |  1.83   14.60 |  2.83    7.87 |  3.83    5.71

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--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=  30.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=  55.00
--------------------
                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     23.81          6.71
     Dep. Storage     (mm)=      5.00          5.00
     Average Slope    (%)=       1.00          2.00
     Length           (m)=     451.07         40.00
     Mannings n             =    0.013         0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
         0.083    6.41 | 1.083   29.78 | 2.083   12.57 |  3.08    7.37
         0.167    6.41 | 1.167   29.78 | 2.167   12.57 |  3.17    7.37
         0.250    7.15 | 1.250  167.14 | 2.250   11.12 |  3.25    6.95
         0.333    7.15 | 1.333  167.14 | 2.333   11.12 |  3.33    6.95
         0.417    8.15 | 1.417   36.47 | 2.417   10.02 |  3.42    6.58
         0.500    8.15 | 1.500   36.47 | 2.500   10.02 |  3.50    6.58
         0.583    9.58 | 1.583   23.12 | 2.583    9.15 |  3.58    6.25
         0.667    9.58 | 1.667   23.12 | 2.667    9.15 |  3.67    6.25
         0.750   11.84 | 1.750   17.69 | 2.750    8.45 |  3.75    5.96
         0.833   11.84 | 1.833   17.69 | 2.833    8.45 |  3.83    5.96
         0.917   16.13 | 1.917   14.60 | 2.917    7.87 |  3.92    5.71
         1.000   16.13 | 2.000   14.60 | 3.000    7.87 |  4.00    5.71

     Max.Eff.Inten.(mm/hr)=    167.14       170.44
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```
           over (min)          5.00         10.00
     Storage Coeff.  (min)=    5.14 (ii)    9.12 (ii)
     Unit Hyd. Tpeak (min)=    5.00         10.00
     Unit Hyd. peak  (cms)=    0.21          0.12
                                          *TOTALS*
     PEAK FLOW       (cms)=     6.87          2.04          8.548 (iii)
     TIME TO PEAK    (hrs)=     1.33          1.42           1.33
     RUNOFF VOLUME    (mm)=    69.35         38.85          55.62
     TOTAL RAINFALL   (mm)=    74.35         74.35          74.35
     RUNOFF COEFFICIENT   =     0.93          0.52           0.75


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
      CN* = 67.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0001)|   Area    (ha)=  4.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------
                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      2.11          2.11
     Dep. Storage     (mm)=      5.00          5.00
     Average Slope    (%)=       1.00          2.00
     Length           (m)=     167.53         40.00
     Mannings n             =    0.013         0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
         0.083    6.41 | 1.083   29.78 | 2.083   12.57 |  3.08    7.37
         0.167    6.41 | 1.167   29.78 | 2.167   12.57 |  3.17    7.37
         0.250    7.15 | 1.250  167.14 | 2.250   11.12 |  3.25    6.95
         0.333    7.15 | 1.333  167.14 | 2.333   11.12 |  3.33    6.95
         0.417    8.15 | 1.417   36.47 | 2.417   10.02 |  3.42    6.58
         0.500    8.15 | 1.500   36.47 | 2.500   10.02 |  3.50    6.58
         0.583    9.58 | 1.583   23.12 | 2.583    9.15 |  3.58    6.25
         0.667    9.58 | 1.667   23.12 | 2.667    9.15 |  3.67    6.25
         0.750   11.84 | 1.750   17.69 | 2.750    8.45 |  3.75    5.96
         0.833   11.84 | 1.833   17.69 | 2.833    8.45 |  3.83    5.96
         0.917   16.13 | 1.917   14.60 | 2.917    7.87 |  3.92    5.71
         1.000   16.13 | 2.000   14.60 | 3.000    7.87 |  4.00    5.71

     Max.Eff.Inten.(mm/hr)=    167.14        48.07
           over (min)          5.00         15.00
     Storage Coeff.  (min)=    2.84 (ii)    12.30 (ii)
     Unit Hyd. Tpeak (min)=    5.00         15.00
     Unit Hyd. peak  (cms)=    0.28          0.09
                                          *TOTALS*
     PEAK FLOW       (cms)=     0.95          0.15          1.028 (iii)
     TIME TO PEAK    (hrs)=     1.33          1.50           1.33
     RUNOFF VOLUME    (mm)=    69.35         24.73          47.04
     TOTAL RAINFALL   (mm)=    74.35         74.35          74.35
     RUNOFF COEFFICIENT   =     0.93          0.33           0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0100)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):     4.21   1.028     1.33    47.04
     + ID2= 2 (  0201):    30.52   8.548     1.33    55.62
       ========================================================
       ID = 3 (  0100):    34.73   9.576     1.33    54.58

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |   OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------     (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000    0.0000    |   1.0900     1.0400
                         0.3100    0.5460    |   1.2700     1.1400
                         0.5250    0.7030    |   2.1100     1.5700
                         0.6900    0.8068    |   2.4450     2.0600
                         0.9000    0.9400    |   0.0000     0.0000

                                    AREA     QPEAK     TPEAK      R.V.
                                    (ha)     (cms)     (hrs)      (mm)
   INFLOW : ID= 2 (  0100)      34.730     9.576      1.33      54.58
   OUTFLOW: ID= 1 (  0010)      34.730     1.187      2.08      54.57

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 12.40
```

```
                  TIME SHIFT OF PEAK FLOW         (min)= 45.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.0943

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=  28.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  57.00
--------------------
                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     19.08          8.98
     Dep. Storage     (mm)=      5.00          5.00
     Average Slope    (%)=       1.00          2.00
     Length           (m)=     432.51         40.00
     Mannings n             =    0.013         0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
         0.083    6.41 | 1.083   29.78 | 2.083   12.57 |  3.08    7.37
         0.167    6.41 | 1.167   29.78 | 2.167   12.57 |  3.17    7.37
         0.250    7.15 | 1.250  167.14 | 2.250   11.12 |  3.25    6.95
         0.333    7.15 | 1.333  167.14 | 2.333   11.12 |  3.33    6.95
         0.417    8.15 | 1.417   36.47 | 2.417   10.02 |  3.42    6.58
         0.500    8.15 | 1.500   36.47 | 2.500   10.02 |  3.50    6.58
         0.583    9.58 | 1.583   23.12 | 2.583    9.15 |  3.58    6.25
         0.667    9.58 | 1.667   23.12 | 2.667    9.15 |  3.67    6.25
         0.750   11.84 | 1.750   17.69 | 2.750    8.45 |  3.75    5.96
         0.833   11.84 | 1.833   17.69 | 2.833    8.45 |  3.83    5.96
         0.917   16.13 | 1.917   14.60 | 2.917    7.87 |  3.92    5.71
         1.000   16.13 | 2.000   14.60 | 3.000    7.87 |  4.00    5.71

     Max.Eff.Inten.(mm/hr)=    167.14        83.17
           over (min)          5.00         10.00
     Storage Coeff.  (min)=    5.01 (ii)    9.57 (ii)
     Unit Hyd. Tpeak (min)=    5.00         10.00
     Unit Hyd. peak  (cms)=    0.21          0.11
                                          *TOTALS*
     PEAK FLOW       (cms)=     6.59          1.32          7.628 (iii)
     TIME TO PEAK    (hrs)=     1.33          1.42           1.33
     RUNOFF VOLUME    (mm)=    69.35         30.46          52.63
     TOTAL RAINFALL   (mm)=    74.35         74.35          74.35
     RUNOFF COEFFICIENT   =     0.93          0.41           0.71


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
      CN* = 67.0    Ia = Dep. Storage  (Above)
```

```
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0002)|   Area    (ha)=  3.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------
                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.98          1.98
     Dep. Storage     (mm)=      5.00          5.00
     Average Slope    (%)=       1.00          2.00
     Length           (m)=     162.28         40.00
     Mannings n             =    0.013         0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
         0.083    6.41 | 1.083   29.78 | 2.083   12.57 |  3.08    7.37
         0.167    6.41 | 1.167   29.78 | 2.167   12.57 |  3.17    7.37
         0.250    7.15 | 1.250  167.14 | 2.250   11.12 |  3.25    6.95
         0.333    7.15 | 1.333  167.14 | 2.333   11.12 |  3.33    6.95
         0.417    8.15 | 1.417   36.47 | 2.417   10.02 |  3.42    6.58
         0.500    8.15 | 1.500   36.47 | 2.500   10.02 |  3.50    6.58
         0.583    9.58 | 1.583   23.12 | 2.583    9.15 |  3.58    6.25
         0.667    9.58 | 1.667   23.12 | 2.667    9.15 |  3.67    6.25
         0.750   11.84 | 1.750   17.69 | 2.750    8.45 |  3.75    5.96
         0.833   11.84 | 1.833   17.69 | 2.833    8.45 |  3.83    5.96
         0.917   16.13 | 1.917   14.60 | 2.917    7.87 |  3.92    5.71
         1.000   16.13 | 2.000   14.60 | 3.000    7.87 |  4.00    5.71

     Max.Eff.Inten.(mm/hr)=    167.14        48.07
           over (min)          5.00         15.00
     Storage Coeff.  (min)=    2.78 (ii)    12.24 (ii)
     Unit Hyd. Tpeak (min)=    5.00         15.00
     Unit Hyd. peak  (cms)=    0.28          0.09
                                          *TOTALS*
     PEAK FLOW       (cms)=     0.90          0.14          0.966 (iii)
     TIME TO PEAK    (hrs)=     1.33          1.50           1.33
     RUNOFF VOLUME    (mm)=    69.35         24.73          47.04
     TOTAL RAINFALL   (mm)=    74.35         74.35          74.35
     RUNOFF COEFFICIENT   =     0.93          0.33           0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
```

```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0200)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0002):     3.95   0.966     1.33    47.04
     + ID2= 2 (  0202):    28.06   7.628     1.33    52.63
       ========================================================
       ID = 3 (  0200):    32.01   8.593     1.33    51.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |   OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------     (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000    0.0000    |   1.8250     0.6819
                         0.6400    0.3757    |   2.1650     0.7600
                         1.0700    0.4858    |   4.0750     1.0700
                         1.3800    0.5709    |   4.7000     1.7300

                                    AREA     QPEAK     TPEAK      R.V.
                                    (ha)     (cms)     (hrs)      (mm)
   INFLOW : ID= 2 (  0200)      32.010     8.593      1.33      51.94
   OUTFLOW: ID= 1 (  0020)      32.010     2.063      1.67      51.93

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 24.01
                  TIME SHIFT OF PEAK FLOW         (min)= 20.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.7373

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=  89.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  61.00   Dir. Conn.(%)=  44.00
--------------------
                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     54.67         34.95
     Dep. Storage     (mm)=      5.00          5.00
     Average Slope    (%)=       2.00          3.00
     Length           (m)=     772.96         40.00
     Mannings n             =    0.013         0.250
```

```
      NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
   0.083    6.41 | 1.083   29.78 | 2.083   12.57 |  3.08    7.37
   0.167    6.41 | 1.167   29.78 | 2.167   12.57 |  3.17    7.37
   0.250    7.15 | 1.250  167.14 | 2.250   11.12 |  3.25    6.95
   0.333    7.15 | 1.333  167.14 | 2.333   11.12 |  3.33    6.95
   0.417    8.15 | 1.417   36.47 | 2.417   10.02 |  3.42    6.58
   0.500    8.15 | 1.500   36.47 | 2.500   10.02 |  3.50    6.58
   0.583    9.58 | 1.583   23.12 | 2.583    9.15 |  3.58    6.25
   0.667    9.58 | 1.667   23.12 | 2.667    9.15 |  3.67    6.25
   0.750   11.84 | 1.750   17.69 | 2.750    8.45 |  3.75    5.96
   0.833   11.84 | 1.833   17.69 | 2.833    8.45 |  3.83    5.96
   0.917   16.13 | 1.917   14.60 | 2.917    7.87 |  3.92    5.71
   1.000   16.13 | 2.000   14.60 | 3.000    7.87 |  4.00    5.71

      Max.Eff.Inten.(mm/hr)=     167.14          93.58
                over (min)=       5.00          15.00
      Storage Coeff.  (min)=      5.76 (ii)     10.61 (ii)
      Unit Hyd. Tpeak (min)=      5.00          15.00
      Unit Hyd. peak  (cms)=      0.20           0.09
                                                      *TOTALS*
      PEAK FLOW       (cms)=     15.60           5.11          18.308 (iii)
      TIME TO PEAK    (hrs)=      1.33           1.50           1.33
      RUNOFF VOLUME    (mm)=     69.35          31.78          48.31
      TOTAL RAINFALL   (mm)=     74.35          74.35          74.35
      RUNOFF COEFFICIENT   =      0.93           0.43           0.65


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
              CN*  =  67.0    Ia = Dep. Storage  (Above)
         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
              THAN THE STORAGE COEFFICIENT.
        (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
-------------------
| CALIB             |
| STANDHYD (  0003)|   Area    (ha)=   7.88
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=      3.94          3.94
      Dep. Storage     (mm)=      5.00          5.00
      Average Slope    (%)=       1.00          2.00
      Length           (m)=     229.20         40.00
      Mannings n             =      0.013         0.250

      NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
   0.083    6.41 | 1.083   29.78 | 2.083   12.57 |  3.08    7.37
   0.167    6.41 | 1.167   29.78 | 2.167   12.57 |  3.17    7.37
   0.250    7.15 | 1.250  167.14 | 2.250   11.12 |  3.25    6.95
   0.333    7.15 | 1.333  167.14 | 2.333   11.12 |  3.33    6.95
   0.417    8.15 | 1.417   36.47 | 2.417   10.02 |  3.42    6.58
   0.500    8.15 | 1.500   36.47 | 2.500   10.02 |  3.50    6.58
   0.583    9.58 | 1.583   23.12 | 2.583    9.15 |  3.58    6.25
   0.667    9.58 | 1.667   23.12 | 2.667    9.15 |  3.67    6.25
   0.750   11.84 | 1.750   17.69 | 2.750    8.45 |  3.75    5.96
   0.833   11.84 | 1.833   17.69 | 2.833    8.45 |  3.83    5.96
   0.917   16.13 | 1.917   14.60 | 2.917    7.87 |  3.92    5.71
   1.000   16.13 | 2.000   14.60 | 3.000    7.87 |  4.00    5.71

      Max.Eff.Inten.(mm/hr)=     167.14          48.07
                over (min)=       5.00          15.00
      Storage Coeff.  (min)=      3.42 (ii)     12.88 (ii)
      Unit Hyd. Tpeak (min)=      5.00          15.00
      Unit Hyd. peak  (cms)=      0.26           0.08
                                                      *TOTALS*
      PEAK FLOW       (cms)=      1.75           0.27           1.883 (iii)
      TIME TO PEAK    (hrs)=      1.33           1.50           1.33
      RUNOFF VOLUME    (mm)=     69.35          24.73          47.04
      TOTAL RAINFALL   (mm)=     74.35          74.35          74.35
      RUNOFF COEFFICIENT   =      0.93           0.33           0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
              CN*  =  67.0    Ia = Dep. Storage  (Above)
         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
              THAN THE STORAGE COEFFICIENT.
        (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0300)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------+-----------------------------------------
       ID1= 1 (  0001):    4.21   1.137     1.33    52.57
     + ID2= 2 (  0201):   30.52   9.565     1.33    61.92
       ==========================================================
       ID = 3 (  0100):   34.73  10.703     1.33    60.78

      NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2--> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000    0.0000    |  1.0900     1.0400
                         0.3100    0.5460    |  1.2700     1.1400
                         0.5250    0.7030    |  2.1100     1.5700
                         0.6900    0.8068    |  2.4450     2.0600
                         0.9000    0.9400    |  0.0000     0.0000

                                   AREA     QPEAK     TPEAK      R.V.
                                    (ha)     (cms)     (hrs)      (mm)
      INFLOW : ID= 2 (  0100)     34.730    10.703     1.33      60.78
      OUTFLOW: ID= 1 (  0010)     34.730     1.389     2.08      60.77

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 12.98
                   TIME SHIFT OF PEAK FLOW          (min)= 45.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  1.2019

------------------------------------------------------------------------------
-------------------
| CALIB             |
| STANDHYD (  0202)|   Area    (ha)=  28.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  57.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=     19.08          8.98
      Dep. Storage     (mm)=      5.00          5.00
      Average Slope    (%)=       1.00          2.00
      Length           (m)=     432.51         40.00
      Mannings n             =      0.013         0.250

      NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
   0.083    7.01 | 1.083   32.55 | 2.083   13.74 |  3.08    8.06
   0.167    7.01 | 1.167   32.55 | 2.167   13.74 |  3.17    8.06
   0.250    7.82 | 1.250  182.70 | 2.250   12.16 |  3.25    7.59
```

```
      Mannings n             =      0.013         0.250

      NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
   0.083    7.01 | 1.083   32.55 | 2.083   13.74 |  3.08    8.06
   0.167    7.01 | 1.167   32.55 | 2.167   13.74 |  3.17    8.06
   0.250    7.82 | 1.250  182.70 | 2.250   12.16 |  3.25    7.59
   0.333    7.82 | 1.333  182.70 | 2.333   12.16 |  3.33    7.59
   0.417    8.91 | 1.417   39.87 | 2.417   10.95 |  3.42    7.19
   0.500    8.91 | 1.500   39.87 | 2.500   10.95 |  3.50    7.19
   0.583   10.47 | 1.583   25.27 | 2.583   10.01 |  3.58    6.83
   0.667   10.47 | 1.667   25.27 | 2.667   10.01 |  3.67    6.83
   0.750   12.94 | 1.750   19.33 | 2.750    9.24 |  3.75    6.52
   0.833   12.94 | 1.833   19.33 | 2.833    9.24 |  3.83    6.52
   0.917   17.63 | 1.917   15.96 | 2.917    8.60 |  3.92    6.24
   1.000   17.63 | 2.000   15.96 | 3.000    8.60 |  4.00    6.24

      Max.Eff.Inten.(mm/hr)=     182.70          96.69
                over (min)=       5.00          10.00
      Storage Coeff.  (min)=      4.96 (ii)      8.80 (ii)
      Unit Hyd. Tpeak (min)=      5.00          10.00
      Unit Hyd. peak  (cms)=      0.22           0.12
                                                      *TOTALS*
      PEAK FLOW       (cms)=      7.57           2.39           9.565 (iii)
      TIME TO PEAK    (hrs)=      1.33           1.42           1.33
      RUNOFF VOLUME    (mm)=     76.27          44.38          61.92
      TOTAL RAINFALL   (mm)=     81.27          81.27          81.27
      RUNOFF COEFFICIENT   =      0.94           0.55           0.76

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
              CN*  =  67.0    Ia = Dep. Storage  (Above)
         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
              THAN THE STORAGE COEFFICIENT.
        (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
-------------------
| CALIB             |
| STANDHYD (  0001)|   Area    (ha)=   4.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
```

```
      Surface Area     (ha)=      2.11          2.11
      Dep. Storage     (mm)=      5.00          5.00
      Average Slope    (%)=       1.00          2.00
      Length           (m)=     167.53         40.00
      Mannings n             =      0.013         0.250

      NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
   0.083    7.01 | 1.083   32.55 | 2.083   13.74 |  3.08    8.06
   0.167    7.01 | 1.167   32.55 | 2.167   13.74 |  3.17    8.06
   0.250    7.82 | 1.250  182.70 | 2.250   12.16 |  3.25    7.59
   0.333    7.82 | 1.333  182.70 | 2.333   12.16 |  3.33    7.59
   0.417    8.91 | 1.417   39.87 | 2.417   10.95 |  3.42    7.19
   0.500    8.91 | 1.500   39.87 | 2.500   10.95 |  3.50    7.19
   0.583   10.47 | 1.583   25.27 | 2.583   10.01 |  3.58    6.83
   0.667   10.47 | 1.667   25.27 | 2.667   10.01 |  3.67    6.83
   0.750   12.94 | 1.750   19.33 | 2.750    9.24 |  3.75    6.52
   0.833   12.94 | 1.833   19.33 | 2.833    9.24 |  3.83    6.52
   0.917   17.63 | 1.917   15.96 | 2.917    8.60 |  3.92    6.24
   1.000   17.63 | 2.000   15.96 | 3.000    8.60 |  4.00    6.24

      Max.Eff.Inten.(mm/hr)=     182.70          56.93
                over (min)=       5.00          15.00
      Storage Coeff.  (min)=      2.74 (ii)     11.58 (ii)
      Unit Hyd. Tpeak (min)=      5.00          15.00
      Unit Hyd. peak  (cms)=      0.29           0.09
                                                      *TOTALS*
      PEAK FLOW       (cms)=      1.05           0.18           1.137 (iii)
      TIME TO PEAK    (hrs)=      1.33           1.50           1.33
      RUNOFF VOLUME    (mm)=     76.27          28.88          52.57
      TOTAL RAINFALL   (mm)=     81.27          81.27          81.27
      RUNOFF COEFFICIENT   =      0.94           0.36           0.65

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
              CN*  =  67.0    Ia = Dep. Storage  (Above)
         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
              THAN THE STORAGE COEFFICIENT.
        (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0100)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------+-----------------------------------------
       ID1= 1 (  0001):    4.21   1.137     1.33    52.57
     + ID2= 2 (  0201):   30.52   9.565     1.33    61.92
       ==========================================================
       ID = 3 (  0100):   34.73  10.703     1.33    60.78

      NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2--> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000    0.0000    |  1.0900     1.0400
                         0.3100    0.5460    |  1.2700     1.1400
                         0.5250    0.7030    |  2.1100     1.5700
                         0.6900    0.8068    |  2.4450     2.0600
                         0.9000    0.9400    |  0.0000     0.0000

                                   AREA     QPEAK     TPEAK      R.V.
                                    (ha)     (cms)     (hrs)      (mm)
      INFLOW : ID= 2 (  0100)     34.730    10.703     1.33      60.78
      OUTFLOW: ID= 1 (  0010)     34.730     1.389     2.08      60.77

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 12.98
                   TIME SHIFT OF PEAK FLOW          (min)= 45.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  1.2019

------------------------------------------------------------------------------
-------------------
| CALIB             |
| STANDHYD (  0202)|   Area    (ha)=  28.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  57.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=     19.08          8.98
      Dep. Storage     (mm)=      5.00          5.00
      Average Slope    (%)=       1.00          2.00
      Length           (m)=     432.51         40.00
      Mannings n             =      0.013         0.250

      NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
   0.083    7.01 | 1.083   32.55 | 2.083   13.74 |  3.08    8.06
   0.167    7.01 | 1.167   32.55 | 2.167   13.74 |  3.17    8.06
   0.250    7.82 | 1.250  182.70 | 2.250   12.16 |  3.25    7.59
   0.333    7.82 | 1.333  182.70 | 2.333   12.16 |  3.33    7.59
   0.417    8.91 | 1.417   39.87 | 2.417   10.95 |  3.42    7.19
   0.500    8.91 | 1.500   39.87 | 2.500   10.95 |  3.50    7.19
   0.583   10.47 | 1.583   25.27 | 2.583   10.01 |  3.58    6.83
   0.667   10.47 | 1.667   25.27 | 2.667   10.01 |  3.67    6.83
   0.750   12.94 | 1.750   19.33 | 2.750    9.24 |  3.75    6.52
   0.833   12.94 | 1.833   19.33 | 2.833    9.24 |  3.83    6.52
   0.917   17.63 | 1.917   15.96 | 2.917    8.60 |  3.92    6.24
   1.000   17.63 | 2.000   15.96 | 3.000    8.60 |  4.00    6.24

      Max.Eff.Inten.(mm/hr)=     182.70          97.39
                over (min)=       5.00          10.00
      Storage Coeff.  (min)=      4.83 (ii)      9.24 (ii)
      Unit Hyd. Tpeak (min)=      5.00          10.00
      Unit Hyd. peak  (cms)=      0.22           0.12
                                                      *TOTALS*
      PEAK FLOW       (cms)=      7.26           1.56           8.516 (iii)
      TIME TO PEAK    (hrs)=      1.33           1.42           1.33
      RUNOFF VOLUME    (mm)=     76.27          35.24          58.62
      TOTAL RAINFALL   (mm)=     81.27          81.27          81.27
      RUNOFF COEFFICIENT   =      0.94           0.43           0.72

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
              CN*  =  67.0    Ia = Dep. Storage  (Above)
         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
              THAN THE STORAGE COEFFICIENT.
        (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
-------------------
| CALIB             |
| STANDHYD (  0002)|   Area    (ha)=   3.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=      1.98          1.98
      Dep. Storage     (mm)=      5.00          5.00
      Average Slope    (%)=       1.00          2.00
      Length           (m)=     162.28         40.00
      Mannings n             =      0.013         0.250

      NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
   0.083    7.01 | 1.083   32.55 | 2.083   13.74 |  3.08    8.06
```

```
      ID = 3 (  0300):    97.50  20.191     1.33    48.21

      NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0030)|     OVERFLOW IS OFF
| IN= 2--> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000    0.0000    |  2.7700     2.8400
                         0.8200    1.4400    |  3.2200     3.1300
                         1.3700    1.8900    |  5.2900     4.3700
                         1.7800    2.1800    |  6.1500     5.4900
                         2.3300    2.5500    |  0.0000     0.0000

                                   AREA     QPEAK     TPEAK      R.V.
                                    (ha)     (cms)     (hrs)      (mm)
      INFLOW : ID= 2 (  0300)     97.500    20.191     1.33      48.21
      OUTFLOW: ID= 1 (  0030)     97.500     2.637     2.33      48.20

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 13.06
                   TIME SHIFT OF PEAK FLOW          (min)= 60.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  2.7528

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==============================================================================
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        V     V   I    SSSSS  U   U    A    L                (v 6.2.2015)
        V     V   I   SS      U   U   A A   L
         V   V    I    SS     U   U  AAAAA  L
          V V     I     SS    U   U  A   A  L
           V      I    SSSSS  UUUUU  A   A  LLLLL

         OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
        O   O    T      T    H   H   Y Y   MM MM  O   O
        O   O    T      T    H   H    Y    M M M  O   O
         OOO     T      T    H   H    Y    M   M   OOO

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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\Bb
```

```
284e86-e547-4deb-8bd5-3040ab1c6a31\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\Bb
284e86-e547-4deb-8bd5-3040ab1c6a31\sc

DATE: 11-27-2024                          TIME: 08:52:05

USER:


COMMENTS: _____________________________________________________

------------------------------------------------------------------------------
-------------------
  **********************************************
  ** SIMULATION : 1F - 100yr 4hr 10min Chicago  **
  **********************************************

-------------------
| CHICAGO STORM    |     IDF curve parameters: A= 896.876
| Ptotal= 81.27 mm |                           B=   0.000
-------------------                           C=   0.691
                          used in:   INTENSITY =  A / (t + B)^C

                          Duration of storm  =  4.00 hrs
                          Storm time step    = 10.00 min
                          Time to peak ratio =  0.33

    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
   0.00    7.01 |  1.00   32.55 |  2.00   13.74 |  3.00    8.06
   0.17    7.82 |  1.17  182.70 |  2.17   12.16 |  3.17    7.59
   0.33    8.91 |  1.33   39.87 |  2.33   10.95 |  3.33    7.19
   0.50   10.47 |  1.50   25.27 |  2.50   10.01 |  3.50    6.83
   0.67   12.94 |  1.67   19.33 |  2.67    9.24 |  3.67    6.52
   0.83   17.63 |  1.83   15.96 |  2.83    8.60 |  3.83    6.24


------------------------------------------------------------------------------
-------------------
| CALIB             |
| STANDHYD (  0201)|   Area    (ha)=  30.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=  55.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=     23.81          6.71
      Dep. Storage     (mm)=      5.00          5.00
```

```
                    0.0000    0.0000   |  1.8250     0.6819
                    0.6400    0.3757   |  2.1650     0.7600
                    1.0700    0.4858   |  4.0750     1.0700
                    1.3800    0.5709   |  4.7000     1.7300

                          AREA     QPEAK     TPEAK      R.V.
                           (ha)     (cms)     (hrs)      (mm)
 INFLOW : ID= 2 (  0200)    32.010     9.585     1.33     57.88
 OUTFLOW: ID= 1 (  0020)    32.010     2.453     1.67     57.87

              PEAK   FLOW   REDUCTION [Qout/Qin](%)= 25.59
              TIME SHIFT OF PEAK FLOW          (min)= 20.00
              MAXIMUM  STORAGE   USED       (ha.m.)=  0.8085

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------------------
|                |
| CALIB          |
| STANDHYD (  0203)|   Area    (ha)=  89.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  61.00   Dir. Conn.(%)=  44.00
------------------

                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=    54.67        34.95
     Dep. Storage     (mm)=     5.00         5.00
     Average Slope    (%)=      2.00         3.00
     Length           (m)=    772.96        40.00
     Mannings n           =     0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
         0.083    7.01 | 1.083   32.55 | 2.083   13.74 |  3.08    8.06
         0.167    7.01 | 1.167   32.55 | 2.167   13.74 |  3.17    8.06
         0.250    7.82 | 1.250  182.70 | 2.250   12.16 |  3.25    7.59
         0.333    7.82 | 1.333  182.70 | 2.333   12.16 |  3.33    7.59
         0.417    8.91 | 1.417   39.87 | 2.417   10.95 |  3.42    7.19
         0.500    8.91 | 1.500   39.87 | 2.500   10.95 |  3.50    7.19
         0.583   10.47 | 1.583   25.27 | 2.583   10.01 |  3.58    6.83
         0.667   10.47 | 1.667   25.27 | 2.667   10.01 |  3.67    6.83
         0.750   12.94 | 1.750   19.33 | 2.750    9.24 |  3.75    6.52
         0.833   12.94 | 1.833   19.33 | 2.833    9.24 |  3.83    6.52
         0.917   17.63 | 1.917   15.96 | 2.917    8.60 |  3.92    6.24
         1.000   17.63 | 2.000   15.96 | 3.000    8.60 |  4.00    6.24

     Max.Eff.Inten.(mm/hr)=     182.70       109.32
               over (min)          5.00        15.00
     Storage Coeff.  (min)=      5.56 (ii)   10.24 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00

     Unit Hyd. peak  (cms)=      0.20         0.09
                                                    *TOTALS*
     PEAK FLOW      (cms)=     17.24         6.05      20.486 (iii)
     TIME TO PEAK   (hrs)=      1.33         1.50       1.33
     RUNOFF VOLUME   (mm)=     76.27        36.69      54.10
     TOTAL RAINFALL  (mm)=     81.27        81.27      81.27
     RUNOFF COEFFICIENT   =     0.94         0.45       0.67


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0   Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
------------------
| CALIB            |
| STANDHYD (  0003)|   Area    (ha)=   7.88
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
------------------

                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     3.94         3.94
     Dep. Storage     (mm)=     5.00         5.00
     Average Slope    (%)=      1.00         2.00
     Length           (m)=    229.20        40.00
     Mannings n           =     0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
         0.083    7.01 | 1.083   32.55 | 2.083   13.74 |  3.08    8.06
         0.167    7.01 | 1.167   32.55 | 2.167   13.74 |  3.17    8.06
         0.250    7.82 | 1.250  182.70 | 2.250   12.16 |  3.25    7.59
         0.333    7.82 | 1.333  182.70 | 2.333   12.16 |  3.33    7.59
         0.417    8.91 | 1.417   39.87 | 2.417   10.95 |  3.42    7.19
         0.500    8.91 | 1.500   39.87 | 2.500   10.95 |  3.50    7.19
         0.583   10.47 | 1.583   25.27 | 2.583   10.01 |  3.58    6.83
         0.667   10.47 | 1.667   25.27 | 2.667   10.01 |  3.67    6.83
         0.750   12.94 | 1.750   19.33 | 2.750    9.24 |  3.75    6.52
         0.833   12.94 | 1.833   19.33 | 2.833    9.24 |  3.83    6.52
         0.917   17.63 | 1.917   15.96 | 2.917    8.60 |  3.92    6.24
         1.000   17.63 | 2.000   15.96 | 3.000    8.60 |  4.00    6.24

     Max.Eff.Inten.(mm/hr)=     182.70        56.93
               over (min)          5.00        15.00
     Storage Coeff.  (min)=      3.30 (ii)   12.14 (ii)

     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=      0.27         0.09
                                                    *TOTALS*
     PEAK FLOW      (cms)=      1.92         0.33       2.087 (iii)
     TIME TO PEAK   (hrs)=      1.33         1.50       1.33
     RUNOFF VOLUME   (mm)=     76.27        28.88      52.57
     TOTAL RAINFALL  (mm)=     81.27        81.27      81.27
     RUNOFF COEFFICIENT   =     0.94         0.36       0.65

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0   Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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------------------
| ADD HYD  (  0300)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0203):    89.62  20.486     1.33    54.10
     + ID2= 2 (  0003):     7.88   2.087     1.33    52.57
       ========================================================
       ID = 3 (  0300):    97.50  22.573     1.33    53.98

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
------------------
| RESERVOIR(  0030)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
------------------        (cms)     (ha.m.)   |    (cms)     (ha.m.)
                          0.0000     0.0000   |   2.7700     2.8400
                          0.8200     1.4400   |   3.2200     3.1300
                          1.3700     1.8900   |   5.2900     4.3700
                          1.7800     2.1800   |   6.1500     5.4900
                          2.3300     2.5500   |   0.0000     0.0000

                          AREA     QPEAK     TPEAK      R.V.
                           (ha)     (cms)     (hrs)      (mm)
 INFLOW : ID= 2 (  0300)    97.500    22.573     1.33     53.98
 OUTFLOW: ID= 1 (  0030)    97.500     3.079     2.25     53.97

              PEAK   FLOW   REDUCTION [Qout/Qin](%)= 13.64
              TIME SHIFT OF PEAK FLOW          (min)= 55.00
              MAXIMUM  STORAGE   USED       (ha.m.)=  3.0396
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================================================================================
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       V     V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V     V   I    SS     U   U   A A   L
        V   V    I     SS    U   U  AAAAA  L
         V V     I      SS   U   U  A   A  L
          V      I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\2b
c27be9-a264-46b6-85a7-78d6d817c316\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\2b
c27be9-a264-46b6-85a7-78d6d817c316\sc


DATE: 11-27-2024                          TIME: 08:52:05

USER:


COMMENTS: _____

--------------------------------------------------------------------------------
------------------------
  ***********************************************
  ** SIMULATION : 2A - 2yr 12hr 15min SCS Type  **
  ***********************************************


-------------------
|    READ STORM    |    Filename: C:\Users\jfletcher\AppD
```

```
                                ata\Local\Temp\
|                |              f7771102-1e26-4a23-9fad-5d61ceae4d2b\454c7dbd
| Ptotal= 55.96 mm |   Comments: 2yr 12hr 15min SCS Type II (MTO)
------------------
          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
         0.00    0.00 |  3.25    2.24 |  6.50   10.07 |  9.75    1.96
         0.25    1.40 |  3.50    2.24 |  6.75    4.48 | 10.00    1.96
         0.50    1.40 |  3.75    2.24 |  7.00    4.48 | 10.25    1.12
         0.75    1.40 |  4.00    2.24 |  7.25    3.36 | 10.50    1.12
         1.00    1.40 |  4.25    3.36 |  7.50    3.36 | 10.75    1.12
         1.25    1.40 |  4.50    3.36 |  7.75    3.36 | 11.00    1.12
         1.50    1.40 |  4.75    4.48 |  8.00    3.36 | 11.25    1.12
         1.75    1.40 |  5.00    4.48 |  8.25    1.96 | 11.50    1.12
         2.00    1.40 |  5.25    6.72 |  8.50    1.96 | 11.75    1.12
         2.25    1.68 |  5.50    6.72 |  8.75    1.96 | 12.00    1.12
         2.50    1.68 |  5.75   26.86 |  9.00    1.96 |
         2.75    1.68 |  6.00   73.87 |  9.25    1.96 |
         3.00    1.68 |  6.25   10.07 |  9.50    1.96 |

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------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=  30.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=  55.00
------------------

                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=    23.81         6.71
     Dep. Storage     (mm)=     5.00         5.00
     Average Slope    (%)=      1.00         2.00
     Length           (m)=    451.07        40.00
     Mannings n           =     0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
         0.083    0.00 | 3.167    1.68 | 6.250   73.87 |  9.33    1.96
         0.167    0.00 | 3.250    1.68 | 6.333   10.07 |  9.42    1.96
         0.250    0.00 | 3.333    2.24 | 6.417   10.07 |  9.50    1.96
         0.333    1.40 | 3.417    2.24 | 6.500   10.07 |  9.58    1.96
         0.417    1.40 | 3.500    2.24 | 6.583   10.07 |  9.67    1.96
         0.500    1.40 | 3.583    2.24 | 6.667   10.07 |  9.75    1.96
         0.583    1.40 | 3.667    2.24 | 6.750   10.07 |  9.83    1.96
         0.667    1.40 | 3.750    2.24 | 6.833    4.48 |  9.92    1.96
         0.750    1.40 | 3.833    2.24 | 6.917    4.48 | 10.00    1.96
         0.833    1.40 | 3.917    2.24 | 7.000    4.48 | 10.08    1.96
         0.917    1.40 | 4.000    2.24 | 7.083    4.48 | 10.17    1.96
         1.000    1.40 | 4.083    2.24 | 7.167    4.48 | 10.25    1.96
         1.083    1.40 | 4.167    2.24 | 7.250    4.48 | 10.33    1.12
         1.167    1.40 | 4.250    2.24 | 7.333    3.36 | 10.42    1.12
         1.250    1.40 | 4.333    3.36 | 7.417    3.36 | 10.50    1.12
         1.333    1.40 | 4.417    3.36 | 7.500    3.36 | 10.58    1.12
         1.417    1.40 | 4.500    3.36 | 7.583    3.36 | 10.67    1.12
         1.500    1.40 | 4.583    3.36 | 7.667    3.36 | 10.75    1.12
         1.583    1.40 | 4.667    3.36 | 7.750    3.36 | 10.83    1.12
         1.667    1.40 | 4.750    3.36 | 7.833    3.36 | 10.92    1.12
         1.750    1.40 | 4.833    4.48 | 7.917    3.36 | 11.00    1.12
         1.833    1.40 | 4.917    4.48 | 8.000    3.36 | 11.08    1.12
         1.917    1.40 | 5.000    4.48 | 8.083    3.36 | 11.17    1.12
         2.000    1.40 | 5.083    4.48 | 8.167    3.36 | 11.25    1.12
         2.083    1.40 | 5.167    4.48 | 8.250    3.36 | 11.33    1.12
         2.167    1.40 | 5.250    4.48 | 8.333    1.96 | 11.42    1.12
         2.250    1.40 | 5.333    6.72 | 8.417    1.96 | 11.50    1.12
         2.333    1.68 | 5.417    6.72 | 8.500    1.96 | 11.58    1.12
         2.417    1.68 | 5.500    6.72 | 8.583    1.96 | 11.67    1.12
         2.500    1.68 | 5.583    6.72 | 8.667    1.96 | 11.75    1.12
         2.583    1.68 | 5.667    6.72 | 8.750    1.96 | 11.83    1.12
         2.667    1.68 | 5.750    6.72 | 8.833    1.96 | 11.92    1.12
         2.750    1.68 | 5.833   26.86 | 8.917    1.96 | 12.00    1.12
         2.833    1.68 | 5.917   26.86 | 9.000    1.96 | 12.08    1.12
         2.917    1.68 | 6.000   26.86 | 9.083    1.96 | 12.17    1.12
         3.000    1.68 | 6.083   73.87 | 9.167    1.96 | 12.25    1.12
         3.083    1.68 | 6.167   73.87 | 9.250    1.96 |

     Max.Eff.Inten.(mm/hr)=      73.87        83.62
               over (min)          5.00        15.00
     Storage Coeff.  (min)=      7.12 (ii)   14.70 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=      0.17         0.08
                                                    *TOTALS*
     PEAK FLOW      (cms)=      3.16         0.90       3.933 (iii)
     TIME TO PEAK   (hrs)=      6.25         6.33       6.25
     RUNOFF VOLUME   (mm)=     50.96        24.97      39.27
     TOTAL RAINFALL  (mm)=     55.96        55.96      55.96
     RUNOFF COEFFICIENT   =     0.91         0.45       0.70


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0   Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
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```
| STANDHYD (  0001)|   Area    (ha)=   4.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
------------------

                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     2.11         2.11
     Dep. Storage     (mm)=     5.00         5.00
     Average Slope    (%)=      1.00         2.00
     Length           (m)=    167.53        40.00
     Mannings n           =     0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
         0.083    0.00 | 3.167    1.68 | 6.250   73.87 |  9.33    1.96
         0.167    0.00 | 3.250    1.68 | 6.333   10.07 |  9.42    1.96
         0.250    0.00 | 3.333    2.24 | 6.417   10.07 |  9.50    1.96
         0.333    1.40 | 3.417    2.24 | 6.500   10.07 |  9.58    1.96
         0.417    1.40 | 3.500    2.24 | 6.583   10.07 |  9.67    1.96
         0.500    1.40 | 3.583    2.24 | 6.667   10.07 |  9.75    1.96
         0.583    1.40 | 3.667    2.24 | 6.750   10.07 |  9.83    1.96
         0.667    1.40 | 3.750    2.24 | 6.833    4.48 |  9.92    1.96
         0.750    1.40 | 3.833    2.24 | 6.917    4.48 | 10.00    1.96
         0.833    1.40 | 3.917    2.24 | 7.000    4.48 | 10.08    1.96
         0.917    1.40 | 4.000    2.24 | 7.083    4.48 | 10.17    1.96
         1.000    1.40 | 4.083    2.24 | 7.167    4.48 | 10.25    1.96
         1.083    1.40 | 4.167    2.24 | 7.250    4.48 | 10.33    1.12
         1.167    1.40 | 4.250    2.24 | 7.333    3.36 | 10.42    1.12
         1.250    1.40 | 4.333    3.36 | 7.417    3.36 | 10.50    1.12
         1.333    1.40 | 4.417    3.36 | 7.500    3.36 | 10.58    1.12
         1.417    1.40 | 4.500    3.36 | 7.583    3.36 | 10.67    1.12
         1.500    1.40 | 4.583    3.36 | 7.667    3.36 | 10.75    1.12
         1.583    1.40 | 4.667    3.36 | 7.750    3.36 | 10.83    1.12
         1.667    1.40 | 4.750    3.36 | 7.833    3.36 | 10.92    1.12
         1.750    1.40 | 4.833    4.48 | 7.917    3.36 | 11.00    1.12
         1.833    1.40 | 4.917    4.48 | 8.000    3.36 | 11.08    1.12
         1.917    1.40 | 5.000    4.48 | 8.083    3.36 | 11.17    1.12
         2.000    1.40 | 5.083    4.48 | 8.167    3.36 | 11.25    1.12
         2.083    1.40 | 5.167    4.48 | 8.250    3.36 | 11.33    1.12
         2.167    1.40 | 5.250    4.48 | 8.333    1.96 | 11.42    1.12
         2.250    1.40 | 5.333    6.72 | 8.417    1.96 | 11.50    1.12
         2.333    1.68 | 5.417    6.72 | 8.500    1.96 | 11.58    1.12
         2.417    1.68 | 5.500    6.72 | 8.583    1.96 | 11.67    1.12
         2.500    1.68 | 5.583    6.72 | 8.667    1.96 | 11.75    1.12
         2.583    1.68 | 5.667    6.72 | 8.750    1.96 | 11.83    1.12
         2.667    1.68 | 5.750    6.72 | 8.833    1.96 | 11.92    1.12
         2.750    1.68 | 5.833   26.86 | 8.917    1.96 | 12.00    1.12
         2.833    1.68 | 5.917   26.86 | 9.000    1.96 | 12.08    1.12
         2.917    1.68 | 6.000   26.86 | 9.083    1.96 | 12.17    1.12
         3.000    1.68 | 6.083   73.87 | 9.167    1.96 | 12.25    1.12
         3.083    1.68 | 6.167   73.87 | 9.250    1.96 |

     Max.Eff.Inten.(mm/hr)=      73.87        22.32
               over (min)          5.00        20.00
     Storage Coeff.  (min)=      3.93 (ii)   16.79 (ii)
     Unit Hyd. Tpeak (min)=      5.00        20.00
     Unit Hyd. peak  (cms)=      0.24         0.06
                                                    *TOTALS*
     PEAK FLOW      (cms)=      0.43         0.07       0.473 (iii)
     TIME TO PEAK   (hrs)=      6.25         6.42       6.25
     RUNOFF VOLUME   (mm)=     50.96        14.75      32.85
     TOTAL RAINFALL  (mm)=     55.96        55.96      55.96
     RUNOFF COEFFICIENT   =     0.91         0.26       0.59

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0   Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
------------------
| ADD HYD  (  0100)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     4.21   0.473     6.25    32.85
     + ID2= 2 (  0201):    30.52   3.933     6.25    39.27
       ========================================================
       ID = 3 (  0100):    34.73   4.406     6.25    38.49

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
------------------        (cms)     (ha.m.)   |    (cms)     (ha.m.)
                          0.0000     0.0000   |   1.0900     1.0400
                          0.3100     0.5460   |   1.2700     1.1400
                          0.5250     0.7030   |   2.1100     1.5700
                          0.6900     0.8068   |   2.4450     2.0600
                          0.9000     0.9400   |   0.0000     0.0000

                          AREA     QPEAK     TPEAK      R.V.
                           (ha)     (cms)     (hrs)      (mm)
```

```
 INFLOW : ID= 2 (  0100)    34.730     4.406     6.25     38.49
 OUTFLOW: ID= 1 (  0010)    34.730     0.651     6.92     38.48

              PEAK   FLOW   REDUCTION [Qout/Qin](%)= 14.78
              TIME SHIFT OF PEAK FLOW          (min)= 40.00
              MAXIMUM  STORAGE   USED       (ha.m.)=  0.7825

--------------------------------------------------------------------------------
------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=  28.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  57.00
------------------

                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=    19.08         8.98
     Dep. Storage     (mm)=     5.00         5.00
     Average Slope    (%)=      1.00         2.00
     Length           (m)=    432.51        40.00
     Mannings n           =     0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
         0.083    0.00 | 3.167    1.68 | 6.250   73.87 |  9.33    1.96
         0.167    0.00 | 3.250    1.68 | 6.333   10.07 |  9.42    1.96
         0.250    0.00 | 3.333    2.24 | 6.417   10.07 |  9.50    1.96
         0.333    1.40 | 3.417    2.24 | 6.500   10.07 |  9.58    1.96
         0.417    1.40 | 3.500    2.24 | 6.583   10.07 |  9.67    1.96
         0.500    1.40 | 3.583    2.24 | 6.667   10.07 |  9.75    1.96
         0.583    1.40 | 3.667    2.24 | 6.750   10.07 |  9.83    1.96
         0.667    1.40 | 3.750    2.24 | 6.833    4.48 |  9.92    1.96
         0.750    1.40 | 3.833    2.24 | 6.917    4.48 | 10.00    1.96
         0.833    1.40 | 3.917    2.24 | 7.000    4.48 | 10.08    1.96
         0.917    1.40 | 4.000    2.24 | 7.083    4.48 | 10.17    1.96
         1.000    1.40 | 4.083    2.24 | 7.167    4.48 | 10.25    1.96
         1.083    1.40 | 4.167    2.24 | 7.250    4.48 | 10.33    1.12
         1.167    1.40 | 4.250    2.24 | 7.333    3.36 | 10.42    1.12
         1.250    1.40 | 4.333    3.36 | 7.417    3.36 | 10.50    1.12
         1.333    1.40 | 4.417    3.36 | 7.500    3.36 | 10.58    1.12
         1.417    1.40 | 4.500    3.36 | 7.583    3.36 | 10.67    1.12
         1.500    1.40 | 4.583    3.36 | 7.667    3.36 | 10.75    1.12
         1.583    1.40 | 4.667    3.36 | 7.750    3.36 | 10.83    1.12
         1.667    1.40 | 4.750    3.36 | 7.833    3.36 | 10.92    1.12
         1.750    1.40 | 4.833    4.48 | 7.917    3.36 | 11.00    1.12
         1.833    1.40 | 4.917    4.48 | 8.000    3.36 | 11.08    1.12
         1.917    1.40 | 5.000    4.48 | 8.083    3.36 | 11.17    1.12
         2.000    1.40 | 5.083    4.48 | 8.167    3.36 | 11.25    1.12
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              2.083    1.40 | 5.167    4.48 | 8.250    3.36 | 11.33    1.12
              2.167    1.40 | 5.250    4.48 | 8.333    1.96 | 11.42    1.12
              2.250    1.40 | 5.333    6.72 | 8.417    1.96 | 11.50    1.12
              2.333    1.68 | 5.417    6.72 | 8.500    1.96 | 11.58    1.12
              2.417    1.68 | 5.500    6.72 | 8.583    1.96 | 11.67    1.12
              2.500    1.68 | 5.583    6.72 | 8.667    1.96 | 11.75    1.12
              2.583    1.68 | 5.667    6.72 | 8.750    1.96 | 11.83    1.12
              2.667    1.68 | 5.750    6.72 | 8.833    1.96 | 11.92    1.12
              2.750    1.68 | 5.833   26.86 | 8.917    1.96 | 12.00    1.12
              2.833    1.68 | 5.917   26.86 | 9.000    1.96 | 12.08    1.12
              2.917    1.68 | 6.000   26.86 | 9.083    1.96 | 12.17    1.12
              3.000    1.68 | 6.083   73.87 | 9.167    1.96 | 12.25    1.12
              3.083    1.68 | 6.167   73.87 | 9.250    1.96 |

     Max.Eff.Inten.(mm/hr)=      73.87        38.46
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       6.94 (ii)   17.29 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.17         0.06
                                                      *TOTALS*
     PEAK FLOW       (cms)=       3.03         0.52          3.381 (iii)
     TIME TO PEAK    (hrs)=       6.25         6.42          6.25
     RUNOFF VOLUME    (mm)=      50.96        18.78         37.12
     TOTAL RAINFALL   (mm)=      55.96        55.96         55.96
     RUNOFF COEFFICIENT   =       0.91         0.34          0.66


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0002)|   Area    (ha)=   3.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------
                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.98         1.98
     Dep. Storage     (mm)=       5.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length           (m)=     162.28        40.00
     Mannings n             =     0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.083    0.00 | 3.167    1.68 | 6.250   73.87 |  9.33    1.96
     0.167    0.00 | 3.250    1.68 | 6.333   10.07 |  9.42    1.96
     0.250    0.00 | 3.333    2.24 | 6.417   10.07 |  9.50    1.96
     0.333    1.40 | 3.417    2.24 | 6.500   10.07 |  9.58    1.96
     0.417    1.40 | 3.500    2.24 | 6.583   10.07 |  9.67    1.96
     0.500    1.40 | 3.583    2.24 | 6.667   10.07 |  9.75    1.96
     0.583    1.40 | 3.667    2.24 | 6.750   10.07 |  9.83    1.96
     0.667    1.40 | 3.750    2.24 | 6.833    4.48 |  9.92    1.96
     0.750    1.40 | 3.833    2.24 | 6.917    4.48 | 10.00    1.96
     0.833    1.40 | 3.917    2.24 | 7.000    4.48 | 10.08    1.96
     0.917    1.40 | 4.000    2.24 | 7.083    4.48 | 10.17    1.96
     1.000    1.40 | 4.083    2.24 | 7.167    4.48 | 10.25    1.96
     1.083    1.40 | 4.167    2.24 | 7.250    4.48 | 10.33    1.12
     1.167    1.40 | 4.250    2.24 | 7.333    3.36 | 10.42    1.12
     1.250    1.40 | 4.333    3.36 | 7.417    3.36 | 10.50    1.12
     1.333    1.40 | 4.417    3.36 | 7.500    3.36 | 10.58    1.12
     1.417    1.40 | 4.500    3.36 | 7.583    3.36 | 10.67    1.12
     1.500    1.40 | 4.583    3.36 | 7.667    3.36 | 10.75    1.12
     1.583    1.40 | 4.667    3.36 | 7.750    3.36 | 10.83    1.12
     1.667    1.40 | 4.750    3.36 | 7.833    3.36 | 10.92    1.12
     1.750    1.40 | 4.833    4.48 | 7.917    3.36 | 11.00    1.12
     1.833    1.40 | 4.917    4.48 | 8.000    3.36 | 11.08    1.12
     1.917    1.40 | 5.000    4.48 | 8.083    3.36 | 11.17    1.12
     2.000    1.40 | 5.083    4.48 | 8.167    3.36 | 11.25    1.12
     2.083    1.40 | 5.167    4.48 | 8.250    3.36 | 11.33    1.12
     2.167    1.40 | 5.250    4.48 | 8.333    1.96 | 11.42    1.12
     2.250    1.40 | 5.333    6.72 | 8.417    1.96 | 11.50    1.12
     2.333    1.68 | 5.417    6.72 | 8.500    1.96 | 11.58    1.12
     2.417    1.68 | 5.500    6.72 | 8.583    1.96 | 11.67    1.12
     2.500    1.68 | 5.583    6.72 | 8.667    1.96 | 11.75    1.12
     2.583    1.68 | 5.667    6.72 | 8.750    1.96 | 11.83    1.12
     2.667    1.68 | 5.750    6.72 | 8.833    1.96 | 11.92    1.12
     2.750    1.68 | 5.833   26.86 | 8.917    1.96 | 12.00    1.12
     2.833    1.68 | 5.917   26.86 | 9.000    1.96 | 12.08    1.12
     2.917    1.68 | 6.000   26.86 | 9.083    1.96 | 12.17    1.12
     3.000    1.68 | 6.083   73.87 | 9.167    1.96 | 12.25    1.12
     3.083    1.68 | 6.167   73.87 | 9.250    1.96 |

     Max.Eff.Inten.(mm/hr)=      73.87        46.74
```

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     Max.Eff.Inten.(mm/hr)=      73.87        22.32
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.86 (ii)   16.71 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.25         0.06
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.40         0.07          0.444 (iii)
     TIME TO PEAK    (hrs)=       6.25         6.42          6.25
     RUNOFF VOLUME    (mm)=      50.96        14.75         32.85
     TOTAL RAINFALL   (mm)=      55.96        55.96         55.96


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0003)|   Area    (ha)=   7.88
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------
                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.94         3.94
     Dep. Storage     (mm)=       5.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length           (m)=     229.20        40.00
     Mannings n             =     0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.083    0.00 | 3.167    1.68 | 6.250   73.87 |  9.33    1.96
     0.167    0.00 | 3.250    1.68 | 6.333   10.07 |  9.42    1.96
     0.250    0.00 | 3.333    2.24 | 6.417   10.07 |  9.50    1.96
     0.333    1.40 | 3.417    2.24 | 6.500   10.07 |  9.58    1.96
     0.417    1.40 | 3.500    2.24 | 6.583   10.07 |  9.67    1.96
     0.500    1.40 | 3.583    2.24 | 6.667   10.07 |  9.75    1.96
     0.583    1.40 | 3.667    2.24 | 6.750   10.07 |  9.83    1.96
     0.667    1.40 | 3.750    2.24 | 6.833    4.48 |  9.92    1.96
     0.750    1.40 | 3.833    2.24 | 6.917    4.48 | 10.00    1.96
     0.833    1.40 | 3.917    2.24 | 7.000    4.48 | 10.08    1.96
     0.917    1.40 | 4.000    2.24 | 7.083    4.48 | 10.17    1.96
     1.000    1.40 | 4.083    2.24 | 7.167    4.48 | 10.25    1.96
     1.083    1.40 | 4.167    2.24 | 7.250    4.48 | 10.33    1.12
     1.167    1.40 | 4.250    2.24 | 7.333    3.36 | 10.42    1.12
     1.250    1.40 | 4.333    3.36 | 7.417    3.36 | 10.50    1.12
     1.333    1.40 | 4.417    3.36 | 7.500    3.36 | 10.58    1.12
     1.417    1.40 | 4.500    3.36 | 7.583    3.36 | 10.67    1.12
     1.500    1.40 | 4.583    3.36 | 7.667    3.36 | 10.75    1.12
     1.583    1.40 | 4.667    3.36 | 7.750    3.36 | 10.83    1.12
     1.667    1.40 | 4.750    3.36 | 7.833    3.36 | 10.92    1.12
     1.750    1.40 | 4.833    4.48 | 7.917    3.36 | 11.00    1.12
     1.833    1.40 | 4.917    4.48 | 8.000    3.36 | 11.08    1.12
     1.917    1.40 | 5.000    4.48 | 8.083    3.36 | 11.17    1.12
     2.000    1.40 | 5.083    4.48 | 8.167    3.36 | 11.25    1.12
     2.083    1.40 | 5.167    4.48 | 8.250    3.36 | 11.33    1.12
     2.167    1.40 | 5.250    4.48 | 8.333    1.96 | 11.42    1.12
     2.250    1.40 | 5.333    6.72 | 8.417    1.96 | 11.50    1.12
     2.333    1.68 | 5.417    6.72 | 8.500    1.96 | 11.58    1.12
     2.417    1.68 | 5.500    6.72 | 8.583    1.96 | 11.67    1.12
     2.500    1.68 | 5.583    6.72 | 8.667    1.96 | 11.75    1.12
     2.583    1.68 | 5.667    6.72 | 8.750    1.96 | 11.83    1.12
     2.667    1.68 | 5.750    6.72 | 8.833    1.96 | 11.92    1.12
     2.750    1.68 | 5.833   26.86 | 8.917    1.96 | 12.00    1.12
     2.833    1.68 | 5.917   26.86 | 9.000    1.96 | 12.08    1.12
     2.917    1.68 | 6.000   26.86 | 9.083    1.96 | 12.17    1.12
     3.000    1.68 | 6.083   73.87 | 9.167    1.96 | 12.25    1.12
     3.083    1.68 | 6.167   73.87 | 9.250    1.96 |

     Max.Eff.Inten.(mm/hr)=      73.87        22.32
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.74 (ii)   17.60 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.22         0.06
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.79         0.13          0.872 (iii)
     TIME TO PEAK    (hrs)=       6.25         6.42          6.25
     RUNOFF VOLUME    (mm)=      50.96        14.75         32.85
     TOTAL RAINFALL   (mm)=      55.96        55.96         55.96
     RUNOFF COEFFICIENT   =       0.91         0.26          0.59

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0300)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
       ID1= 1 (  0002):     3.95    0.444     6.25     32.85
     + ID2= 2 (  0003):     7.88    0.872     6.25     36.59
       ========================================================
       ID = 3 (  0300):    11.83    1.316     6.25     35.42

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
--------------------
| RESERVOIR(  0004)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |
--------------------
                        OVERFLOW IS OFF
                        OUTFLOW    STORAGE    OUTFLOW    STORAGE
                          (cms)     (ha.m.)    (cms)     (ha.m.)
                        0.0000     0.0000     2.7700     2.8400
                        0.8200     1.4400     3.2200     3.1300
                        1.3700     1.8900     5.2900     4.3700
                        1.7800     2.1800     6.1500     5.4900
                        2.3300     2.5500     0.0000     0.0000

                             AREA     QPEAK     TPEAK      R.V.
                             (ha)     (cms)     (hrs)      (mm)
     INFLOW : ID= 2 (  0300)     97.500     9.277     6.25      33.42
     OUTFLOW: ID= 1 (  0030)     97.500     1.399     7.08      33.41

          PEAK   FLOW   REDUCTION [Qout/Qin](%)= 15.08
          TIME SHIFT OF PEAK FLOW         (min)= 50.00
          MAXIMUM  STORAGE   USED       (ha.m.)=  1.9105

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========================


       V    V   I    SSSSS  U   U    A    L                (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
         V  V   I    SS     U   U  A   A  L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M M M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                ***** D E T A I L E D   O U T P U T *****
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```
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):     89.62   8.405     6.25     33.47
     + ID2= 2 (  0003):      7.88   0.872     6.25     32.85
       ========================================================
       ID = 3 (  0300):     97.50   9.277     6.25     33.42

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------
| RESERVOIR(  0030)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE    OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)    (cms)     (ha.m.)
                        0.0000     0.0000     2.7700     2.8400
                        0.8200     1.4400     3.2200     3.1300
                        1.3700     1.8900     5.2900     4.3700
                        1.7800     2.1800     6.1500     5.4900
                        2.3300     2.5500     0.0000     0.0000

                             AREA     QPEAK     TPEAK      R.V.
                             (ha)     (cms)     (hrs)      (mm)
     INFLOW : ID= 2 (  0300)     97.500     9.277     6.25      33.42
     OUTFLOW: ID= 1 (  0030)     97.500     1.399     7.08      33.41

          PEAK   FLOW   REDUCTION [Qout/Qin](%)= 15.08
          TIME SHIFT OF PEAK FLOW         (min)= 50.00
          MAXIMUM  STORAGE   USED       (ha.m.)=  1.9105

-------------------------------------------------------------------------------
===============================================================================
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       V    V   I    SSSSS  U   U    A    L                (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
         V  V   I    SS     U   U  A   A  L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M M M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                ***** D E T A I L E D   O U T P U T *****
```

```
  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\0c
f6320c-4d3b-4407-94e4-e3b54dae23b6\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\0c
f6320c-4d3b-4407-94e4-e3b54dae23b6\sc


DATE: 11-27-2024                          TIME: 08:52:05

USER:


COMMENTS: _____


-------------------------------------------------------------------------------
--------------------
  **********************************************
  ** SIMULATION : 2B - 5yr 12hr 15min SCS Type  **
  **********************************************


--------------------
|     READ STORM   |     Filename: C:\Users\jfletcher\AppD
|                  |               ata\Local\Temp\
|                  |               f7771102-1e26-4a23-9fad-5d61ceae4d2b\5138d69f
| Ptotal= 71.55 mm |     Comments: 5yr 12hr 15min SCS Type II (MTO)
--------------------
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.00    0.00 | 3.25    2.86 |  6.50   12.88 |  9.75    2.50
     0.25    1.79 | 3.50    2.86 |  6.75    5.72 | 10.00    2.50
     0.50    1.79 | 3.75    2.86 |  7.00    5.72 | 10.25    1.43
     0.75    1.79 | 4.00    2.86 |  7.25    4.29 | 10.50    1.43
     1.00    1.79 | 4.25    4.29 |  7.50    4.29 | 10.75    1.43
     1.25    1.79 | 4.50    4.29 |  7.75    4.29 | 11.00    1.43
     1.50    1.79 | 4.75    5.72 |  8.00    4.29 | 11.25    1.43
     1.75    1.79 | 5.00    5.72 |  8.25    2.50 | 11.50    1.43
     2.00    1.79 | 5.25    8.59 |  8.50    2.50 | 11.75    1.43
     2.25    2.15 | 5.50    8.59 |  8.75    2.50 | 12.00    1.43
     2.50    2.15 | 5.75   34.34 |  9.00    2.50 |
     2.75    2.15 | 6.00   94.45 |  9.25    2.50 |
     3.00    2.15 | 6.25   12.88 |  9.50    2.50 |

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--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=  30.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=  55.00
--------------------
                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      23.81         6.71
     Dep. Storage     (mm)=       5.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length           (m)=     451.07        40.00
     Mannings n             =     0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.083    0.00 | 3.167    2.15 | 6.250   94.44 |  9.33    2.50
     0.167    0.00 | 3.250    2.15 | 6.333   12.88 |  9.42    2.50
     0.250    0.00 | 3.333    2.86 | 6.417   12.88 |  9.50    2.50
     0.333    1.79 | 3.417    2.86 | 6.500   12.88 |  9.58    2.50
     0.417    1.79 | 3.500    2.86 | 6.583   12.88 |  9.67    2.50
     0.500    1.79 | 3.583    2.86 | 6.667   12.88 |  9.75    2.50
     0.583    1.79 | 3.667    2.86 | 6.750   12.88 |  9.83    2.50
     0.667    1.79 | 3.750    2.86 | 6.833    5.72 |  9.92    2.50
     0.750    1.79 | 3.833    2.86 | 6.917    5.72 | 10.00    2.50
     0.833    1.79 | 3.917    2.86 | 7.000    5.72 | 10.08    2.50
     0.917    1.79 | 4.000    2.86 | 7.083    5.72 | 10.17    2.50
     1.000    1.79 | 4.083    2.86 | 7.167    5.72 | 10.25    2.50
     1.083    1.79 | 4.167    2.86 | 7.250    5.72 | 10.33    1.43
     1.167    1.79 | 4.250    2.86 | 7.333    4.29 | 10.42    1.43
     1.250    1.79 | 4.333    4.29 | 7.417    4.29 | 10.50    1.43
     1.333    1.79 | 4.417    4.29 | 7.500    4.29 | 10.58    1.43
     1.417    1.79 | 4.500    4.29 | 7.583    4.29 | 10.67    1.43
     1.500    1.79 | 4.583    4.29 | 7.667    4.29 | 10.75    1.43
     1.583    1.79 | 4.667    4.29 | 7.750    4.29 | 10.83    1.43
     1.667    1.79 | 4.750    4.29 | 7.833    4.29 | 10.92    1.43
     1.750    1.79 | 4.833    5.72 | 7.917    4.29 | 11.00    1.43
     1.833    1.79 | 4.917    5.72 | 8.000    4.29 | 11.08    1.43
     1.917    1.79 | 5.000    5.72 | 8.083    4.29 | 11.17    1.43
     2.000    1.79 | 5.083    5.72 | 8.167    4.29 | 11.25    1.43
     2.083    1.79 | 5.167    5.72 | 8.250    4.29 | 11.33    1.43
     2.167    1.79 | 5.250    5.72 | 8.333    2.50 | 11.42    1.43
     2.250    1.79 | 5.333    8.59 | 8.417    2.50 | 11.50    1.43
     2.333    2.15 | 5.417    8.59 | 8.500    2.50 | 11.58    1.43
     2.417    2.15 | 5.500    8.59 | 8.583    2.50 | 11.67    1.43
     2.500    2.15 | 5.583    8.59 | 8.667    2.50 | 11.75    1.43
     2.583    2.15 | 5.667    8.59 | 8.750    2.50 | 11.83    1.43
     2.667    2.15 | 5.750    8.59 | 8.833    2.50 | 11.92    1.43
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```
        2.750    2.15 | 5.833   34.34 | 8.917    2.50 | 12.00    1.43
        2.833    2.15 | 5.917   34.34 | 9.000    2.50 | 12.08    1.43
        2.917    2.15 | 6.000   34.35 | 9.083    2.50 | 12.17    1.43
        3.000    2.15 | 6.083   94.45 | 9.167    2.50 | 12.25    1.43
        3.083    2.15 | 6.167   94.45 | 9.250    2.50 |

    Max.Eff.Inten.(mm/hr)=      94.45       121.81
              over (min)         5.00        15.00
    Storage Coeff.  (min)=       6.45 (ii)   12.98 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.18         0.08
                                                       *TOTALS*
    PEAK FLOW       (cms)=       4.12         1.40        5.341 (iii)
    TIME TO PEAK    (hrs)=       6.25         6.33         6.25
    RUNOFF VOLUME    (mm)=      66.55        36.66        53.10
    TOTAL RAINFALL   (mm)=      71.55        71.55        71.55
    RUNOFF COEFFICIENT   =       0.93         0.51         0.74


     (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  67.0    Ia = Dep. Storage  (Above)
    (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
         THAN THE STORAGE COEFFICIENT.
   (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB              |
| STANDHYD (  0001)|   Area    (ha)=   4.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       2.11          2.11
    Dep. Storage     (mm)=       5.00          5.00
    Average Slope     (%)=       1.00          2.00
    Length            (m)=     167.53         40.00
    Mannings n          =       0.013         0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
         TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
          hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
        0.083     0.00 | 3.167     2.15 | 6.250   94.44 |  9.33     2.50
        0.167     0.00 | 3.250     2.15 | 6.333   12.88 |  9.42     2.50
        0.250     0.00 | 3.333     2.86 | 6.417   12.88 |  9.50     2.50
        0.333     1.79 | 3.417     2.86 | 6.500   12.88 |  9.58     2.50
        0.417     1.79 | 3.500     2.86 | 6.583   12.88 |  9.67     2.50
        0.500     1.79 | 3.583     2.86 | 6.667   12.88 |  9.75     2.50
        0.583     1.79 | 3.667     2.86 | 6.750   12.88 |  9.83     2.50
        0.667     1.79 | 3.750     2.86 | 6.833    5.72 |  9.92     2.50
        0.750     1.79 | 3.833     2.86 | 6.917    5.72 | 10.00     2.50
        0.833     1.79 | 3.917     2.86 | 7.000    5.72 | 10.08     2.50
        0.917     1.79 | 4.000     2.86 | 7.083    5.72 | 10.17     2.50
        1.000     1.79 | 4.083     2.86 | 7.167    5.72 | 10.25     2.50
        1.083     1.79 | 4.167     2.86 | 7.250    5.72 | 10.33     1.43
        1.167     1.79 | 4.250     2.86 | 7.333    4.29 | 10.42     1.43
        1.250     1.79 | 4.333     4.29 | 7.417    4.29 | 10.50     1.43
        1.333     1.79 | 4.417     4.29 | 7.500    4.29 | 10.58     1.43
        1.417     1.79 | 4.500     4.29 | 7.583    4.29 | 10.67     1.43
        1.500     1.79 | 4.583     4.29 | 7.667    4.29 | 10.75     1.43
        1.583     1.79 | 4.667     4.29 | 7.750    4.29 | 10.83     1.43
        1.667     1.79 | 4.750     4.29 | 7.833    4.29 | 10.92     1.43
        1.750     1.79 | 4.833     5.72 | 7.917    4.29 | 11.00     1.43
        1.833     1.79 | 4.917     5.72 | 8.000    4.29 | 11.08     1.43
        1.917     1.79 | 5.000     5.72 | 8.083    4.29 | 11.17     1.43
        2.000     1.79 | 5.083     5.72 | 8.167    4.29 | 11.25     1.43
        2.083     1.79 | 5.167     5.72 | 8.250    4.29 | 11.33     1.43
        2.167     1.79 | 5.250     5.72 | 8.333    2.50 | 11.42     1.43
        2.250     1.79 | 5.333     8.59 | 8.417    2.50 | 11.50     1.43
        2.333     2.15 | 5.417     8.59 | 8.500    2.50 | 11.58     1.43
        2.417     2.15 | 5.500     8.59 | 8.583    2.50 | 11.67     1.43
        2.500     2.15 | 5.583     8.59 | 8.667    2.50 | 11.75     1.43
        2.583     2.15 | 5.667     8.59 | 8.750    2.50 | 11.83     1.43
        2.667     2.15 | 5.750     8.59 | 8.833    2.50 | 11.92     1.43
        2.750     2.15 | 5.833    34.34 | 8.917    2.50 | 12.00     1.43
        2.833     2.15 | 5.917    34.34 | 9.000    2.50 | 12.08     1.43
        2.917     2.15 | 6.000    34.35 | 9.083    2.50 | 12.17     1.43
        3.000     2.15 | 6.083    94.45 | 9.167    2.50 | 12.25     1.43
        3.083     2.15 | 6.167    94.45 | 9.250    2.50 |

    Max.Eff.Inten.(mm/hr)=      94.45        35.19
              over (min)         5.00        15.00
    Storage Coeff.  (min)=       3.56 (ii)   14.28 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.26         0.08
                                                       *TOTALS*
    PEAK FLOW       (cms)=       0.55         0.13        0.654 (iii)
    TIME TO PEAK    (hrs)=       6.25         6.33         6.25
    RUNOFF VOLUME    (mm)=      66.55        23.11        44.83
    TOTAL RAINFALL   (mm)=      71.55        71.55        71.55
    RUNOFF COEFFICIENT   =       0.93         0.32         0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

     (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  67.0    Ia = Dep. Storage  (Above)
    (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
         THAN THE STORAGE COEFFICIENT.
   (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0100)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):      4.21   0.654     6.25    44.83
     + ID2= 2 (  0201):     30.52   5.341     6.25    53.10
       ==================================================
       ID = 3 (  0100):     34.73   5.994     6.25    52.10

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000    |   1.0900     1.0400
                         0.3100     0.5460    |   1.2700     1.1400
                         0.5250     0.7030    |   2.1100     1.5700
                         0.6900     0.8068    |   2.4450     2.0600
                         0.9000     0.9400    |   0.0000     0.0000

                                 AREA      QPEAK      TPEAK       R.V.
                                 (ha)      (cms)      (hrs)       (mm)
  INFLOW : ID= 2 (  0100)      34.730      5.994       6.25      52.10
  OUTFLOW: ID= 1 (  0010)      34.730      1.054       6.83      52.08

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 17.58
                  TIME SHIFT OF PEAK FLOW         (min)= 35.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.0217

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--------------------
| CALIB              |
| STANDHYD (  0202)|   Area    (ha)=  28.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  57.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      19.08          8.98
    Dep. Storage     (mm)=       5.00          5.00
    Average Slope     (%)=       1.00          2.00
    Length            (m)=     432.51         40.00
    Mannings n          =       0.013         0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
         TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
          hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
        0.083     0.00 | 3.167     2.15 | 6.250   94.44 |  9.33     2.50
        0.167     0.00 | 3.250     2.15 | 6.333   12.88 |  9.42     2.50
        0.250     0.00 | 3.333     2.86 | 6.417   12.88 |  9.50     2.50
        0.333     1.79 | 3.417     2.86 | 6.500   12.88 |  9.58     2.50
        0.417     1.79 | 3.500     2.86 | 6.583   12.88 |  9.67     2.50
        0.500     1.79 | 3.583     2.86 | 6.667   12.88 |  9.75     2.50
        0.583     1.79 | 3.667     2.86 | 6.750   12.88 |  9.83     2.50
        0.667     1.79 | 3.750     2.86 | 6.833    5.72 |  9.92     2.50
        0.750     1.79 | 3.833     2.86 | 6.917    5.72 | 10.00     2.50
        0.833     1.79 | 3.917     2.86 | 7.000    5.72 | 10.08     2.50
        0.917     1.79 | 4.000     2.86 | 7.083    5.72 | 10.17     2.50
        1.000     1.79 | 4.083     2.86 | 7.167    5.72 | 10.25     2.50
        1.083     1.79 | 4.167     2.86 | 7.250    5.72 | 10.33     1.43
        1.167     1.79 | 4.250     2.86 | 7.333    4.29 | 10.42     1.43
        1.250     1.79 | 4.333     4.29 | 7.417    4.29 | 10.50     1.43
        1.333     1.79 | 4.417     4.29 | 7.500    4.29 | 10.58     1.43
        1.417     1.79 | 4.500     4.29 | 7.583    4.29 | 10.67     1.43
        1.500     1.79 | 4.583     4.29 | 7.667    4.29 | 10.75     1.43
        1.583     1.79 | 4.667     4.29 | 7.750    4.29 | 10.83     1.43
        1.667     1.79 | 4.750     4.29 | 7.833    4.29 | 10.92     1.43
        1.750     1.79 | 4.833     5.72 | 7.917    4.29 | 11.00     1.43
        1.833     1.79 | 4.917     5.72 | 8.000    4.29 | 11.08     1.43
        1.917     1.79 | 5.000     5.72 | 8.083    4.29 | 11.17     1.43
        2.000     1.79 | 5.083     5.72 | 8.167    4.29 | 11.25     1.43
        2.083     1.79 | 5.167     5.72 | 8.250    4.29 | 11.33     1.43
        2.167     1.79 | 5.250     5.72 | 8.333    2.50 | 11.42     1.43
        2.250     1.79 | 5.333     8.59 | 8.417    2.50 | 11.50     1.43
        2.333     2.15 | 5.417     8.59 | 8.500    2.50 | 11.58     1.43
        2.417     2.15 | 5.500     8.59 | 8.583    2.50 | 11.67     1.43
        2.500     2.15 | 5.583     8.59 | 8.667    2.50 | 11.75     1.43
        2.583     2.15 | 5.667     8.59 | 8.750    2.50 | 11.83     1.43
        2.667     2.15 | 5.750     8.59 | 8.833    2.50 | 11.92     1.43
        2.750     2.15 | 5.833    34.34 | 8.917    2.50 | 12.00     1.43
        2.833     2.15 | 5.917    34.34 | 9.000    2.50 | 12.08     1.43
        2.917     2.15 | 6.000    34.35 | 9.083    2.50 | 12.17     1.43
        3.000     2.15 | 6.083    94.45 | 9.167    2.50 | 12.25     1.43
        3.083     2.15 | 6.167    94.45 | 9.250    2.50 |

    Max.Eff.Inten.(mm/hr)=      94.45        63.16
              over (min)         5.00        15.00
    Storage Coeff.  (min)=       6.29 (ii)   14.77 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.19         0.08
                                                       *TOTALS*
    PEAK FLOW       (cms)=       3.94         0.89        4.702 (iii)
    TIME TO PEAK    (hrs)=       6.25         6.33         6.25
    RUNOFF VOLUME    (mm)=      66.55        28.59        50.23
    TOTAL RAINFALL   (mm)=      71.55        71.55        71.55
    RUNOFF COEFFICIENT   =       0.93         0.40         0.70


     (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  67.0    Ia = Dep. Storage  (Above)
    (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
         THAN THE STORAGE COEFFICIENT.
   (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD (  0002)|   Area    (ha)=   3.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       1.98          1.98
    Dep. Storage     (mm)=       5.00          5.00
    Average Slope     (%)=       1.00          2.00
    Length            (m)=     162.28         40.00
    Mannings n          =       0.013         0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
         TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
          hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
        0.083     0.00 | 3.167     2.15 | 6.250   94.44 |  9.33     2.50
        0.167     0.00 | 3.250     2.15 | 6.333   12.88 |  9.42     2.50
        0.250     0.00 | 3.333     2.86 | 6.417   12.88 |  9.50     2.50
        0.333     1.79 | 3.417     2.86 | 6.500   12.88 |  9.58     2.50
        0.417     1.79 | 3.500     2.86 | 6.583   12.88 |  9.67     2.50
        0.500     1.79 | 3.583     2.86 | 6.667   12.88 |  9.75     2.50
        0.583     1.79 | 3.667     2.86 | 6.750   12.88 |  9.83     2.50
        0.667     1.79 | 3.750     2.86 | 6.833    5.72 |  9.92     2.50
        0.750     1.79 | 3.833     2.86 | 6.917    5.72 | 10.00     2.50
        0.833     1.79 | 3.917     2.86 | 7.000    5.72 | 10.08     2.50
        0.917     1.79 | 4.000     2.86 | 7.083    5.72 | 10.17     2.50
        1.000     1.79 | 4.083     2.86 | 7.167    5.72 | 10.25     2.50
        1.083     1.79 | 4.167     2.86 | 7.250    5.72 | 10.33     1.43
        1.167     1.79 | 4.250     2.86 | 7.333    4.29 | 10.42     1.43
        1.250     1.79 | 4.333     4.29 | 7.417    4.29 | 10.50     1.43
        1.333     1.79 | 4.417     4.29 | 7.500    4.29 | 10.58     1.43
        1.417     1.79 | 4.500     4.29 | 7.583    4.29 | 10.67     1.43
        1.500     1.79 | 4.583     4.29 | 7.667    4.29 | 10.75     1.43
        1.583     1.79 | 4.667     4.29 | 7.750    4.29 | 10.83     1.43
        1.667     1.79 | 4.750     4.29 | 7.833    4.29 | 10.92     1.43
        1.750     1.79 | 4.833     5.72 | 7.917    4.29 | 11.00     1.43
        1.833     1.79 | 4.917     5.72 | 8.000    4.29 | 11.08     1.43
        1.917     1.79 | 5.000     5.72 | 8.083    4.29 | 11.17     1.43
        2.000     1.79 | 5.083     5.72 | 8.167    4.29 | 11.25     1.43
        2.083     1.79 | 5.167     5.72 | 8.250    4.29 | 11.33     1.43
        2.167     1.79 | 5.250     5.72 | 8.333    2.50 | 11.42     1.43
        2.250     1.79 | 5.333     8.59 | 8.417    2.50 | 11.50     1.43
        2.333     2.15 | 5.417     8.59 | 8.500    2.50 | 11.58     1.43
        2.417     2.15 | 5.500     8.59 | 8.583    2.50 | 11.67     1.43
        2.500     2.15 | 5.583     8.59 | 8.667    2.50 | 11.75     1.43
        2.583     2.15 | 5.667     8.59 | 8.750    2.50 | 11.83     1.43
        2.667     2.15 | 5.750     8.59 | 8.833    2.50 | 11.92     1.43
        2.750     2.15 | 5.833    34.34 | 8.917    2.50 | 12.00     1.43
        2.833     2.15 | 5.917    34.34 | 9.000    2.50 | 12.08     1.43
        2.917     2.15 | 6.000    34.35 | 9.083    2.50 | 12.17     1.43
        3.000     2.15 | 6.083    94.45 | 9.167    2.50 | 12.25     1.43
        3.083     2.15 | 6.167    94.45 | 9.250    2.50 |

    Max.Eff.Inten.(mm/hr)=      94.45        35.19
              over (min)         5.00        15.00
    Storage Coeff.  (min)=       3.49 (ii)   14.21 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.26         0.08
                                                       *TOTALS*
    PEAK FLOW       (cms)=       0.51         0.12        0.614 (iii)
    TIME TO PEAK    (hrs)=       6.25         6.33         6.25
    RUNOFF VOLUME    (mm)=      66.55        23.11        44.83
    TOTAL RAINFALL   (mm)=      71.55        71.55        71.55
    RUNOFF COEFFICIENT   =       0.93         0.32         0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

     (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  67.0    Ia = Dep. Storage  (Above)
    (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
         THAN THE STORAGE COEFFICIENT.
   (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0200)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0002):      3.95   0.614     6.25    44.83
     + ID2= 2 (  0202):     28.06   4.702     6.25    50.23
       ==================================================
       ID = 3 (  0200):     32.01   5.316     6.25    49.56

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000    |   1.8250     0.6819
                         0.6400     0.3757    |   2.1650     0.7600
                         1.0700     0.4858    |   4.0750     1.0700
                         1.3800     0.5709    |   4.7000     1.7300

                                 AREA      QPEAK      TPEAK       R.V.
                                 (ha)      (cms)      (hrs)       (mm)
  INFLOW : ID= 2 (  0200)      32.010      5.316       6.25      49.56
  OUTFLOW: ID= 1 (  0020)      32.010      1.739       6.50      49.56

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 32.72
                  TIME SHIFT OF PEAK FLOW         (min)= 15.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.6605

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| CALIB              |
| STANDHYD (  0203)|   Area    (ha)=  89.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  61.00   Dir. Conn.(%)=  44.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      54.67         34.95
    Dep. Storage     (mm)=       5.00          5.00
    Average Slope     (%)=       2.00          3.00
    Length            (m)=     772.96         40.00
    Mannings n          =       0.013         0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
         TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
          hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
        0.083     0.00 | 3.167     2.15 | 6.250   94.44 |  9.33     2.50
        0.167     0.00 | 3.250     2.15 | 6.333   12.88 |  9.42     2.50
        0.250     0.00 | 3.333     2.86 | 6.417   12.88 |  9.50     2.50
        0.333     1.79 | 3.417     2.86 | 6.500   12.88 |  9.58     2.50
        0.417     1.79 | 3.500     2.86 | 6.583   12.88 |  9.67     2.50
        0.500     1.79 | 3.583     2.86 | 6.667   12.88 |  9.75     2.50
        0.583     1.79 | 3.667     2.86 | 6.750   12.88 |  9.83     2.50
        0.667     1.79 | 3.750     2.86 | 6.833    5.72 |  9.92     2.50
        0.750     1.79 | 3.833     2.86 | 6.917    5.72 | 10.00     2.50
        0.833     1.79 | 3.917     2.86 | 7.000    5.72 | 10.08     2.50
        0.917     1.79 | 4.000     2.86 | 7.083    5.72 | 10.17     2.50
        1.000     1.79 | 4.083     2.86 | 7.167    5.72 | 10.25     2.50
        1.083     1.79 | 4.167     2.86 | 7.250    5.72 | 10.33     1.43
        1.167     1.79 | 4.250     2.86 | 7.333    4.29 | 10.42     1.43
        1.250     1.79 | 4.333     4.29 | 7.417    4.29 | 10.50     1.43
        1.333     1.79 | 4.417     4.29 | 7.500    4.29 | 10.58     1.43
        1.417     1.79 | 4.500     4.29 | 7.583    4.29 | 10.67     1.43
        1.500     1.79 | 4.583     4.29 | 7.667    4.29 | 10.75     1.43
        1.583     1.79 | 4.667     4.29 | 7.750    4.29 | 10.83     1.43
        1.667     1.79 | 4.750     4.29 | 7.833    4.29 | 10.92     1.43
        1.750     1.79 | 4.833     5.72 | 7.917    4.29 | 11.00     1.43
        1.833     1.79 | 4.917     5.72 | 8.000    4.29 | 11.08     1.43
        1.917     1.79 | 5.000     5.72 | 8.083    4.29 | 11.17     1.43
        2.000     1.79 | 5.083     5.72 | 8.167    4.29 | 11.25     1.43
        2.083     1.79 | 5.167     5.72 | 8.250    4.29 | 11.33     1.43
        2.167     1.79 | 5.250     5.72 | 8.333    2.50 | 11.42     1.43
        2.250     1.79 | 5.333     8.59 | 8.417    2.50 | 11.50     1.43
        2.333     2.15 | 5.417     8.59 | 8.500    2.50 | 11.58     1.43
        2.417     2.15 | 5.500     8.59 | 8.583    2.50 | 11.67     1.43
        2.500     2.15 | 5.583     8.59 | 8.667    2.50 | 11.75     1.43
        2.583     2.15 | 5.667     8.59 | 8.750    2.50 | 11.83     1.43
        2.667     2.15 | 5.750     8.59 | 8.833    2.50 | 11.92     1.43
        2.750     2.15 | 5.833    34.34 | 8.917    2.50 | 12.00     1.43
        2.833     2.15 | 5.917    34.34 | 9.000    2.50 | 12.08     1.43
        2.917     2.15 | 6.000    34.35 | 9.083    2.50 | 12.17     1.43
        3.000     2.15 | 6.083    94.45 | 9.167    2.50 | 12.25     1.43
        3.083     2.15 | 6.167    94.45 | 9.250    2.50 |

    Max.Eff.Inten.(mm/hr)=      94.45        70.37
              over (min)         5.00        15.00
    Storage Coeff.  (min)=       7.24 (ii)   14.43 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.17         0.08
                                                       *TOTALS*
    PEAK FLOW       (cms)=       9.47         3.94       12.837 (iii)
    TIME TO PEAK    (hrs)=       6.25         6.33         6.25
    RUNOFF VOLUME    (mm)=      66.55        29.85        46.00
    TOTAL RAINFALL   (mm)=      71.55        71.55        71.55
    RUNOFF COEFFICIENT   =       0.93         0.42         0.64


     (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  67.0    Ia = Dep. Storage  (Above)
    (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
         THAN THE STORAGE COEFFICIENT.
   (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB              |
| STANDHYD (  0003)|   Area    (ha)=   7.88
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       3.94          3.94
    Dep. Storage     (mm)=       5.00          5.00
    Average Slope     (%)=       1.00          2.00
    Length            (m)=     229.20         40.00
    Mannings n          =       0.013         0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
         TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
          hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
        0.083     0.00 | 3.167     2.15 | 6.250   94.44 |  9.33     2.50
        0.167     0.00 | 3.250     2.15 | 6.333   12.88 |  9.42     2.50
        0.250     0.00 | 3.333     2.86 | 6.417   12.88 |  9.50     2.50
        0.333     1.79 | 3.417     2.86 | 6.500   12.88 |  9.58     2.50
        0.417     1.79 | 3.500     2.86 | 6.583   12.88 |  9.67     2.50
        0.500     1.79 | 3.583     2.86 | 6.667   12.88 |  9.75     2.50
        0.583     1.79 | 3.667     2.86 | 6.750   12.88 |  9.83     2.50
        0.667     1.79 | 3.750     2.86 | 6.833    5.72 |  9.92     2.50
        0.750     1.79 | 3.833     2.86 | 6.917    5.72 | 10.00     2.50
        0.833     1.79 | 3.917     2.86 | 7.000    5.72 | 10.08     2.50
        0.917     1.79 | 4.000     2.86 | 7.083    5.72 | 10.17     2.50
        1.000     1.79 | 4.083     2.86 | 7.167    5.72 | 10.25     2.50
        1.083     1.79 | 4.167     2.86 | 7.250    5.72 | 10.33     1.43
        1.167     1.79 | 4.250     2.86 | 7.333    4.29 | 10.42     1.43
        1.250     1.79 | 4.333     4.29 | 7.417    4.29 | 10.50     1.43
        1.333     1.79 | 4.417     4.29 | 7.500    4.29 | 10.58     1.43
        1.417     1.79 | 4.500     4.29 | 7.583    4.29 | 10.67     1.43
        1.500     1.79 | 4.583     4.29 | 7.667    4.29 | 10.75     1.43
        1.583     1.79 | 4.667     4.29 | 7.750    4.29 | 10.83     1.43
        1.667     1.79 | 4.750     4.29 | 7.833    4.29 | 10.92     1.43
        1.750     1.79 | 4.833     5.72 | 7.917    4.29 | 11.00     1.43
        1.833     1.79 | 4.917     5.72 | 8.000    4.29 | 11.08     1.43
        1.917     1.79 | 5.000     5.72 | 8.083    4.29 | 11.17     1.43
        2.000     1.79 | 5.083     5.72 | 8.167    4.29 | 11.25     1.43
        2.083     1.79 | 5.167     5.72 | 8.250    4.29 | 11.33     1.43
        2.167     1.79 | 5.250     5.72 | 8.333    2.50 | 11.42     1.43
        2.250     1.79 | 5.333     8.59 | 8.417    2.50 | 11.50     1.43
        2.333     2.15 | 5.417     8.59 | 8.500    2.50 | 11.58     1.43
        2.417     2.15 | 5.500     8.59 | 8.583    2.50 | 11.67     1.43
        2.500     2.15 | 5.583     8.59 | 8.667    2.50 | 11.75     1.43
        2.583     2.15 | 5.667     8.59 | 8.750    2.50 | 11.83     1.43
        2.667     2.15 | 5.750     8.59 | 8.833    2.50 | 11.92     1.43
        2.750     2.15 | 5.833    34.34 | 8.917    2.50 | 12.00     1.43
        2.833     2.15 | 5.917    34.34 | 9.000    2.50 | 12.08     1.43
        2.917     2.15 | 6.000    34.35 | 9.083    2.50 | 12.17     1.43
```

3.000	2.15	6.083	94.45	9.167	2.50	12.25	1.43
3.083	2.15	6.167	94.45	9.250	2.50		

Max.Eff.Inten.(mm/hr)=	94.45	35.19	
over (min)	5.00	20.00	
Storage Coeff. (min)=	4.30 (ii)	15.02 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.23	0.07	
		TOTALS	
PEAK FLOW (cms)=	1.01	0.22	1.164 (iii)
TIME TO PEAK (hrs)=	6.25	6.42	6.25
RUNOFF VOLUME (mm)=	66.55	23.11	44.83
TOTAL RAINFALL (mm)=	71.55	71.55	71.55
RUNOFF COEFFICIENT =	0.93	0.32	0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 67.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0300)			
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0203):	89.62	12.837	6.25	46.00
+ ID2= 2 (0003):	7.88	1.164	6.25	44.83
ID = 3 (0300):	97.50	14.002	6.25	45.91

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0030)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	2.7700	2.8400
	0.8200	1.4400	3.2200	3.1300
	1.3700	1.8900	5.2900	4.3700
	1.7800	2.1800	6.1500	5.4900
	2.3300	2.5500	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0300)	97.500	14.002	6.25	45.91

OUTFLOW: ID= 1 (0030) 97.500 2.307 6.92 45.90

PEAK FLOW REDUCTION [Qout/Qin](%)= 16.48
TIME SHIFT OF PEAK FLOW (min)= 40.00
MAXIMUM STORAGE USED (ha.m.)= 2.5347

V V I SSSSS U U A L (v 6.2.2015)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL

OOO TTTTT TTTTT H H Y Y M M OOO TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
OOO T T H H Y M M OOO
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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\1a977d76-39b5-4589-9c03-f0eb2adad5a3\sc
Summary filename:
C:\Use~\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\1a977d76-39b5-4589-9c03-f0eb2adad5a3\sc

DATE: 11-27-2024 TIME: 08:52:05

USER:

COMMENTS: _____

** SIMULATION : 2C - 10yr 12hr 15min SCS Type **
****

READ STORM	Filename: C:\Users\jfletcher\AppData\Local\Temp\f7771102-1e26-4a23-9fad-5d61ceae4d2b\e49c198a
Ptotal= 82.08 mm	Comments: 10yr 12hr 15min SCS Type II (MTO)

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	3.25	3.28	6.50	14.77	9.75	2.87
0.25	2.05	3.50	3.28	6.75	6.57	10.00	2.87
0.50	2.05	3.75	3.28	7.00	6.57	10.25	1.64
0.75	2.05	4.00	3.28	7.25	4.92	10.50	1.64
1.00	2.05	4.25	4.92	7.50	4.92	10.75	1.64
1.25	2.05	4.50	4.92	7.75	4.92	11.00	1.64
1.50	2.05	4.75	6.57	8.00	4.92	11.25	1.64
1.75	2.05	5.00	6.57	8.25	2.87	11.50	1.64
2.00	2.05	5.25	9.85	8.50	2.87	11.75	1.64
2.25	2.46	5.50	9.85	8.75	2.87	12.00	1.64
2.50	2.46	5.75	39.40	9.00	2.87		
2.75	2.46	6.00	108.35	9.25	2.87		
3.00	2.46	6.25	14.77	9.50	2.87		

CALIB	
STANDHYD (0201)	Area (ha)= 30.52
ID= 1 DT= 5.0 min	Total Imp(%)= 78.00 Dir. Conn.(%)= 55.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	23.81	6.71
Dep. Storage (mm)=	5.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	451.07	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.46	6.250	108.34	9.33	2.87
0.167	0.00	3.250	2.46	6.333	14.77	9.42	2.87
0.250	0.00	3.333	3.28	6.417	14.77	9.50	2.87
0.333	2.05	3.417	3.28	6.500	14.77	9.58	2.87
0.417	2.05	3.500	3.28	6.583	14.77	9.67	2.87
0.500	2.05	3.583	3.28	6.667	14.77	9.75	2.87
0.583	2.05	3.667	3.28	6.750	14.77	9.83	2.87
0.667	2.05	3.750	3.28	6.833	6.57	9.92	2.87
0.750	2.05	3.833	3.28	6.917	6.57	10.00	2.87
0.833	2.05	3.917	3.28	7.000	6.57	10.08	2.87
0.917	2.05	4.000	3.28	7.083	6.57	10.17	2.87
1.000	2.05	4.083	3.28	7.167	6.57	10.25	2.87
1.083	2.05	4.167	3.28	7.250	6.57	10.33	1.64
1.167	2.05	4.250	3.28	7.333	4.92	10.42	1.64
1.250	2.05	4.333	4.92	7.417	4.92	10.50	1.64
1.333	2.05	4.417	4.92	7.500	4.92	10.58	1.64
1.417	2.05	4.500	4.92	7.583	4.92	10.67	1.64
1.500	2.05	4.583	4.92	7.667	4.92	10.75	1.64
1.583	2.05	4.667	4.92	7.750	4.92	10.83	1.64
1.667	2.05	4.750	4.92	7.833	4.92	10.92	1.64
1.750	2.05	4.833	6.57	7.917	4.92	11.00	1.64
1.833	2.05	4.917	6.57	8.000	4.92	11.08	1.64
1.917	2.05	5.000	6.57	8.083	4.92	11.17	1.64
2.000	2.05	5.083	6.57	8.167	4.92	11.25	1.64
2.083	2.05	5.167	6.57	8.250	4.92	11.33	1.64
2.167	2.05	5.250	6.57	8.333	2.87	11.42	1.64
2.250	2.05	5.333	9.85	8.417	2.87	11.50	1.64
2.333	2.46	5.417	9.85	8.500	2.87	11.58	1.64
2.417	2.46	5.500	9.85	8.583	2.87	11.67	1.64
2.500	2.46	5.583	9.85	8.667	2.87	11.75	1.64
2.583	2.46	5.667	9.85	8.750	2.87	11.83	1.64
2.667	2.46	5.750	9.85	8.833	2.87	11.92	1.64
2.750	2.46	5.833	39.40	8.917	2.87	12.00	1.64
2.833	2.46	5.917	39.40	9.000	2.87	12.08	1.64
2.917	2.46	6.000	39.40	9.083	2.87	12.17	1.64
3.000	2.46	6.083	108.35	9.167	2.87	12.25	1.64
3.083	2.46	6.167	108.35	9.250	2.87		

Max.Eff.Inten.(mm/hr)=	108.35	48.47	
over (min)	5.00	15.00	
Storage Coeff. (min)=	3.37 (ii)	12.80 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.26	0.08	
		TOTALS	
PEAK FLOW (cms)=	0.63	0.17	0.774 (iii)
TIME TO PEAK (hrs)=	6.25	6.33	6.25
RUNOFF VOLUME (mm)=	77.08	29.39	53.23
TOTAL RAINFALL (mm)=	82.08	82.08	82.08
RUNOFF COEFFICIENT =	0.94	0.36	0.65

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 67.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0100)			
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	4.21	0.774	6.25	53.23
+ ID2= 2 (0201):	30.52	6.408	6.25	62.66
ID = 3 (0100):	34.73	7.182	6.25	61.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0010)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	1.0900	1.0400
	0.3100	0.5460	1.2700	1.1400

THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0001)	Area (ha)= 4.21
ID= 1 DT= 5.0 min	Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	2.11	2.11
Dep. Storage (mm)=	5.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	167.53	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.46	6.250	108.34	9.33	2.87
0.167	0.00	3.250	2.46	6.333	14.77	9.42	2.87
0.250	0.00	3.333	3.28	6.417	14.77	9.50	2.87
0.333	2.05	3.417	3.28	6.500	14.77	9.58	2.87
0.417	2.05	3.500	3.28	6.583	14.77	9.67	2.87
0.500	2.05	3.583	3.28	6.667	14.77	9.75	2.87
0.583	2.05	3.667	3.28	6.750	14.77	9.83	2.87
0.667	2.05	3.750	3.28	6.833	6.57	9.92	2.87
0.750	2.05	3.833	3.28	6.917	6.57	10.00	2.87
0.833	2.05	3.917	3.28	7.000	6.57	10.08	2.87
0.917	2.05	4.000	3.28	7.083	6.57	10.17	2.87
1.000	2.05	4.083	3.28	7.167	6.57	10.25	2.87
1.083	2.05	4.167	3.28	7.250	6.57	10.33	1.64
1.167	2.05	4.250	3.28	7.333	4.92	10.42	1.64
1.250	2.05	4.333	4.92	7.417	4.92	10.50	1.64
1.333	2.05	4.417	4.92	7.500	4.92	10.58	1.64
1.417	2.05	4.500	4.92	7.583	4.92	10.67	1.64
1.500	2.05	4.583	4.92	7.667	4.92	10.75	1.64
1.583	2.05	4.667	4.92	7.750	4.92	10.83	1.64
1.667	2.05	4.750	4.92	7.833	4.92	10.92	1.64
1.750	2.05	4.833	6.57	7.917	4.92	11.00	1.64
1.833	2.05	4.917	6.57	8.000	4.92	11.08	1.64
1.917	2.05	5.000	6.57	8.083	4.92	11.17	1.64
2.000	2.05	5.083	6.57	8.167	4.92	11.25	1.64
2.083	2.05	5.167	6.57	8.250	4.92	11.33	1.64
2.167	2.05	5.250	6.57	8.333	2.87	11.42	1.64
2.250	2.05	5.333	9.85	8.417	2.87	11.50	1.64
2.333	2.46	5.417	9.85	8.500	2.87	11.58	1.64
2.417	2.46	5.500	9.85	8.583	2.87	11.67	1.64
2.500	2.46	5.583	9.85	8.667	2.87	11.75	1.64
2.583	2.46	5.667	9.85	8.750	2.87	11.83	1.64
2.667	2.46	5.750	9.85	8.833	2.87	11.92	1.64
2.750	2.46	5.833	39.40	8.917	2.87	12.00	1.64
2.833	2.46	5.917	39.40	9.000	2.87	12.08	1.64
2.917	2.46	6.000	39.40	9.083	2.87	12.17	1.64
3.000	2.46	6.083	108.35	9.167	2.87	12.25	1.64
3.083	2.46	6.167	108.35	9.250	2.87		

Max.Eff.Inten.(mm/hr)=	108.35	48.47	
over (min)	5.00	15.00	
Storage Coeff. (min)=	3.31 (ii)	12.74 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	

0.5250	0.7030	2.1100	1.5700
0.6900	0.8068	2.4450	2.0600
0.9000	0.9400	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0100)	34.730	7.182	6.25	61.52
OUTFLOW: ID= 1 (0010)	34.730	1.356	6.75	61.51

PEAK FLOW REDUCTION [Qout/Qin](%)= 18.88
TIME SHIFT OF PEAK FLOW (min)= 30.00
MAXIMUM STORAGE USED (ha.m.)= 1.1862

CALIB	
STANDHYD (0202)	Area (ha)= 28.06
ID= 1 DT= 5.0 min	Total Imp(%)= 68.00 Dir. Conn.(%)= 57.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	19.08	8.98
Dep. Storage (mm)=	5.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	432.51	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.46	6.250	108.34	9.33	2.87
0.167	0.00	3.250	2.46	6.333	14.77	9.42	2.87
0.250	0.00	3.333	3.28	6.417	14.77	9.50	2.87
0.333	2.05	3.417	3.28	6.500	14.77	9.58	2.87
0.417	2.05	3.500	3.28	6.583	14.77	9.67	2.87
0.500	2.05	3.583	3.28	6.667	14.77	9.75	2.87
0.583	2.05	3.667	3.28	6.750	14.77	9.83	2.87
0.667	2.05	3.750	3.28	6.833	6.57	9.92	2.87
0.750	2.05	3.833	3.28	6.917	6.57	10.00	2.87
0.833	2.05	3.917	3.28	7.000	6.57	10.08	2.87
0.917	2.05	4.000	3.28	7.083	6.57	10.17	2.87
1.000	2.05	4.083	3.28	7.167	6.57	10.25	2.87
1.083	2.05	4.167	3.28	7.250	6.57	10.33	1.64
1.167	2.05	4.250	3.28	7.333	4.92	10.42	1.64
1.250	2.05	4.333	4.92	7.417	4.92	10.50	1.64
1.333	2.05	4.417	4.92	7.500	4.92	10.58	1.64
1.417	2.05	4.500	4.92	7.583	4.92	10.67	1.64
1.500	2.05	4.583	4.92	7.667	4.92	10.75	1.64
1.583	2.05	4.667	4.92	7.750	4.92	10.83	1.64
1.667	2.05	4.750	4.92	7.833	4.92	10.92	1.64
1.750	2.05	4.833	6.57	7.917	4.92	11.00	1.64
1.833	2.05	4.917	6.57	8.000	4.92	11.08	1.64
1.917	2.05	5.000	6.57	8.083	4.92	11.17	1.64
2.000	2.05	5.083	6.57	8.167	4.92	11.25	1.64
2.083	2.05	5.167	6.57	8.250	4.92	11.33	1.64
2.167	2.05	5.250	6.57	8.333	2.87	11.42	1.64
2.250	2.05	5.333	9.85	8.417	2.87	11.50	1.64
2.333	2.46	5.417	9.85	8.500	2.87	11.58	1.64
2.417	2.46	5.500	9.85	8.583	2.87	11.67	1.64
2.500	2.46	5.583	9.85	8.667	2.87	11.75	1.64
2.583	2.46	5.667	9.85	8.750	2.87	11.83	1.64
2.667	2.46	5.750	9.85	8.833	2.87	11.92	1.64
2.750	2.46	5.833	39.40	8.917	2.87	12.00	1.64
2.833	2.46	5.917	39.40	9.000	2.87	12.08	1.64
2.917	2.46	6.000	39.40	9.083	2.87	12.17	1.64
3.000	2.46	6.083	108.35	9.167	2.87	12.25	1.64
3.083	2.46	6.167	108.35	9.250	2.87		

Max.Eff.Inten.(mm/hr)=	108.35	48.47	
over (min)	5.00	15.00	
Storage Coeff. (min)=	3.31 (ii)	12.74 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	

1.583	2.05	4.667	4.92	7.750	4.92	10.83	1.64
1.667	2.05	4.750	4.92	7.833	4.92	10.92	1.64
1.750	2.05	4.833	6.57	7.917	4.92	11.00	1.64
1.833	2.05	4.917	6.57	8.000	4.92	11.08	1.64
1.917	2.05	5.000	6.57	8.083	4.92	11.17	1.64
2.000	2.05	5.083	6.57	8.167	4.92	11.25	1.64
2.083	2.05	5.167	6.57	8.250	4.92	11.33	1.64
2.167	2.05	5.250	6.57	8.333	2.87	11.42	1.64
2.250	2.05	5.333	9.85	8.417	2.87	11.50	1.64
2.333	2.46	5.417	9.85	8.500	2.87	11.58	1.64
2.417	2.46	5.500	9.85	8.583	2.87	11.67	1.64
2.500	2.46	5.583	9.85	8.667	2.87	11.75	1.64
2.583	2.46	5.667	9.85	8.750	2.87	11.83	1.64
2.667	2.46	5.750	9.85	8.833	2.87	11.92	1.64
2.750	2.46	5.833	39.40	8.917	2.87	12.00	1.64
2.833	2.46	5.917	39.40	9.000	2.87	12.08	1.64
2.917	2.46	6.000	39.40	9.083	2.87	12.17	1.64
3.000	2.46	6.083	108.35	9.167	2.87	12.25	1.64
3.083	2.46	6.167	108.35	9.250	2.87		

Max.Eff.Inten.(mm/hr)=	108.35	48.47	
over (min)	5.00	15.00	
Storage Coeff. (min)=	3.31 (ii)	12.74 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	

Mannings n =	0.013	0.250	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.46	6.250	108.34	9.33	2.87
0.167	0.00	3.250	2.46	6.333	14.77	9.42	2.87
0.250	0.00	3.333	3.28	6.417	14.77	9.50	2.87
0.333	2.05	3.417	3.28	6.500	14.77	9.58	2.87
0.417	2.05	3.500	3.28	6.583	14.77	9.67	2.87
0.500	2.05	3.583	3.28	6.667	14.77	9.75	2.87
0.583	2.05	3.667	3.28	6.750	14.77	9.83	2.87
0.667	2.05	3.750	3.28	6.833	6.57	9.92	2.87
0.750	2.05	3.833	3.28	6.917	6.57	10.00	2.87
0.833	2.05	3.917	3.28	7.000	6.57	10.08	2.87
0.917	2.05	4.000	3.28	7.083	6.57	10.17	2.87
1.000	2.05	4.083	3.28	7.167	6.57	10.25	2.87
1.083	2.05	4.167	3.28	7.250	6.57	10.33	1.64
1.167	2.05	4.250	3.28	7.333	4.92	10.42	1.64
1.250	2.05	4.333	4.92	7.417	4.92	10.50	1.64
1.333	2.05	4.417	4.92	7.500	4.92	10.58	1.64
1.417	2.05	4.500	4.92	7.583	4.92	10.67	1.64
1.500	2.05	4.583	4.92	7.667	4.92	10.75	1.64
1.583	2.05	4.667	4.92	7.750	4.92	10.83	1.64
1.667	2.05	4.750	4.92	7.833	4.92	10.92	1.64
1.750	2.05	4.833	6.57	7.917	4.92	11.00	1.64
1.833	2.05	4.917	6.57	8.000	4.92	11.08	1.64
1.917	2.05	5.000	6.57	8.083	4.92	11.17	1.64
2.000	2.05	5.083	6.57	8.167	4.92	11.25	1.64
2.083	2.05	5.167	6.57	8.250	4.92	11.33	1.64
2.167	2.05	5.250	6.57	8.333	2.87	11.42	1.64
2.250	2.05	5.333	9.85	8.417	2.87	11.50	1.64
2.333	2.46	5.417	9.85	8.500	2.87	11.58	1.64
2.417	2.46	5.500	9.85	8.583	2.87	11.67	1.64
2.500	2.46	5.583	9.85	8.667	2.87	11.75	1.64
2.583	2.46	5.667	9.85	8.750	2.87	11.83	1.64
2.667	2.46	5.750	9.85	8.833	2.87	11.92	1.64
2.750	2.46	5.833	39.40	8.917	2.87	12.00	1.64
2.833	2.46	5.917	39.40	9.000	2.87	12.08	1.64
2.917	2.46	6.000	39.40	9.083	2.87	12.17	1.64
3.000	2.46	6.083	108.35	9.167	2.87	12.25	1.64
3.083	2.46	6.167	108.35	9.250	2.87		

Max.Eff.Inten.(mm/hr)=	108.35	48.47	
over (min)	5.00	15.00	
Storage Coeff. (min)=	3.31 (ii)	12.74 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	

CALIB	
STANDHYD (0002)	Area (ha)= 3.95
ID= 1 DT= 5.0 min	Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.98	1.98
Dep. Storage (mm)=	5.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	162.28	40.00

```
     Unit Hyd. peak  (cms)=       0.26          0.08
                                                        *TOTALS*
     PEAK FLOW      (cms)=       0.59          0.16          0.727 (iii)
     TIME TO PEAK   (hrs)=       6.25          6.33          6.25
     RUNOFF VOLUME   (mm)=      77.08         29.39         53.23
     TOTAL RAINFALL  (mm)=      82.08         82.08         82.08
     RUNOFF COEFFICIENT  =       0.94          0.36          0.65

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 67.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD  (  0200)|
|   1 +  2 =  3    |      AREA    QPEAK    TPEAK     R.V.
-------------------      (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0002):    3.95   0.727     6.25    53.23
     + ID2= 2 (  0202):   28.06   5.560     6.25    59.33
       ==========================================
       ID = 3 (  0200):   32.01   6.287     6.25    58.58

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000    0.0000    |   1.8250    0.6810
                         0.6400    0.3757    |   2.1650    0.7600
                         1.0700    0.4858    |   4.0750    1.0700
                         1.3800    0.5709    |   4.7000    1.7300

                              AREA     QPEAK     TPEAK      R.V.
                               (ha)     (cms)     (hrs)      (mm)
   INFLOW : ID= 2 (  0200)     32.010     6.287     6.25      58.58
   OUTFLOW: ID= 1 (  0020)     32.010     2.179     6.50      58.58

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 34.67
                    TIME SHIFT OF PEAK FLOW       (min)= 15.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.7643

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| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=  89.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  61.00   Dir. Conn.(%)=  44.00
-------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      54.67         34.95
     Dep. Storage     (mm)=       5.00          5.00
     Average Slope    (%)=        2.00          3.00
     Length           (m)=      772.96         40.00
     Mannings n           =       0.013         0.250

     NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                    ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 3.167    2.46 | 6.250  108.34 |  9.33    2.87
 0.167    0.00 | 3.250    2.46 | 6.333   14.77 |  9.42    2.87
 0.250    0.00 | 3.333    3.28 | 6.417   14.77 |  9.50    2.87
 0.333    2.05 | 3.417    3.28 | 6.500   14.77 |  9.58    2.87
 0.417    2.05 | 3.500    3.28 | 6.583   14.77 |  9.67    2.87
 0.500    2.05 | 3.583    3.28 | 6.667   14.77 |  9.75    2.87
 0.583    2.05 | 3.667    3.28 | 6.750   14.77 |  9.83    2.87
 0.667    2.05 | 3.750    3.28 | 6.833    6.57 |  9.92    2.87
 0.750    2.05 | 3.833    3.28 | 6.917    6.57 | 10.00    2.87
 0.833    2.05 | 3.917    3.28 | 7.000    6.57 | 10.08    2.87
 0.917    2.05 | 4.000    3.28 | 7.083    6.57 | 10.17    2.87
 1.000    2.05 | 4.083    3.28 | 7.167    6.57 | 10.25    2.87
 1.083    2.05 | 4.167    3.28 | 7.250    6.57 | 10.33    1.64
 1.167    2.05 | 4.250    3.28 | 7.333    4.92 | 10.42    1.64
 1.250    2.05 | 4.333    4.92 | 7.417    4.92 | 10.50    1.64
 1.333    2.05 | 4.417    4.92 | 7.500    4.92 | 10.58    1.64
 1.417    2.05 | 4.500    4.92 | 7.583    4.92 | 10.67    1.64
 1.500    2.05 | 4.583    4.92 | 7.667    4.92 | 10.75    1.64
 1.583    2.05 | 4.667    4.92 | 7.750    4.92 | 10.83    1.64
 1.667    2.05 | 4.750    4.92 | 7.833    4.92 | 10.92    1.64
 1.750    2.05 | 4.833    6.57 | 7.917    4.92 | 11.00    1.64
 1.833    2.05 | 4.917    6.57 | 8.000    4.92 | 11.08    1.64
 1.917    2.05 | 5.000    6.57 | 8.083    4.92 | 11.17    1.64
 2.000    2.05 | 5.083    6.57 | 8.167    4.92 | 11.25    1.64
 2.083    2.05 | 5.167    6.57 | 8.250    4.92 | 11.33    1.64
 2.167    2.05 | 5.250    6.57 | 8.333    2.87 | 11.42    1.64
 2.250    2.05 | 5.333    9.85 | 8.417    2.87 | 11.50    1.64
 2.333    2.46 | 5.417    9.85 | 8.500    2.87 | 11.58    1.64
 2.417    2.46 | 5.500    9.85 | 8.583    2.87 | 11.67    1.64
 2.500    2.46 | 5.583    9.85 | 8.667    2.87 | 11.75    1.64
 2.583    2.46 | 5.667    9.85 | 8.750    2.87 | 11.83    1.64
 2.667    2.46 | 5.750    9.85 | 8.833    2.87 | 11.92    1.64
 2.750    2.46 | 5.833   39.40 | 8.917    2.87 | 12.00    1.64
 2.833    2.46 | 5.917   39.40 | 9.000    2.87 | 12.08    1.64
 2.917    2.46 | 6.000   39.40 | 9.083    2.87 | 12.17    1.64
 3.000    2.46 | 6.083  108.35 | 9.167    2.87 | 12.25    1.64
 3.083    2.46 | 6.167  108.35 | 9.250    2.87 |

Max.Eff.Inten.(mm/hr)=     108.35        87.55
          over (min)          5.00         15.00
Storage Coeff.  (min)=        6.85 (ii)   13.45 (ii)
Unit Hyd. Tpeak (min)=        5.00         15.00
Unit Hyd. peak  (cms)=        0.18          0.08
                                          *TOTALS*
PEAK FLOW      (cms)=        10.98          5.09         15.382 (iii)
TIME TO PEAK   (hrs)=         6.25          6.33          6.25
RUNOFF VOLUME   (mm)=        77.08         37.28         54.79
TOTAL RAINFALL  (mm)=        82.08         82.08         82.08
RUNOFF COEFFICIENT  =         0.94          0.45          0.67

  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
      CN* = 67.0    Ia = Dep. Storage  (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
     THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD (  0003)|   Area    (ha)=   7.88
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
-------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.94          3.94
     Dep. Storage     (mm)=       5.00          5.00
     Average Slope    (%)=        1.00          2.00
     Length           (m)=      229.20         40.00
     Mannings n           =       0.013         0.250

     NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                    ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 3.167    2.46 | 6.250  108.34 |  9.33    2.87
 0.167    0.00 | 3.250    2.46 | 6.333   14.77 |  9.42    2.87
 0.250    0.00 | 3.333    3.28 | 6.417   14.77 |  9.50    2.87
 0.333    2.05 | 3.417    3.28 | 6.500   14.77 |  9.58    2.87
 0.417    2.05 | 3.500    3.28 | 6.583   14.77 |  9.67    2.87
 0.500    2.05 | 3.583    3.28 | 6.667   14.77 |  9.75    2.87
 0.583    2.05 | 3.667    3.28 | 6.750   14.77 |  9.83    2.87
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| ADD HYD  (  0300)|
|   1 +  2 =  3    |      AREA    QPEAK    TPEAK     R.V.
-------------------      (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):   89.62  15.382     6.25    54.79
     + ID2= 2 (  0003):    7.88   1.431     6.25    53.23
       ==========================================
       ID = 3 (  0300):   97.50  16.813     6.25    54.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| RESERVOIR(  0030)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000    0.0000    |   2.7700    2.8400
                         0.8200    1.4400    |   3.2200    3.1300
                         1.3700    1.8900    |   5.2900    4.3700
                         1.7800    2.1800    |   6.1500    5.4900
                         2.3300    2.5500    |   0.0000    0.0000

                              AREA     QPEAK     TPEAK      R.V.
                               (ha)     (cms)     (hrs)      (mm)
   INFLOW : ID= 2 (  0300)     97.500    16.813     6.25      54.66
   OUTFLOW: ID= 1 (  0030)     97.500     2.966     6.83      54.66

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 17.64
                    TIME SHIFT OF PEAK FLOW       (min)= 35.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  2.9706

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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
         V V    I      SS   U   U  A   A  L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                    *****  D E T A I L E D   O U T P U T *****

  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
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  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\a9
d4c9b0-c9b6-4494-8247-d633b9cf7d78\sc

DATE: 11-27-2024                          TIME: 08:52:05

USER:


COMMENTS: _____

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  ************************************************
  ** SIMULATION : 2D - 25yr 12hr 15min SCS Type **
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|     READ STORM    |    Filename: C:\Users\jfletcher\AppD
|                   |              ata\Local\Temp\
|                   |              f7771102-1e26-4a23-9fad-5d61ceae4d2b\a98d124a
| Ptotal= 94.74 mm  |  Comments: 25yr 12hr 15min SCS Type II (MTO)
-------------------
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.00    0.00 | 3.25    3.79 |  6.50   17.05 |  9.75    3.32
 0.25    2.37 | 3.50    3.79 |  6.75    7.58 | 10.00    3.32
 0.50    2.37 | 3.75    3.79 |  7.00    7.58 | 10.25    1.89
 0.75    2.37 | 4.00    3.79 |  7.25    5.68 | 10.50    1.89
 1.00    2.37 | 4.25    5.68 |  7.50    5.68 | 10.75    1.89
 1.25    2.37 | 4.50    5.68 |  7.75    5.68 | 11.00    1.89
 1.50    2.37 | 4.75    7.58 |  8.00    5.68 | 11.25    1.89
 1.75    2.37 | 5.00    7.58 |  8.25    3.32 | 11.50    1.89
 2.00    2.37 | 5.25   11.37 |  8.50    3.32 | 11.75    1.89
 2.25    2.84 | 5.50   11.37 |  8.75    3.32 | 12.00    1.89
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                  2.50    2.84 |  5.75   45.48 |  9.00    3.32 |
                  2.75    2.84 |  6.00  125.06 |  9.25    3.32 |
                  3.00    2.84 |  6.25   17.05 |  9.50    3.32 |

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| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=  30.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=  55.00
-------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      23.81          6.71
     Dep. Storage     (mm)=       5.00          5.00
     Average Slope    (%)=        1.00          2.00
     Length           (m)=      451.07         40.00
     Mannings n           =       0.013         0.250

     NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                    ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 3.167    2.84 | 6.250  125.05 |  9.33    3.32
 0.167    0.00 | 3.250    2.84 | 6.333   17.05 |  9.42    3.32
 0.250    0.00 | 3.333    3.79 | 6.417   17.05 |  9.50    3.32
 0.333    2.37 | 3.417    3.79 | 6.500   17.05 |  9.58    3.32
 0.417    2.37 | 3.500    3.79 | 6.583   17.05 |  9.67    3.32
 0.500    2.37 | 3.583    3.79 | 6.667   17.05 |  9.75    3.32
 0.583    2.37 | 3.667    3.79 | 6.750   17.05 |  9.83    3.32
 0.667    2.37 | 3.750    3.79 | 6.833    7.58 |  9.92    3.32
 0.750    2.37 | 3.833    3.79 | 6.917    7.58 | 10.00    3.32
 0.833    2.37 | 3.917    3.79 | 7.000    7.58 | 10.08    3.32
 0.917    2.37 | 4.000    3.79 | 7.083    7.58 | 10.17    3.32
 1.000    2.37 | 4.083    3.79 | 7.167    7.58 | 10.25    3.32
 1.083    2.37 | 4.167    3.79 | 7.250    7.58 | 10.33    1.89
 1.167    2.37 | 4.250    3.79 | 7.333    5.68 | 10.42    1.89
 1.250    2.37 | 4.333    5.68 | 7.417    5.68 | 10.50    1.89
 1.333    2.37 | 4.417    5.68 | 7.500    5.68 | 10.58    1.89
 1.417    2.37 | 4.500    5.68 | 7.583    5.68 | 10.67    1.89
 1.500    2.37 | 4.583    5.68 | 7.667    5.68 | 10.75    1.89
 1.583    2.37 | 4.667    5.68 | 7.750    5.68 | 10.83    1.89
 1.667    2.37 | 4.750    5.68 | 7.833    5.68 | 10.92    1.89
 1.750    2.37 | 4.833    7.58 | 7.917    5.68 | 11.00    1.89
 1.833    2.37 | 4.917    7.58 | 8.000    5.68 | 11.08    1.89
 1.917    2.37 | 5.000    7.58 | 8.083    5.68 | 11.17    1.89
 2.000    2.37 | 5.083    7.58 | 8.167    5.68 | 11.25    1.89
 2.083    2.37 | 5.167    7.58 | 8.250    5.68 | 11.33    1.89
 2.167    2.37 | 5.250    7.58 | 8.333    3.32 | 11.42    1.89
 2.250    2.37 | 5.333   11.37 | 8.417    3.32 | 11.50    1.89
 2.333    2.84 | 5.417   11.37 | 8.500    3.32 | 11.58    1.89
 2.417    2.84 | 5.500   11.37 | 8.583    3.32 | 11.67    1.89
 2.500    2.84 | 5.583   11.37 | 8.667    3.32 | 11.75    1.89
 2.583    2.84 | 5.667   11.37 | 8.750    3.32 | 11.83    1.89
 2.667    2.84 | 5.750   11.37 | 8.833    3.32 | 11.92    1.89
 2.750    2.84 | 5.833   45.48 | 8.917    3.32 | 12.00    1.89
 2.833    2.84 | 5.917   45.48 | 9.000    3.32 | 12.08    1.89
 2.917    2.84 | 6.000   45.48 | 9.083    3.32 | 12.17    1.89
 3.000    2.84 | 6.083  125.06 | 9.167    3.32 | 12.25    1.89
 3.083    2.84 | 6.167  125.06 | 9.250    3.32 |

Max.Eff.Inten.(mm/hr)=     125.06       182.35
          over (min)          5.00        15.00
Storage Coeff.  (min)=        5.77 (ii)   10.24 (ii)
Unit Hyd. Tpeak (min)=        5.00        15.00
Unit Hyd. peak  (cms)=        0.20         0.09
                                          *TOTALS*
PEAK FLOW      (cms)=         5.55         2.32          7.634 (iii)
TIME TO PEAK   (hrs)=         6.25         6.33          6.25
RUNOFF VOLUME   (mm)=        89.74        55.51         74.34
TOTAL RAINFALL  (mm)=        94.74        94.74         94.74
RUNOFF COEFFICIENT  =         0.95         0.59          0.78

  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
      CN* = 67.0    Ia = Dep. Storage  (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
     THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD (  0001)|   Area    (ha)=   4.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
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                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.11          2.11
     Dep. Storage     (mm)=       5.00          5.00
     Average Slope    (%)=        1.00          2.00
     Length           (m)=      167.53         40.00
     Mannings n           =       0.013         0.250

     NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                    ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
```

```
 0.083    0.00 | 3.167    2.84 | 6.250  125.05 |  9.33    3.32
 0.167    0.00 | 3.250    2.84 | 6.333   17.05 |  9.42    3.32
 0.250    0.00 | 3.333    3.79 | 6.417   17.05 |  9.50    3.32
 0.333    2.37 | 3.417    3.79 | 6.500   17.05 |  9.58    3.32
 0.417    2.37 | 3.500    3.79 | 6.583   17.05 |  9.67    3.32
 0.500    2.37 | 3.583    3.79 | 6.667   17.05 |  9.75    3.32
 0.583    2.37 | 3.667    3.79 | 6.750   17.05 |  9.83    3.32
 0.667    2.37 | 3.750    3.79 | 6.833    7.58 |  9.92    3.32
 0.750    2.37 | 3.833    3.79 | 6.917    7.58 | 10.00    3.32
 0.833    2.37 | 3.917    3.79 | 7.000    7.58 | 10.08    3.32
 0.917    2.37 | 4.000    3.79 | 7.083    7.58 | 10.17    3.32
 1.000    2.37 | 4.083    3.79 | 7.167    7.58 | 10.25    3.32
 1.083    2.37 | 4.167    3.79 | 7.250    7.58 | 10.33    1.89
 1.167    2.37 | 4.250    3.79 | 7.333    5.68 | 10.42    1.89
 1.250    2.37 | 4.333    5.68 | 7.417    5.68 | 10.50    1.89
 1.333    2.37 | 4.417    5.68 | 7.500    5.68 | 10.58    1.89
 1.417    2.37 | 4.500    5.68 | 7.583    5.68 | 10.67    1.89
 1.500    2.37 | 4.583    5.68 | 7.667    5.68 | 10.75    1.89
 1.583    2.37 | 4.667    5.68 | 7.750    5.68 | 10.83    1.89
 1.667    2.37 | 4.750    5.68 | 7.833    5.68 | 10.92    1.89
 1.750    2.37 | 4.833    7.58 | 7.917    5.68 | 11.00    1.89
 1.833    2.37 | 4.917    7.58 | 8.000    5.68 | 11.08    1.89
 1.917    2.37 | 5.000    7.58 | 8.083    5.68 | 11.17    1.89
 2.000    2.37 | 5.083    7.58 | 8.167    5.68 | 11.25    1.89
 2.083    2.37 | 5.167    7.58 | 8.250    5.68 | 11.33    1.89
 2.167    2.37 | 5.250    7.58 | 8.333    3.32 | 11.42    1.89
 2.250    2.37 | 5.333   11.37 | 8.417    3.32 | 11.50    1.89
 2.333    2.84 | 5.417   11.37 | 8.500    3.32 | 11.58    1.89
 2.417    2.84 | 5.500   11.37 | 8.583    3.32 | 11.67    1.89
 2.500    2.84 | 5.583   11.37 | 8.667    3.32 | 11.75    1.89
 2.583    2.84 | 5.667   11.37 | 8.750    3.32 | 11.83    1.89
 2.667    2.84 | 5.750   11.37 | 8.833    3.32 | 11.92    1.89
 2.750    2.84 | 5.833   45.48 | 8.917    3.32 | 12.00    1.89
 2.833    2.84 | 5.917   45.48 | 9.000    3.32 | 12.08    1.89
 2.917    2.84 | 6.000   45.48 | 9.083    3.32 | 12.17    1.89
 3.000    2.84 | 6.083  125.06 | 9.167    3.32 | 12.25    1.89
 3.083    2.84 | 6.167  125.06 | 9.250    3.32 |

Max.Eff.Inten.(mm/hr)=     125.06        61.65
          over (min)          5.00        15.00
Storage Coeff.  (min)=        3.18 (ii)   11.75 (ii)
Unit Hyd. Tpeak (min)=        5.00        15.00
Unit Hyd. peak  (cms)=        0.27         0.09
                                          *TOTALS*
PEAK FLOW      (cms)=         0.73         0.23          0.922 (iii)
TIME TO PEAK   (hrs)=         6.25         6.33          6.25
RUNOFF VOLUME   (mm)=        89.74        37.48         63.61
TOTAL RAINFALL  (mm)=        94.74        94.74         94.74
RUNOFF COEFFICIENT  =         0.95         0.40          0.67
```

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 67.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0100)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0001):	4.21	0.922	6.25	63.61
+ ID2= 2 (0201):	30.52	7.634	6.25	74.34
ID = 3 (0100):	34.73	8.556	6.25	73.04

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0010)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW	STORAGE	OUTFLOW	STORAGE
	(cms)	(ha.m.)	(cms)	(ha.m.)
	0.0000	0.0000	1.0900	1.0400
	0.3100	0.5460	1.2700	1.1400
	0.5250	0.7030	2.1100	1.5700
	0.6900	0.8068	2.4450	2.0600
	0.9000	0.9400	0.0000	0.0000

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0100)	34.730	8.556	6.25	73.04
OUTFLOW: ID= 1 (0010)	34.730	1.734	6.75	73.02

PEAK FLOW REDUCTION [Qout/Qin](%)= 20.27
TIME SHIFT OF PEAK FLOW (min)= 30.00
MAXIMUM STORAGE USED (ha.m.)= 1.3777

CALIB				
STANDHYD (0202)	Area	(ha)=	28.06	
ID= 1 DT= 5.0 min	Total Imp(%)=	68.00	Dir. Conn.(%)=	57.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)= 19.08	8.98
Dep. Storage	(mm)= 5.00	5.00
Average Slope	(%)= 1.00	2.00
Length	(m)= 432.51	40.00
Mannings n	= 0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.84	6.250	125.05	9.33	3.32
0.167	0.00	3.250	2.84	6.333	17.05	9.42	3.32
0.250	0.00	3.333	3.79	6.417	17.05	9.50	3.32
0.333	2.37	3.417	3.79	6.500	17.05	9.58	3.32
0.417	2.37	3.500	3.79	6.583	17.05	9.67	3.32
0.500	2.37	3.583	3.79	6.667	17.05	9.75	3.32
0.583	2.37	3.667	3.79	6.750	17.05	9.83	3.32
0.667	2.37	3.750	3.79	6.833	7.58	9.92	3.32
0.750	2.37	3.833	3.79	6.917	7.58	10.00	3.32
0.833	2.37	3.917	3.79	7.000	7.58	10.08	3.32
0.917	2.37	4.000	3.79	7.083	7.58	10.17	3.32
1.000	2.37	4.083	3.79	7.167	7.58	10.25	3.32
1.083	2.37	4.167	3.79	7.250	7.58	10.33	1.89
1.167	2.37	4.250	3.79	7.333	5.68	10.42	1.89
1.250	2.37	4.333	5.68	7.417	5.68	10.50	1.89
1.333	2.37	4.417	5.68	7.500	5.68	10.58	1.89
1.417	2.37	4.500	5.68	7.583	5.68	10.67	1.89
1.500	2.37	4.583	5.68	7.667	5.68	10.75	1.89
1.583	2.37	4.667	5.68	7.750	5.68	10.83	1.89
1.667	2.37	4.750	5.68	7.833	5.68	10.92	1.89
1.750	2.37	4.833	7.58	7.917	5.68	11.00	1.89
1.833	2.37	4.917	7.58	8.000	5.68	11.08	1.89
1.917	2.37	5.000	7.58	8.083	5.68	11.17	1.89
2.000	2.37	5.083	7.58	8.167	5.68	11.25	1.89
2.083	2.37	5.167	7.58	8.250	5.68	11.33	1.89
2.167	2.37	5.250	7.58	8.333	3.32	11.42	1.89
2.250	2.37	5.333	11.37	8.417	3.32	11.50	1.89
2.333	2.84	5.417	11.37	8.500	3.32	11.58	1.89
2.417	2.84	5.500	11.37	8.583	3.32	11.67	1.89
2.500	2.84	5.583	11.37	8.667	3.32	11.75	1.89
2.583	2.84	5.667	11.37	8.750	3.32	11.83	1.89
2.667	2.84	5.750	11.37	8.833	3.32	11.92	1.89
2.750	2.84	5.833	45.48	8.917	3.32	12.00	1.89
2.833	2.84	5.917	45.48	9.000	3.32	12.08	1.89
2.917	2.84	6.000	45.48	9.083	3.32	12.17	1.89
3.000	2.84	6.083	125.06	9.167	3.32	12.25	1.89
3.083	2.84	6.167	125.06	9.250	3.32		

Max.Eff.Inten.(mm/hr)=	125.06		61.65
over (min)	5.00		15.00
Storage Coeff. (min)=	3.12 (ii)		11.69 (ii)
Unit Hyd. Tpeak (min)=	5.00		15.00
Unit Hyd. peak (cms)=	0.27		0.09
		TOTALS	
PEAK FLOW (cms)=	0.68	0.21	0.866 (iii)
TIME TO PEAK (hrs)=	6.25	6.33	6.25
RUNOFF VOLUME (mm)=	89.74	37.48	63.61
TOTAL RAINFALL (mm)=	94.74	94.74	94.74
RUNOFF COEFFICIENT =	0.95	0.40	0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 67.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0200)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0002):	3.95	0.866	6.25	63.61
+ ID2= 2 (0202):	28.06	6.623	6.25	70.50
ID = 3 (0200):	32.01	7.488	6.25	69.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0020)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW	STORAGE	OUTFLOW	STORAGE
	(cms)	(ha.m.)	(cms)	(ha.m.)
	0.0000	0.0000	1.8250	0.6819
	0.6400	0.3757	2.1650	0.7600
	1.0700	0.4858	4.0750	1.0700
	1.3800	0.5709	4.7000	1.7300

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0200)	32.010	7.488	6.25	69.65
OUTFLOW: ID= 1 (0020)	32.010	2.866	6.42	69.64

PEAK FLOW REDUCTION [Qout/Qin](%)= 38.28
TIME SHIFT OF PEAK FLOW (min)= 10.00
MAXIMUM STORAGE USED (ha.m.)= 0.8801

CALIB				
STANDHYD (0203)	Area	(ha)=	89.62	
ID= 1 DT= 5.0 min	Total Imp(%)=	61.00	Dir. Conn.(%)=	44.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)= 54.67	34.95
Dep. Storage	(mm)= 5.00	5.00
Average Slope	(%)= 2.00	3.00
Length	(m)= 772.96	40.00
Mannings n	= 0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.84	6.250	125.05	9.33	3.32
0.167	0.00	3.250	2.84	6.333	17.05	9.42	3.32
0.250	0.00	3.333	3.79	6.417	17.05	9.50	3.32
0.333	2.37	3.417	3.79	6.500	17.05	9.58	3.32
0.417	2.37	3.500	3.79	6.583	17.05	9.67	3.32
0.500	2.37	3.583	3.79	6.667	17.05	9.75	3.32
0.583	2.37	3.667	3.79	6.750	17.05	9.83	3.32
0.667	2.37	3.750	3.79	6.833	7.58	9.92	3.32
0.750	2.37	3.833	3.79	6.917	7.58	10.00	3.32
0.833	2.37	3.917	3.79	7.000	7.58	10.08	3.32
0.917	2.37	4.000	3.79	7.083	7.58	10.17	3.32
1.000	2.37	4.083	3.79	7.167	7.58	10.25	3.32
1.083	2.37	4.167	3.79	7.250	7.58	10.33	1.89
1.167	2.37	4.250	3.79	7.333	5.68	10.42	1.89
1.250	2.37	4.333	5.68	7.417	5.68	10.50	1.89
1.333	2.37	4.417	5.68	7.500	5.68	10.58	1.89
1.417	2.37	4.500	5.68	7.583	5.68	10.67	1.89
1.500	2.37	4.583	5.68	7.667	5.68	10.75	1.89
1.583	2.37	4.667	5.68	7.750	5.68	10.83	1.89
1.667	2.37	4.750	5.68	7.833	5.68	10.92	1.89
1.750	2.37	4.833	7.58	7.917	5.68	11.00	1.89
1.833	2.37	4.917	7.58	8.000	5.68	11.08	1.89
1.917	2.37	5.000	7.58	8.083	5.68	11.17	1.89
2.000	2.37	5.083	7.58	8.167	5.68	11.25	1.89
2.083	2.37	5.167	7.58	8.250	5.68	11.33	1.89
2.167	2.37	5.250	7.58	8.333	3.32	11.42	1.89
2.250	2.37	5.333	11.37	8.417	3.32	11.50	1.89
2.333	2.84	5.417	11.37	8.500	3.32	11.58	1.89
2.417	2.84	5.500	11.37	8.583	3.32	11.67	1.89
2.500	2.84	5.583	11.37	8.667	3.32	11.75	1.89
2.583	2.84	5.667	11.37	8.750	3.32	11.83	1.89
2.667	2.84	5.750	11.37	8.833	3.32	11.92	1.89
2.750	2.84	5.833	45.48	8.917	3.32	12.00	1.89
2.833	2.84	5.917	45.48	9.000	3.32	12.08	1.89
2.917	2.84	6.000	45.48	9.083	3.32	12.17	1.89
3.000	2.84	6.083	125.06	9.167	3.32	12.25	1.89
3.083	2.84	6.167	125.06	9.250	3.32		

Max.Eff.Inten.(mm/hr)=	125.06		61.65
over (min)	5.00		15.00
Storage Coeff. (min)=	3.84 (ii)		12.41 (ii)
Unit Hyd. Tpeak (min)=	5.00		15.00
Unit Hyd. peak (cms)=	0.25		0.08
		TOTALS	
PEAK FLOW (cms)=	1.35	0.41	1.707 (iii)
TIME TO PEAK (hrs)=	6.25	6.33	6.25
RUNOFF VOLUME (mm)=	89.74	37.48	63.61
TOTAL RAINFALL (mm)=	94.74	94.74	94.74
RUNOFF COEFFICIENT =	0.95	0.40	0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 67.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0300)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0003):	7.88	1.707	6.25	63.61
+ ID2= 2 (0203):	89.62	18.568	6.25	65.63
ID = 3 (0300):	97.50	20.274	6.25	65.47

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0030)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW	STORAGE	OUTFLOW	STORAGE
	(cms)	(ha.m.)	(cms)	(ha.m.)
	0.0000	0.0000	2.7700	2.8400
	0.8200	1.4400	3.2200	3.1300
	1.3700	1.8900	5.2900	4.3700
	1.7800	2.1800	6.1500	5.4900
	2.3300	2.5500	0.0000	0.0000

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0300)	97.500	20.274	6.25	65.47
OUTFLOW: ID= 1 (0030)	97.500	3.831	6.83	65.46

PEAK FLOW REDUCTION [Qout/Qin](%)= 18.90
TIME SHIFT OF PEAK FLOW (min)= 35.00
MAXIMUM STORAGE USED (ha.m.)= 3.4968

Storage Coeff. (min)= 5.62 (ii) 12.72 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.20 0.08

		TOTALS
PEAK FLOW	(cms)= 5.30	1.52 6.623 (iii)
TIME TO PEAK	(hrs)= 6.25	6.33 6.25
RUNOFF VOLUME	(mm)= 89.74	44.99 70.50
TOTAL RAINFALL	(mm)= 94.74	94.74 94.74
RUNOFF COEFFICIENT	= 0.95	0.47 0.74

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 67.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
STANDHYD (0002)	Area	(ha)=	3.95	
ID= 1 DT= 5.0 min	Total Imp(%)=	50.00	Dir. Conn.(%)=	50.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)= 1.98	1.98
Dep. Storage	(mm)= 5.00	5.00
Average Slope	(%)= 1.00	2.00
Length	(m)= 162.28	40.00
Mannings n	= 0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.84	6.250	125.05	9.33	3.32
0.167	0.00	3.250	2.84	6.333	17.05	9.42	3.32
0.250	0.00	3.333	3.79	6.417	17.05	9.50	3.32
0.333	2.37	3.417	3.79	6.500	17.05	9.58	3.32
0.417	2.37	3.500	3.79	6.583	17.05	9.67	3.32
0.500	2.37	3.583	3.79	6.667	17.05	9.75	3.32
0.583	2.37	3.667	3.79	6.750	17.05	9.83	3.32
0.667	2.37	3.750	3.79	6.833	7.58	9.92	3.32
0.750	2.37	3.833	3.79	6.917	7.58	10.00	3.32
0.833	2.37	3.917	3.79	7.000	7.58	10.08	3.32
0.917	2.37	4.000	3.79	7.083	7.58	10.17	3.32
1.000	2.37	4.083	3.79	7.167	7.58	10.25	3.32
1.083	2.37	4.167	3.79	7.250	7.58	10.33	1.89
1.167	2.37	4.250	3.79	7.333	5.68	10.42	1.89

Max.Eff.Inten.(mm/hr)=	125.06		109.17
over (min)	5.00		15.00
Storage Coeff. (min)=	6.47 (ii)		12.51 (ii)
Unit Hyd. Tpeak (min)=	5.00		15.00
Unit Hyd. peak (cms)=	0.18		0.08
		TOTALS	
PEAK FLOW (cms)=	12.80	6.60	18.568 (iii)
TIME TO PEAK (hrs)=	6.25	6.33	6.25
RUNOFF VOLUME (mm)=	89.74	46.69	65.63
TOTAL RAINFALL (mm)=	94.74	94.74	94.74
RUNOFF COEFFICIENT =	0.95	0.49	0.69

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 67.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.

```
       V     V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V     V   I   SS      U   U   A A   L
        V   V    I    SS     U   U  AAAAA  L
         V V     I     SS    U   U  A   A  L
          V      I   SSSSS   UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M M M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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```

***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\33f67c1b-cfc4-41ec-902a-dfee9f8c4deb\sc

Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\33f67c1b-cfc4-41ec-902a-dfee9f8c4deb\sc

DATE: 11-27-2024 TIME: 08:52:05

USER:

COMMENTS: _____

```
**********************************************
** SIMULATION : 2E - 50yr 12hr 15min SCS Type **
**********************************************
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|    READ STORM    |    Filename: C:\Users\jfletcher\AppD
|                  |              ata\Local\Temp\
|                  |              f7771102-1e26-4a23-9fad-5d61ceae4d2b\57dab586
| Ptotal=104.44 mm |    Comments: 50yr 12hr 15min SCS Type II (MTO)
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TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	3.25	4.18	6.50	18.80	9.75	3.66
0.25	2.61	3.50	4.18	6.75	8.36	10.00	3.66
0.50	2.61	3.75	4.18	7.00	8.36	10.25	2.09
0.75	2.61	4.00	4.18	7.25	6.27	10.50	2.09
1.00	2.61	4.25	6.27	7.50	6.27	10.75	2.09
1.25	2.61	4.50	6.27	7.75	6.27	11.00	2.09
1.50	2.61	4.75	8.36	8.00	6.27	11.25	2.09
1.75	2.61	5.00	8.36	8.25	3.66	11.50	2.09
2.00	2.61	5.25	12.53	8.50	3.66	11.75	2.09
2.25	3.13	5.50	12.53	8.75	3.66	12.00	2.09
2.50	3.13	5.75	50.13	9.00	3.66		
2.75	3.13	6.00	137.86	9.25	3.66		
3.00	3.13	6.25	18.80	9.50	3.66		

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| CALIB             |
| STANDHYD (  0201)|   Area    (ha)=  30.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=  55.00
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	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	23.81	6.71
Dep. Storage (mm)=	5.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	451.07	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.13	6.250	137.86	9.33	3.66
0.167	0.00	3.250	3.13	6.333	18.80	9.42	3.66
0.250	0.00	3.333	4.18	6.417	18.80	9.50	3.66
0.333	2.61	3.417	4.18	6.500	18.80	9.58	3.66
0.417	2.61	3.500	4.18	6.583	18.80	9.67	3.66
0.500	2.61	3.583	4.18	6.667	18.80	9.75	3.66
0.583	2.61	3.667	4.18	6.750	18.80	9.83	3.66
0.667	2.61	3.750	4.18	6.833	8.36	9.92	3.66
0.750	2.61	3.833	4.18	6.917	8.36	10.00	3.66
0.833	2.61	3.917	4.18	7.000	8.36	10.08	3.66
0.917	2.61	4.000	4.18	7.083	8.36	10.17	3.66
1.000	2.61	4.083	4.18	7.167	8.36	10.25	3.66
1.083	2.61	4.167	4.18	7.250	8.36	10.33	2.09
1.167	2.61	4.250	4.18	7.333	6.27	10.42	2.09
1.250	2.61	4.333	6.27	7.417	6.27	10.50	2.09
1.333	2.61	4.417	6.27	7.500	6.27	10.58	2.09
1.417	2.61	4.500	6.27	7.583	6.27	10.67	2.09
1.500	2.61	4.583	6.27	7.667	6.27	10.75	2.09
1.583	2.61	4.667	6.27	7.750	6.27	10.83	2.09
1.667	2.61	4.750	6.27	7.833	6.27	10.92	2.09
1.750	2.61	4.833	8.36	7.917	6.27	11.00	2.09
1.833	2.61	4.917	8.36	8.000	6.27	11.08	2.09
1.917	2.61	5.000	8.36	8.083	6.27	11.17	2.09
2.000	2.61	5.083	8.36	8.167	6.27	11.25	2.09
2.083	2.61	5.167	8.36	8.250	6.27	11.33	2.09
2.167	2.61	5.250	8.36	8.333	3.66	11.42	2.09
2.250	2.61	5.333	12.53	8.417	3.66	11.50	2.09
2.333	3.13	5.417	12.53	8.500	3.66	11.58	2.09
2.417	3.13	5.500	12.53	8.583	3.66	11.67	2.09
2.500	3.13	5.583	12.53	8.667	3.66	11.75	2.09
2.583	3.13	5.667	12.53	8.750	3.66	11.83	2.09
2.667	3.13	5.750	12.53	8.833	3.66	11.92	2.09
2.750	3.13	5.833	50.13	8.917	3.66	12.00	2.09
2.833	3.13	5.917	50.13	9.000	3.66	12.08	2.09
2.917	3.13	6.000	50.13	9.083	3.66	12.17	2.09
3.000	3.13	6.083	137.86	9.167	3.66	12.25	2.09
3.083	3.13	6.167	137.86	9.250	3.66		

Max.Eff.Inten.(mm/hr)=	137.86	72.26	
over (min)	5.00	15.00	
Storage Coeff. (min)=	3.06 (ii)	11.10 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.27	0.09	
			TOTALS
PEAK FLOW (cms)=	0.80	0.27	1.039 (iii)
TIME TO PEAK (hrs)=	6.25	6.33	6.25
RUNOFF VOLUME (mm)=	99.44	44.04	71.74
TOTAL RAINFALL (mm)=	104.44	104.44	104.44
RUNOFF COEFFICIENT =	0.95	0.42	0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 67.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD  (  0100)|
|  1 +  2 =  3     |        AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):     4.21   1.039     6.25    71.74
     + ID2= 2 (  0201):    30.52   9.008     6.25    83.38
       ================================================
       ID = 3 (  0100):    34.73  10.048     6.25    81.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.98	1.98
Dep. Storage (mm)=	5.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	162.28	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.13	6.250	137.86	9.33	3.66
0.167	0.00	3.250	3.13	6.333	18.80	9.42	3.66
0.250	0.00	3.333	4.18	6.417	18.80	9.50	3.66
0.333	2.61	3.417	4.18	6.500	18.80	9.58	3.66
0.417	2.61	3.500	4.18	6.583	18.80	9.67	3.66
0.500	2.61	3.583	4.18	6.667	18.80	9.75	3.66
0.583	2.61	3.667	4.18	6.750	18.80	9.83	3.66
0.667	2.61	3.750	4.18	6.833	8.36	9.92	3.66
0.750	2.61	3.833	4.18	6.917	8.36	10.00	3.66
0.833	2.61	3.917	4.18	7.000	8.36	10.08	3.66
0.917	2.61	4.000	4.18	7.083	8.36	10.17	3.66
1.000	2.61	4.083	4.18	7.167	8.36	10.25	3.66
1.083	2.61	4.167	4.18	7.250	8.36	10.33	2.09
1.167	2.61	4.250	4.18	7.333	6.27	10.42	2.09
1.250	2.61	4.333	6.27	7.417	6.27	10.50	2.09
1.333	2.61	4.417	6.27	7.500	6.27	10.58	2.09
1.417	2.61	4.500	6.27	7.583	6.27	10.67	2.09
1.500	2.61	4.583	6.27	7.667	6.27	10.75	2.09
1.583	2.61	4.667	6.27	7.750	6.27	10.83	2.09
1.667	2.61	4.750	6.27	7.833	6.27	10.92	2.09
1.750	2.61	4.833	8.36	7.917	6.27	11.00	2.09
1.833	2.61	4.917	8.36	8.000	6.27	11.08	2.09
1.917	2.61	5.000	8.36	8.083	6.27	11.17	2.09
2.000	2.61	5.083	8.36	8.167	6.27	11.25	2.09
2.083	2.61	5.167	8.36	8.250	6.27	11.33	2.09
2.167	2.61	5.250	8.36	8.333	3.66	11.42	2.09
2.250	2.61	5.333	12.53	8.417	3.66	11.50	2.09
2.333	3.13	5.417	12.53	8.500	3.66	11.58	2.09
2.417	3.13	5.500	12.53	8.583	3.66	11.67	2.09
2.500	3.13	5.583	12.53	8.667	3.66	11.75	2.09
2.583	3.13	5.667	12.53	8.750	3.66	11.83	2.09
2.667	3.13	5.750	12.53	8.833	3.66	11.92	2.09
2.750	3.13	5.833	50.13	8.917	3.66	12.00	2.09
2.833	3.13	5.917	50.13	9.000	3.66	12.08	2.09
2.917	3.13	6.000	50.13	9.083	3.66	12.17	2.09
3.000	3.13	6.083	137.86	9.167	3.66	12.25	2.09

RUNOFF COEFFICIENT =	0.95	0.61	0.80

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 67.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD (  0001)|   Area    (ha)=  4.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
-------------------
```

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	2.11	2.11
Dep. Storage (mm)=	5.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	167.53	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.13	6.250	137.86	9.33	3.66
0.167	0.00	3.250	3.13	6.333	18.80	9.42	3.66
0.250	0.00	3.333	4.18	6.417	18.80	9.50	3.66
0.333	2.61	3.417	4.18	6.500	18.80	9.58	3.66
0.417	2.61	3.500	4.18	6.583	18.80	9.67	3.66
0.500	2.61	3.583	4.18	6.667	18.80	9.75	3.66
0.583	2.61	3.667	4.18	6.750	18.80	9.83	3.66
0.667	2.61	3.750	4.18	6.833	8.36	9.92	3.66
0.750	2.61	3.833	4.18	6.917	8.36	10.00	3.66
0.833	2.61	3.917	4.18	7.000	8.36	10.08	3.66
0.917	2.61	4.000	4.18	7.083	8.36	10.17	3.66
1.000	2.61	4.083	4.18	7.167	8.36	10.25	3.66
1.083	2.61	4.167	4.18	7.250	8.36	10.33	2.09
1.167	2.61	4.250	4.18	7.333	6.27	10.42	2.09
1.250	2.61	4.333	6.27	7.417	6.27	10.50	2.09
1.333	2.61	4.417	6.27	7.500	6.27	10.58	2.09
1.417	2.61	4.500	6.27	7.583	6.27	10.67	2.09
1.500	2.61	4.583	6.27	7.667	6.27	10.75	2.09
1.583	2.61	4.667	6.27	7.750	6.27	10.83	2.09
1.667	2.61	4.750	6.27	7.833	6.27	10.92	2.09
1.750	2.61	4.833	8.36	7.917	6.27	11.00	2.09
1.833	2.61	4.917	8.36	8.000	6.27	11.08	2.09

```
| RESERVOIR(  0010)|    OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT= 5.0 min      |    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |  (cms)     (ha.m.)
                         0.0000    0.0000    |  1.0900    1.0400
                         0.3100    0.5460    |  1.2700    1.1400
                         0.5250    0.7030    |  2.1100    1.5700
                         0.6900    0.8068    |  2.4450    2.0600
                         0.9000    0.9400    |  0.0000    0.0000

                                    AREA     QPEAK     TPEAK      R.V.
                                    (ha)     (cms)     (hrs)      (mm)
  INFLOW : ID= 2 (  0100)     34.730    10.048      6.25      81.97
  OUTFLOW: ID= 1 (  0010)     34.730     2.036      6.67      81.96

                          PEAK   FLOW   REDUCTION [Qout/Qin](%)= 20.26
                          TIME SHIFT OF PEAK FLOW       (min)= 25.00
                          MAXIMUM  STORAGE   USED      (ha.m.)=  1.5321
```

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-------------------
| CALIB             |
| STANDHYD (  0202)|   Area    (ha)=  28.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  57.00
-------------------
```

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	19.08	8.98
Dep. Storage (mm)=	5.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	432.51	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.13	6.250	137.86	9.33	3.66
0.167	0.00	3.250	3.13	6.333	18.80	9.42	3.66
0.250	0.00	3.333	4.18	6.417	18.80	9.50	3.66
0.333	2.61	3.417	4.18	6.500	18.80	9.58	3.66
0.417	2.61	3.500	4.18	6.583	18.80	9.67	3.66
0.500	2.61	3.583	4.18	6.667	18.80	9.75	3.66
0.583	2.61	3.667	4.18	6.750	18.80	9.83	3.66
0.667	2.61	3.750	4.18	6.833	8.36	9.92	3.66
0.750	2.61	3.833	4.18	6.917	8.36	10.00	3.66
0.833	2.61	3.917	4.18	7.000	8.36	10.08	3.66
0.917	2.61	4.000	4.18	7.083	8.36	10.17	3.66
1.000	2.61	4.083	4.18	7.167	8.36	10.25	3.66
1.083	2.61	4.167	4.18	7.250	8.36	10.33	2.09
1.167	2.61	4.250	4.18	7.333	6.27	10.42	2.09
1.250	2.61	4.333	6.27	7.417	6.27	10.50	2.09
1.333	2.61	4.417	6.27	7.500	6.27	10.58	2.09
1.417	2.61	4.500	6.27	7.583	6.27	10.67	2.09
1.500	2.61	4.583	6.27	7.667	6.27	10.75	2.09
1.583	2.61	4.667	6.27	7.750	6.27	10.83	2.09
1.667	2.61	4.750	6.27	7.833	6.27	10.92	2.09
1.750	2.61	4.833	8.36	7.917	6.27	11.00	2.09
1.833	2.61	4.917	8.36	8.000	6.27	11.08	2.09
1.917	2.61	5.000	8.36	8.083	6.27	11.17	2.09
2.000	2.61	5.083	8.36	8.167	6.27	11.25	2.09
2.083	2.61	5.167	8.36	8.250	6.27	11.33	2.09
2.167	2.61	5.250	8.36	8.333	3.66	11.42	2.09
2.250	2.61	5.333	12.53	8.417	3.66	11.50	2.09
2.333	3.13	5.417	12.53	8.500	3.66	11.58	2.09
2.417	3.13	5.500	12.53	8.583	3.66	11.67	2.09
2.500	3.13	5.583	12.53	8.667	3.66	11.75	2.09
2.583	3.13	5.667	12.53	8.750	3.66	11.83	2.09
2.667	3.13	5.750	12.53	8.833	3.66	11.92	2.09
2.750	3.13	5.833	50.13	8.917	3.66	12.00	2.09
2.833	3.13	5.917	50.13	9.000	3.66	12.08	2.09
2.917	3.13	6.000	50.13	9.083	3.66	12.17	2.09
3.000	3.13	6.083	137.86	9.167	3.66	12.25	2.09
3.083	3.13	6.167	137.86	9.250	3.66		

Max.Eff.Inten.(mm/hr)=	137.86	114.42	
over (min)	5.00	15.00	
Storage Coeff. (min)=	5.41 (ii)	10.34 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.20	0.09	
			TOTALS
PEAK FLOW (cms)=	5.87	1.91	7.571 (iii)
TIME TO PEAK (hrs)=	6.25	6.33	6.25
RUNOFF VOLUME (mm)=	99.44	52.34	79.19
TOTAL RAINFALL (mm)=	104.44	104.44	104.44
RUNOFF COEFFICIENT =	0.95	0.50	0.76

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 67.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-------------------
| CALIB             |
| STANDHYD (  0002)|   Area    (ha)=  3.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
-------------------
```

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	54.67	34.95
Dep. Storage (mm)=	5.00	5.00
Average Slope (%)=	2.00	3.00
Length (m)=	772.96	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.13	6.250	137.86	9.33	3.66
0.167	0.00	3.250	3.13	6.333	18.80	9.42	3.66
0.250	0.00	3.333	4.18	6.417	18.80	9.50	3.66
0.333	2.61	3.417	4.18	6.500	18.80	9.58	3.66
0.417	2.61	3.500	4.18	6.583	18.80	9.67	3.66
0.500	2.61	3.583	4.18	6.667	18.80	9.75	3.66
0.583	2.61	3.667	4.18	6.750	18.80	9.83	3.66
0.667	2.61	3.750	4.18	6.833	8.36	9.92	3.66
0.750	2.61	3.833	4.18	6.917	8.36	10.00	3.66
0.833	2.61	3.917	4.18	7.000	8.36	10.08	3.66
0.917	2.61	4.000	4.18	7.083	8.36	10.17	3.66
1.000	2.61	4.083	4.18	7.167	8.36	10.25	3.66
1.083	2.61	4.167	4.18	7.250	8.36	10.33	2.09
1.167	2.61	4.250	4.18	7.333	6.27	10.42	2.09
1.250	2.61	4.333	6.27	7.417	6.27	10.50	2.09
1.333	2.61	4.417	6.27	7.500	6.27	10.58	2.09
1.417	2.61	4.500	6.27	7.583	6.27	10.67	2.09
1.500	2.61	4.583	6.27	7.667	6.27	10.75	2.09
1.583	2.61	4.667	6.27	7.750	6.27	10.83	2.09
1.667	2.61	4.750	6.27	7.833	6.27	10.92	2.09
1.750	2.61	4.833	8.36	7.917	6.27	11.00	2.09
1.833	2.61	4.917	8.36	8.000	6.27	11.08	2.09
1.917	2.61	5.000	8.36	8.083	6.27	11.17	2.09
2.000	2.61	5.083	8.36	8.167	6.27	11.25	2.09
2.083	2.61	5.167	8.36	8.250	6.27	11.33	2.09
2.167	2.61	5.250	8.36	8.333	3.66	11.42	2.09
2.250	2.61	5.333	12.53	8.417	3.66	11.50	2.09

```
| RESERVOIR(  0020)|    OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |  (cms)     (ha.m.)
                         0.0000    0.0000    |  0.8250    0.6819
                         0.6400    0.3757    |  2.1650    0.7600
                         1.0700    0.4858    |  4.0750    1.0700
                         1.3800    0.5709    |  4.7000    1.7300

                                    AREA     QPEAK     TPEAK      R.V.
                                    (ha)     (cms)     (hrs)      (mm)
  INFLOW : ID= 2 (  0200)     32.010     8.547      6.25      78.27
  OUTFLOW: ID= 1 (  0020)     32.010     3.465      6.42      78.26
```

```
                          PEAK   FLOW   REDUCTION [Qout/Qin](%)= 40.54
                          TIME SHIFT OF PEAK FLOW       (min)= 10.00
                          MAXIMUM  STORAGE   USED      (ha.m.)=  0.9753
```

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-------------------
| CALIB             |
| STANDHYD (  0203)|   Area    (ha)=  89.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  61.00   Dir. Conn.(%)=  44.00
-------------------
```

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	54.67	34.95
Dep. Storage (mm)=	5.00	5.00
Average Slope (%)=	2.00	3.00
Length (m)=	772.96	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.13	6.250	137.86	9.33	3.66
0.167	0.00	3.250	3.13	6.333	18.80	9.42	3.66
0.250	0.00	3.333	4.18	6.417	18.80	9.50	3.66
0.333	2.61	3.417	4.18	6.500	18.80	9.58	3.66
0.417	2.61	3.500	4.18	6.583	18.80	9.67	3.66
0.500	2.61	3.583	4.18	6.667	18.80	9.75	3.66
0.583	2.61	3.667	4.18	6.750	18.80	9.83	3.66
0.667	2.61	3.750	4.18	6.833	8.36	9.92	3.66
0.750	2.61	3.833	4.18	6.917	8.36	10.00	3.66
0.833	2.61	3.917	4.18	7.000	8.36	10.08	3.66
0.917	2.61	4.000	4.18	7.083	8.36	10.17	3.66
1.000	2.61	4.083	4.18	7.167	8.36	10.25	3.66
1.083	2.61	4.167	4.18	7.250	8.36	10.33	2.09
1.167	2.61	4.250	4.18	7.333	6.27	10.42	2.09
1.250	2.61	4.333	6.27	7.417	6.27	10.50	2.09
1.333	2.61	4.417	6.27	7.500	6.27	10.58	2.09
1.417	2.61	4.500	6.27	7.583	6.27	10.67	2.09
1.500	2.61	4.583	6.27	7.667	6.27	10.75	2.09
1.583	2.61	4.667	6.27	7.750	6.27	10.83	2.09
1.667	2.61	4.750	6.27	7.833	6.27	10.92	2.09
1.750	2.61	4.833	8.36	7.917	6.27	11.00	2.09
1.833	2.61	4.917	8.36	8.000	6.27	11.08	2.09
1.917	2.61	5.000	8.36	8.083	6.27	11.17	2.09
2.000	2.61	5.083	8.36	8.167	6.27	11.25	2.09
2.083	2.61	5.167	8.36	8.250	6.27	11.33	2.09
2.167	2.61	5.250	8.36	8.333	3.66	11.42	2.09
2.250	2.61	5.333	12.53	8.417	3.66	11.50	2.09

```
              2.333    3.13 | 5.417   12.53 | 8.500    3.66 | 11.58    2.09
              2.417    3.13 | 5.500   12.53 | 8.583    3.66 | 11.67    2.09
              2.500    3.13 | 5.583   12.53 | 8.667    3.66 | 11.75    2.09
              2.583    3.13 | 5.667   12.53 | 8.750    3.66 | 11.83    2.09
              2.667    3.13 | 5.750   12.53 | 8.833    3.66 | 11.92    2.09
              2.750    3.13 | 5.833   50.13 | 8.917    3.66 | 12.00    2.09
              2.833    3.13 | 5.917   50.13 | 9.000    3.66 | 12.08    2.09
              2.917    3.13 | 6.000   50.13 | 9.083    3.66 | 12.17    2.09
              3.000    3.13 | 6.083  137.86 | 9.167    3.66 | 12.25    2.09
              3.083    3.13 | 6.167  137.86 | 9.250    3.66 |

     Max.Eff.Inten.(mm/hr)=     137.86       126.29
               over (min)        5.00        15.00
     Storage Coeff.  (min)=     6.23 (ii)   11.92 (ii)
     Unit Hyd. Tpeak (min)=     5.00        15.00
     Unit Hyd. peak  (cms)=     0.19         0.09
                                                    *TOTALS*
     PEAK FLOW       (cms)=     14.20         7.82          21.087 (iii)
     TIME TO PEAK    (hrs)=      6.25         6.33           6.25
     RUNOFF VOLUME    (mm)=     99.44        54.19          74.10
     TOTAL RAINFALL   (mm)=    104.44       104.44         104.44
     RUNOFF COEFFICIENT   =      0.95         0.52           0.71


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0003)|   Area    (ha)=  7.88
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      3.94         3.94
     Dep. Storage     (mm)=      5.00         5.00
     Average Slope    (%)=       1.00         2.00
     Length           (m)=     229.20        40.00
     Mannings n             =    0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.083    0.00 | 3.167    3.13 | 6.250  137.86 |  9.33    3.66
```

```
     0.167    0.00 | 3.250    3.13 | 6.333   18.80 |  9.42    3.66
     0.250    0.00 | 3.333    4.18 | 6.417   18.80 |  9.50    3.66
     0.333    2.61 | 3.417    4.18 | 6.500   18.80 |  9.58    3.66
     0.417    2.61 | 3.500    4.18 | 6.583   18.80 |  9.67    3.66
     0.500    2.61 | 3.583    4.18 | 6.667   18.80 |  9.75    3.66
     0.583    2.61 | 3.667    4.18 | 6.750   18.80 |  9.83    3.66
     0.667    2.61 | 3.750    4.18 | 6.833    8.36 |  9.92    3.66
     0.750    2.61 | 3.833    4.18 | 6.917    8.36 | 10.00    3.66
     0.833    2.61 | 3.917    4.18 | 7.000    8.36 | 10.08    3.66
     0.917    2.61 | 4.000    4.18 | 7.083    8.36 | 10.17    3.66
     1.000    2.61 | 4.083    4.18 | 7.167    8.36 | 10.25    3.66
     1.083    2.61 | 4.167    4.18 | 7.250    8.36 | 10.33    2.09
     1.167    2.61 | 4.250    4.18 | 7.333    6.27 | 10.42    2.09
     1.250    2.61 | 4.333    6.27 | 7.417    6.27 | 10.50    2.09
     1.333    2.61 | 4.417    6.27 | 7.500    6.27 | 10.58    2.09
     1.417    2.61 | 4.500    6.27 | 7.583    6.27 | 10.67    2.09
     1.500    2.61 | 4.583    6.27 | 7.667    6.27 | 10.75    2.09
     1.583    2.61 | 4.667    6.27 | 7.750    6.27 | 10.83    2.09
     1.667    2.61 | 4.750    6.27 | 7.833    6.27 | 10.92    2.09
     1.750    2.61 | 4.833    8.36 | 7.917    6.27 | 11.00    2.09
     1.833    2.61 | 4.917    8.36 | 8.000    6.27 | 11.08    2.09
     1.917    2.61 | 5.000    8.36 | 8.083    6.27 | 11.17    2.09
     2.000    2.61 | 5.083    8.36 | 8.167    6.27 | 11.25    2.09
     2.083    2.61 | 5.167    8.36 | 8.250    6.27 | 11.33    2.09
     2.167    2.61 | 5.250    8.36 | 8.333    3.66 | 11.42    2.09
     2.250    2.61 | 5.333   12.53 | 8.417    3.66 | 11.50    2.09
     2.333    3.13 | 5.417   12.53 | 8.500    3.66 | 11.58    2.09
     2.417    3.13 | 5.500   12.53 | 8.583    3.66 | 11.67    2.09
     2.500    3.13 | 5.583   12.53 | 8.667    3.66 | 11.75    2.09
     2.583    3.13 | 5.667   12.53 | 8.750    3.66 | 11.83    2.09
     2.667    3.13 | 5.750   12.53 | 8.833    3.66 | 11.92    2.09
     2.750    3.13 | 5.833   50.13 | 8.917    3.66 | 12.00    2.09
     2.833    3.13 | 5.917   50.13 | 9.000    3.66 | 12.08    2.09
     2.917    3.13 | 6.000   50.13 | 9.083    3.66 | 12.17    2.09
     3.000    3.13 | 6.083  137.86 | 9.167    3.66 | 12.25    2.09
     3.083    3.13 | 6.167  137.86 | 9.250    3.66 |

     Max.Eff.Inten.(mm/hr)=     137.86       72.26
               over (min)        5.00       15.00
     Storage Coeff.  (min)=     3.70 (ii)  11.73 (ii)
     Unit Hyd. Tpeak (min)=     5.00       15.00
     Unit Hyd. peak  (cms)=     0.25        0.09
                                                   *TOTALS*
     PEAK FLOW       (cms)=      1.49        0.50          1.924 (iii)
     TIME TO PEAK    (hrs)=      6.25        6.33          6.25
     RUNOFF VOLUME    (mm)=     99.44       44.04         71.74
     TOTAL RAINFALL   (mm)=    104.44      104.44        104.44
     RUNOFF COEFFICIENT   =      0.95        0.42          0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
```

```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0300)|
|  1 +  2 =  3     |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (  0203):    89.62  21.087     6.25    74.10
      + ID2= 2 (  0003):     7.88   1.924     6.25    71.74
        ========================================================
        ID = 3 (  0300):    97.50  23.012     6.25    73.91

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0030)|    OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |      OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------        (cms)     (ha.m.)  |    (cms)     (ha.m.)
                            0.0000    0.0000   |   2.7700     2.8400
                            0.8200    1.4400   |   3.2200     3.1300
                            1.3700    1.8900   |   5.2900     4.3700
                            1.7800    2.1800   |   6.1500     5.4900
                            2.3300    2.5500   |   0.0000     0.0000

                                 AREA     QPEAK     TPEAK      R.V.
                                  (ha)     (cms)     (hrs)      (mm)
       INFLOW : ID= 2 (  0300)    97.500    23.012     6.25      73.91
      OUTFLOW: ID= 1 (  0030)     97.500     4.513     6.83      73.90

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 19.61
                   TIME SHIFT OF PEAK FLOW          (min)= 35.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  3.9092

------------------------------------------------------------------------------
==============================================================================
=========================

     V    V   I    SSSSS  U   U    A    L                (v 6.2.2015)
     V    V   I    SS     U   U   A A   L
      V  V    I      SS   U   U  AAAAA  L
       V  V   I       SS  U   U  A   A  L
        VV    I    SSSSS  UUUUU  A   A  LLLLL
```

```
        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M M M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                *****  D E T A I L E D    O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
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C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\bd
5664fd-b24f-424b-8179-e074037a8293\sc


DATE: 11-27-2024                          TIME: 08:52:05

USER:


COMMENTS: _____

------------------------------------------------------------------------------
-------------------------------------------------
  **********************************************
  ** SIMULATION : 2F - 100yr 12hr 15min SCS Typ **
  **********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jfletcher\AppD
|                  |              ata\Local\Temp\
|                  |              f7771102-1e26-4a23-9fad-5d61ceae4d2b\40cdb64a
| Ptotal=114.16 mm |   Comments: 100yr 12hr 15min SCS Type II (MTO)
--------------------
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.00    0.00 |  3.25    4.57 |  6.50   20.55 |  9.75    4.00
     0.25    2.85 |  3.50    4.57 |  6.75    9.13 | 10.00    4.00
     0.50    2.85 |  3.75    4.57 |  7.00    9.13 | 10.25    2.28
     0.75    2.85 |  4.00    4.57 |  7.25    6.85 | 10.50    2.28
```

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     1.00    2.85 |  4.25    6.85 |  7.50    6.85 | 10.75    2.28
     1.25    2.85 |  4.50    6.85 |  7.75    6.85 | 11.00    2.28
     1.50    2.85 |  4.75    9.13 |  8.00    6.85 | 11.25    2.28
     1.75    2.85 |  5.00    9.13 |  8.25    4.00 | 11.50    2.28
     2.00    2.85 |  5.25   13.70 |  8.50    4.00 | 11.75    2.28
     2.25    3.42 |  5.50   13.70 |  8.75    4.00 | 12.00    2.28
     2.50    3.42 |  5.75   54.80 |  9.00    4.00 |
     2.75    3.42 |  6.00  150.69 |  9.25    4.00 |
     3.00    3.42 |  6.25   20.55 |  9.50    4.00 |

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--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=  30.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=  55.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     23.81         6.71
     Dep. Storage     (mm)=      5.00         5.00
     Average Slope    (%)=       1.00         2.00
     Length           (m)=     451.07        40.00
     Mannings n             =    0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.083    0.00 | 3.167    3.42 | 6.250  150.69 |  9.33    4.00
     0.167    0.00 | 3.250    3.42 | 6.333   20.55 |  9.42    4.00
     0.250    0.00 | 3.333    4.57 | 6.417   20.55 |  9.50    4.00
     0.333    2.85 | 3.417    4.57 | 6.500   20.55 |  9.58    4.00
     0.417    2.85 | 3.500    4.57 | 6.583   20.55 |  9.67    4.00
     0.500    2.85 | 3.583    4.57 | 6.667   20.55 |  9.75    4.00
     0.583    2.85 | 3.667    4.57 | 6.750   20.55 |  9.83    4.00
     0.667    2.85 | 3.750    4.57 | 6.833    9.13 |  9.92    4.00
     0.750    2.85 | 3.833    4.57 | 6.917    9.13 | 10.00    4.00
     0.833    2.85 | 3.917    4.57 | 7.000    9.13 | 10.08    4.00
     0.917    2.85 | 4.000    4.57 | 7.083    9.13 | 10.17    4.00
     1.000    2.85 | 4.083    4.57 | 7.167    9.13 | 10.25    4.00
     1.083    2.85 | 4.167    4.57 | 7.250    9.13 | 10.33    2.28
     1.167    2.85 | 4.250    4.57 | 7.333    6.85 | 10.42    2.28
     1.250    2.85 | 4.333    6.85 | 7.417    6.85 | 10.50    2.28
     1.333    2.85 | 4.417    6.85 | 7.500    6.85 | 10.58    2.28
     1.417    2.85 | 4.500    6.85 | 7.583    6.85 | 10.67    2.28
     1.500    2.85 | 4.583    6.85 | 7.667    6.85 | 10.75    2.28
     1.583    2.85 | 4.667    6.85 | 7.750    6.85 | 10.83    2.28
     1.667    2.85 | 4.750    6.85 | 7.833    6.85 | 10.92    2.28
     1.750    2.85 | 4.833    9.13 | 7.917    6.85 | 11.00    2.28
     1.833    2.85 | 4.917    9.13 | 8.000    6.85 | 11.08    2.28
     1.917    2.85 | 5.000    9.13 | 8.083    6.85 | 11.17    2.28
     2.000    2.85 | 5.083    9.13 | 8.167    6.85 | 11.25    2.28
     2.083    2.85 | 5.167    9.13 | 8.250    6.85 | 11.33    2.28
     2.167    2.85 | 5.250    9.13 | 8.333    4.00 | 11.42    2.28
     2.250    2.85 | 5.333   13.70 | 8.417    4.00 | 11.50    2.28
     2.333    3.42 | 5.417   13.70 | 8.500    4.00 | 11.58    2.28
     2.417    3.42 | 5.500   13.70 | 8.583    4.00 | 11.67    2.28
     2.500    3.42 | 5.583   13.70 | 8.667    4.00 | 11.75    2.28
     2.583    3.42 | 5.667   13.70 | 8.750    4.00 | 11.83    2.28
     2.667    3.42 | 5.750   13.70 | 8.833    4.00 | 11.92    2.28
     2.750    3.42 | 5.833   54.80 | 8.917    4.00 | 12.00    2.28
     2.833    3.42 | 5.917   54.80 | 9.000    4.00 | 12.08    2.28
     2.917    3.42 | 6.000   54.80 | 9.083    4.00 | 12.17    2.28
     3.000    3.42 | 6.083  150.69 | 9.167    4.00 | 12.25    2.28
     3.083    3.42 | 6.167  150.69 | 9.250    4.00 |

     Max.Eff.Inten.(mm/hr)=     150.69       234.96
               over (min)        5.00        10.00
     Storage Coeff.  (min)=      5.35 (ii)   9.51 (ii)
     Unit Hyd. Tpeak (min)=     5.00        10.00
     Unit Hyd. peak  (cms)=     0.21         0.12
                                                   *TOTALS*
     PEAK FLOW       (cms)=      6.75         3.28         10.032 (iii)
     TIME TO PEAK    (hrs)=      6.25         6.25          6.25
     RUNOFF VOLUME    (mm)=    109.16        72.19         92.52
     TOTAL RAINFALL   (mm)=    114.16       114.16        114.16
     RUNOFF COEFFICIENT   =      0.96         0.63          0.81


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0001)|   Area    (ha)=  4.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      2.11         2.11
     Dep. Storage     (mm)=      5.00         5.00
     Average Slope    (%)=       1.00         2.00
     Length           (m)=     167.53        40.00
     Mannings n             =    0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.083    0.00 | 3.167    3.42 | 6.250  150.69 |  9.33    4.00
     0.167    0.00 | 3.250    3.42 | 6.333   20.55 |  9.42    4.00
     0.250    0.00 | 3.333    4.57 | 6.417   20.55 |  9.50    4.00
     0.333    2.85 | 3.417    4.57 | 6.500   20.55 |  9.58    4.00
     0.417    2.85 | 3.500    4.57 | 6.583   20.55 |  9.67    4.00
     0.500    2.85 | 3.583    4.57 | 6.667   20.55 |  9.75    4.00
     0.583    2.85 | 3.667    4.57 | 6.750   20.55 |  9.83    4.00
     0.667    2.85 | 3.750    4.57 | 6.833    9.13 |  9.92    4.00
     0.750    2.85 | 3.833    4.57 | 6.917    9.13 | 10.00    4.00
     0.833    2.85 | 3.917    4.57 | 7.000    9.13 | 10.08    4.00
     0.917    2.85 | 4.000    4.57 | 7.083    9.13 | 10.17    4.00
     1.000    2.85 | 4.083    4.57 | 7.167    9.13 | 10.25    4.00
     1.083    2.85 | 4.167    4.57 | 7.250    9.13 | 10.33    2.28
     1.167    2.85 | 4.250    4.57 | 7.333    6.85 | 10.42    2.28
     1.250    2.85 | 4.333    6.85 | 7.417    6.85 | 10.50    2.28
     1.333    2.85 | 4.417    6.85 | 7.500    6.85 | 10.58    2.28
     1.417    2.85 | 4.500    6.85 | 7.583    6.85 | 10.67    2.28
     1.500    2.85 | 4.583    6.85 | 7.667    6.85 | 10.75    2.28
     1.583    2.85 | 4.667    6.85 | 7.750    6.85 | 10.83    2.28
     1.667    2.85 | 4.750    6.85 | 7.833    6.85 | 10.92    2.28
     1.750    2.85 | 4.833    9.13 | 7.917    6.85 | 11.00    2.28
     1.833    2.85 | 4.917    9.13 | 8.000    6.85 | 11.08    2.28
     1.917    2.85 | 5.000    9.13 | 8.083    6.85 | 11.17    2.28
     2.000    2.85 | 5.083    9.13 | 8.167    6.85 | 11.25    2.28
     2.083    2.85 | 5.167    9.13 | 8.250    6.85 | 11.33    2.28
     2.167    2.85 | 5.250    9.13 | 8.333    4.00 | 11.42    2.28
     2.250    2.85 | 5.333   13.70 | 8.417    4.00 | 11.50    2.28
     2.333    3.42 | 5.417   13.70 | 8.500    4.00 | 11.58    2.28
     2.417    3.42 | 5.500   13.70 | 8.583    4.00 | 11.67    2.28
     2.500    3.42 | 5.583   13.70 | 8.667    4.00 | 11.75    2.28
     2.583    3.42 | 5.667   13.70 | 8.750    4.00 | 11.83    2.28
     2.667    3.42 | 5.750   13.70 | 8.833    4.00 | 11.92    2.28
     2.750    3.42 | 5.833   54.80 | 8.917    4.00 | 12.00    2.28
     2.833    3.42 | 5.917   54.80 | 9.000    4.00 | 12.08    2.28
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     PEAK FLOW       (cms)=      0.88         0.32          1.159 (iii)
     TIME TO PEAK    (hrs)=      6.25         6.33          6.25
     RUNOFF VOLUME    (mm)=    109.16        50.86         80.01
     TOTAL RAINFALL   (mm)=    114.16       114.16        114.16
     RUNOFF COEFFICIENT   =      0.96         0.45          0.70

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0100)|
|  1 +  2 =  3     |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (  0001):     4.21   1.159     6.25    80.01
      + ID2= 2 (  0201):    30.52  10.032     6.25    92.52
        ========================================================
        ID = 3 (  0100):    34.73  11.192     6.25    91.01

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| RESERVOIR(  0010)|    OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |      OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------        (cms)     (ha.m.)  |    (cms)     (ha.m.)
                            0.0000    0.0000   |   1.0900     1.0400
                            0.3100    0.5460   |   1.2700     1.1400
                            0.5250    0.7030   |   2.1100     1.5700
                            0.6900    0.8068   |   2.4450     2.0600
                            0.9000    0.9400   |   0.0000     0.0000

                                 AREA     QPEAK     TPEAK      R.V.
                                  (ha)     (cms)     (hrs)      (mm)
       INFLOW : ID= 2 (  0100)    34.730    11.192     6.25      91.01
      OUTFLOW: ID= 1 (  0010)     34.730     2.196     6.67      90.99

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 19.62
                   TIME SHIFT OF PEAK FLOW          (min)= 25.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  1.6956

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| CALIB            |
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| STANDHYD (  0202)|   Area    (ha)=  28.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  57.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     19.08         8.98
     Dep. Storage     (mm)=      5.00         5.00
     Average Slope    (%)=       1.00         2.00
     Length           (m)=     432.51        40.00
     Mannings n             =    0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                    ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.083    0.00 | 3.167    3.42 | 6.250  150.69 |  9.33    4.00
     0.167    0.00 | 3.250    3.42 | 6.333   20.55 |  9.42    4.00
     0.250    0.00 | 3.333    4.57 | 6.417   20.55 |  9.50    4.00
     0.333    2.85 | 3.417    4.57 | 6.500   20.55 |  9.58    4.00
     0.417    2.85 | 3.500    4.57 | 6.583   20.55 |  9.67    4.00
     0.500    2.85 | 3.583    4.57 | 6.667   20.55 |  9.75    4.00
     0.583    2.85 | 3.667    4.57 | 6.750   20.55 |  9.83    4.00
     0.667    2.85 | 3.750    4.57 | 6.833    9.13 |  9.92    4.00
     0.750    2.85 | 3.833    4.57 | 6.917    9.13 | 10.00    4.00
     0.833    2.85 | 3.917    4.57 | 7.000    9.13 | 10.08    4.00
     0.917    2.85 | 4.000    4.57 | 7.083    9.13 | 10.17    4.00
     1.000    2.85 | 4.083    4.57 | 7.167    9.13 | 10.25    4.00
     1.083    2.85 | 4.167    4.57 | 7.250    9.13 | 10.33    2.28
     1.167    2.85 | 4.250    4.57 | 7.333    6.85 | 10.42    2.28
     1.250    2.85 | 4.333    6.85 | 7.417    6.85 | 10.50    2.28
     1.333    2.85 | 4.417    6.85 | 7.500    6.85 | 10.58    2.28
     1.417    2.85 | 4.500    6.85 | 7.583    6.85 | 10.67    2.28
     1.500    2.85 | 4.583    6.85 | 7.667    6.85 | 10.75    2.28
     1.583    2.85 | 4.667    6.85 | 7.750    6.85 | 10.83    2.28
     1.667    2.85 | 4.750    6.85 | 7.833    6.85 | 10.92    2.28
     1.750    2.85 | 4.833    9.13 | 7.917    6.85 | 11.00    2.28
     1.833    2.85 | 4.917    9.13 | 8.000    6.85 | 11.08    2.28
     1.917    2.85 | 5.000    9.13 | 8.083    6.85 | 11.17    2.28
     2.000    2.85 | 5.083    9.13 | 8.167    6.85 | 11.25    2.28
     2.083    2.85 | 5.167    9.13 | 8.250    6.85 | 11.33    2.28
     2.167    2.85 | 5.250    9.13 | 8.333    4.00 | 11.42    2.28
     2.250    2.85 | 5.333   13.70 | 8.417    4.00 | 11.50    2.28
     2.333    3.42 | 5.417   13.70 | 8.500    4.00 | 11.58    2.28
     2.417    3.42 | 5.500   13.70 | 8.583    4.00 | 11.67    2.28
     2.500    3.42 | 5.583   13.70 | 8.667    4.00 | 11.75    2.28
     2.583    3.42 | 5.667   13.70 | 8.750    4.00 | 11.83    2.28
     2.667    3.42 | 5.750   13.70 | 8.833    4.00 | 11.92    2.28
     2.750    3.42 | 5.833   54.80 | 8.917    4.00 | 12.00    2.28
     2.833    3.42 | 5.917   54.80 | 9.000    4.00 | 12.08    2.28
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              2.917    3.42 | 6.000   54.80 | 9.083    4.00 | 12.17    2.28
              3.000    3.42 | 6.083  150.69 | 9.167    4.00 | 12.25    2.28
              3.083    3.42 | 6.167  150.69 | 9.250    4.00 |

     Max.Eff.Inten.(mm/hr)=     150.69       130.58
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       5.22 (ii)    9.98 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.21         0.11
                                                    *TOTALS*
     PEAK FLOW      (cms)=       6.45         2.34        8.791 (iii)
     TIME TO PEAK   (hrs)=       6.25         6.25         6.25
     RUNOFF VOLUME   (mm)=     109.16        59.92        87.99
     TOTAL RAINFALL  (mm)=     114.16       114.16       114.16
     RUNOFF COEFFICIENT   =       0.96         0.52         0.77


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD (  0002)|   Area     (ha)=   3.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------
                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     1.98         1.98
     Dep. Storage     (mm)=     5.00         5.00
     Average Slope     (%)=     1.00         2.00
     Length            (m)=   162.28        40.00
     Mannings n            =    0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.083    0.00 | 3.167    3.42 | 6.250  150.69 |  9.33    4.00
     0.167    0.00 | 3.250    3.42 | 6.333   20.55 |  9.42    4.00
     0.250    0.00 | 3.333    4.57 | 6.417   20.55 |  9.50    4.00
     0.333    2.85 | 3.417    4.57 | 6.500   20.55 |  9.58    4.00
     0.417    2.85 | 3.500    4.57 | 6.583   20.55 |  9.67    4.00
     0.500    2.85 | 3.583    4.57 | 6.667   20.55 |  9.75    4.00
     0.583    2.85 | 3.667    4.57 | 6.750   20.55 |  9.83    4.00
     0.667    2.85 | 3.750    4.57 | 6.833    9.13 |  9.92    4.00
     0.750    2.85 | 3.833    4.57 | 6.917    9.13 | 10.00    4.00
     0.833    2.85 | 3.917    4.57 | 7.000    9.13 | 10.08    4.00
     0.917    2.85 | 4.000    4.57 | 7.083    9.13 | 10.17    4.00
     1.000    2.85 | 4.083    4.57 | 7.167    9.13 | 10.25    4.00
     1.083    2.85 | 4.167    4.57 | 7.250    9.13 | 10.33    2.28
     1.167    2.85 | 4.250    4.57 | 7.333    6.85 | 10.42    2.28
     1.250    2.85 | 4.333    6.85 | 7.417    6.85 | 10.50    2.28
     1.333    2.85 | 4.417    6.85 | 7.500    6.85 | 10.58    2.28
     1.417    2.85 | 4.500    6.85 | 7.583    6.85 | 10.67    2.28
     1.500    2.85 | 4.583    6.85 | 7.667    6.85 | 10.75    2.28
     1.583    2.85 | 4.667    6.85 | 7.750    6.85 | 10.83    2.28
     1.667    2.85 | 4.750    6.85 | 7.833    6.85 | 10.92    2.28
     1.750    2.85 | 4.833    9.13 | 7.917    6.85 | 11.00    2.28
     1.833    2.85 | 4.917    9.13 | 8.000    6.85 | 11.08    2.28
     1.917    2.85 | 5.000    9.13 | 8.083    6.85 | 11.17    2.28
     2.000    2.85 | 5.083    9.13 | 8.167    6.85 | 11.25    2.28
     2.083    2.85 | 5.167    9.13 | 8.250    6.85 | 11.33    2.28
     2.167    2.85 | 5.250    9.13 | 8.333    4.00 | 11.42    2.28
     2.250    2.85 | 5.333   13.70 | 8.417    4.00 | 11.50    2.28
     2.333    3.42 | 5.417   13.70 | 8.500    4.00 | 11.58    2.28
     2.417    3.42 | 5.500   13.70 | 8.583    4.00 | 11.67    2.28
     2.500    3.42 | 5.583   13.70 | 8.667    4.00 | 11.75    2.28
     2.583    3.42 | 5.667   13.70 | 8.750    4.00 | 11.83    2.28
     2.667    3.42 | 5.750   13.70 | 8.833    4.00 | 11.92    2.28
     2.750    3.42 | 5.833   54.80 | 8.917    4.00 | 12.00    2.28
     2.833    3.42 | 5.917   54.80 | 9.000    4.00 | 12.08    2.28
     2.917    3.42 | 6.000   54.80 | 9.083    4.00 | 12.17    2.28
     3.000    3.42 | 6.083  150.69 | 9.167    4.00 | 12.25    2.28
     3.083    3.42 | 6.167  150.69 | 9.250    4.00 |

     Max.Eff.Inten.(mm/hr)=     150.69       83.27
               over (min)        5.00       15.00
     Storage Coeff.  (min)=       2.90 (ii)   10.49 (ii)
     Unit Hyd. Tpeak (min)=       5.00       15.00
     Unit Hyd. peak  (cms)=       0.28        0.09
                                                    *TOTALS*
     PEAK FLOW      (cms)=       0.82        0.30        1.089 (iii)
     TIME TO PEAK   (hrs)=       6.25        6.33         6.25
     RUNOFF VOLUME   (mm)=     109.16       50.86        80.01
     TOTAL RAINFALL  (mm)=     114.16      114.16       114.16
     RUNOFF COEFFICIENT   =       0.96        0.45         0.70

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD (  0003)|   Area     (ha)=   7.88
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------
                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     3.94         3.94
     Dep. Storage     (mm)=     5.00         5.00
     Average Slope     (%)=     1.00         2.00
     Length            (m)=   229.20        40.00
     Mannings n            =    0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.083    0.00 | 3.167    3.42 | 6.250  150.69 |  9.33    4.00
     0.167    0.00 | 3.250    3.42 | 6.333   20.55 |  9.42    4.00
     0.250    0.00 | 3.333    4.57 | 6.417   20.55 |  9.50    4.00
     0.333    2.85 | 3.417    4.57 | 6.500   20.55 |  9.58    4.00
     0.417    2.85 | 3.500    4.57 | 6.583   20.55 |  9.67    4.00
     0.500    2.85 | 3.583    4.57 | 6.667   20.55 |  9.75    4.00
     0.583    2.85 | 3.667    4.57 | 6.750   20.55 |  9.83    4.00
     0.667    2.85 | 3.750    4.57 | 6.833    9.13 |  9.92    4.00
     0.750    2.85 | 3.833    4.57 | 6.917    9.13 | 10.00    4.00
     0.833    2.85 | 3.917    4.57 | 7.000    9.13 | 10.08    4.00
     0.917    2.85 | 4.000    4.57 | 7.083    9.13 | 10.17    4.00
     1.000    2.85 | 4.083    4.57 | 7.167    9.13 | 10.25    4.00
     1.083    2.85 | 4.167    4.57 | 7.250    9.13 | 10.33    2.28
     1.167    2.85 | 4.250    4.57 | 7.333    6.85 | 10.42    2.28
     1.250    2.85 | 4.333    6.85 | 7.417    6.85 | 10.50    2.28
     1.333    2.85 | 4.417    6.85 | 7.500    6.85 | 10.58    2.28
     1.417    2.85 | 4.500    6.85 | 7.583    6.85 | 10.67    2.28
     1.500    2.85 | 4.583    6.85 | 7.667    6.85 | 10.75    2.28
     1.583    2.85 | 4.667    6.85 | 7.750    6.85 | 10.83    2.28
     1.667    2.85 | 4.750    6.85 | 7.833    6.85 | 10.92    2.28
     1.750    2.85 | 4.833    9.13 | 7.917    6.85 | 11.00    2.28
     1.833    2.85 | 4.917    9.13 | 8.000    6.85 | 11.08    2.28
     1.917    2.85 | 5.000    9.13 | 8.083    6.85 | 11.17    2.28
     2.000    2.85 | 5.083    9.13 | 8.167    6.85 | 11.25    2.28
     2.083    2.85 | 5.167    9.13 | 8.250    6.85 | 11.33    2.28
     2.167    2.85 | 5.250    9.13 | 8.333    4.00 | 11.42    2.28
     2.250    2.85 | 5.333   13.70 | 8.417    4.00 | 11.50    2.28
     2.333    3.42 | 5.417   13.70 | 8.500    4.00 | 11.58    2.28
     2.417    3.42 | 5.500   13.70 | 8.583    4.00 | 11.67    2.28
     2.500    3.42 | 5.583   13.70 | 8.667    4.00 | 11.75    2.28
     2.583    3.42 | 5.667   13.70 | 8.750    4.00 | 11.83    2.28
     2.667    3.42 | 5.750   13.70 | 8.833    4.00 | 11.92    2.28
     2.750    3.42 | 5.833   54.80 | 8.917    4.00 | 12.00    2.28
     2.833    3.42 | 5.917   54.80 | 9.000    4.00 | 12.08    2.28
     2.917    3.42 | 6.000   54.80 | 9.083    4.00 | 12.17    2.28
     3.000    3.42 | 6.083  150.69 | 9.167    4.00 | 12.25    2.28
     3.083    3.42 | 6.167  150.69 | 9.250    4.00 |

     Max.Eff.Inten.(mm/hr)=     150.69       143.84
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       6.01 (ii)   11.41 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.19         0.09
                                                    *TOTALS*
     PEAK FLOW      (cms)=      15.61         9.10       23.671 (iii)
     TIME TO PEAK   (hrs)=       6.25         6.33         6.25
     RUNOFF VOLUME   (mm)=     109.16       61.93        82.71
     TOTAL RAINFALL  (mm)=     114.16      114.16       114.16
     RUNOFF COEFFICIENT   =       0.96        0.54         0.72


| IN= 2---> OUT= 1 |
| DT=  5.0 min     |      OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)    |   (cms)     (ha.m.)
                           0.0000    0.0000     |  2.7700     2.8400
                           0.8200    1.4400     |  3.2200     3.1300
                           1.3700    1.8900     |  5.2900     4.3700
                           1.7800    2.1800     |  6.1500     5.4900
                           2.3300    2.5500     |  0.0000     0.0000

                             AREA     QPEAK     TPEAK      R.V.
                             (ha)     (cms)     (hrs)      (mm)
   INFLOW : ID= 2 (  0300)    97.500    25.819     6.25      82.49
   OUTFLOW: ID= 1 (  0030)    97.500     5.203     6.83      82.49

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 20.15
                TIME SHIFT OF PEAK FLOW       (min)= 35.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  4.3268

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       V    V   I    SSSSS  U   U    A     L                (v 6.2.2015)
       V    V   I    SS     U   U   A A    L
        V  V    I      SS   U   U  AAAAA   L
        V  V    I       SS  U   U  A   A   L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\c1
12d506-330f-4150-9828-83505c54630b\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\c1
12d506-330f-4150-9828-83505c54630b\sc


DATE: 11-27-2024                          TIME: 08:52:04

USER:


COMMENTS: _____

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  ************************************************
  ** SIMULATION : 3A - 2yr 24hr 15min SCS Type  **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jfletcher\AppD
|                  |              ata\Local\Temp\
|                  |              f7771102-1e26-4a23-9fad-5d61ceae4d2b\b6615046
| Ptotal= 69.75 mm |    Comments: 2yr 24hr 15min SCS Type II (MTO)
--------------------
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.00    0.00 |  6.25    1.26 | 12.50   10.04 |  18.75    1.26
     0.25    0.77 |  6.50    1.26 | 12.75    5.16 |  19.00    1.26
     0.50    0.77 |  6.75    1.26 | 13.00    5.16 |  19.25    1.26
     0.75    0.77 |  7.00    1.26 | 13.25    3.77 |  19.50    1.26
     1.00    0.77 |  7.25    1.53 | 13.50    3.77 |  19.75    1.26
     1.25    0.77 |  7.50    1.53 | 13.75    2.93 |  20.00    1.26
     1.50    0.77 |  7.75    1.53 | 14.00    2.93 |  20.25    0.84
     1.75    0.77 |  8.00    1.53 | 14.25    2.09 |  20.50    0.84
     2.00    0.77 |  8.25    1.81 | 14.50    2.09 |  20.75    0.84
     2.25    0.91 |  8.50    1.81 | 14.75    2.09 |  21.00    0.84
     2.50    0.91 |  8.75    1.95 | 15.00    2.09 |  21.25    0.84
     2.75    0.91 |  9.00    1.95 | 15.25    2.09 |  21.50    0.84
     3.00    0.91 |  9.25    2.23 | 15.50    2.09 |  21.75    0.84
     3.25    0.91 |  9.50    2.23 | 15.75    2.09 |  22.00    0.84
     3.50    0.91 |  9.75    2.51 | 16.00    2.09 |  22.25    0.84
     3.75    0.91 | 10.00    2.51 | 16.25    1.26 |  22.50    0.84
     4.00    0.91 | 10.25    3.21 | 16.50    1.26 |  22.75    0.84
     4.25    1.12 | 10.50    3.21 | 16.75    1.26 |  23.00    0.84
     4.50    1.12 | 10.75    4.32 | 17.00    1.26 |  23.25    0.84
     4.75    1.12 | 11.00    4.32 | 17.25    1.26 |  23.50    0.84
     5.00    1.12 | 11.25    6.70 | 17.50    1.26 |  23.75    0.84
     5.25    1.12 | 11.50    6.70 | 17.75    1.26 |  24.00    0.84
     5.50    1.12 | 11.75   20.65 | 18.00    1.26 |
     5.75    1.12 | 12.00   85.37 | 18.25    1.26 |
     6.00    1.12 | 12.25   10.04 | 18.50    1.26 |

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| CALIB              |
| STANDHYD (  0201)|   Area     (ha)=  30.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=  55.00
--------------------
                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=    23.81         6.71
     Dep. Storage     (mm)=     5.00         5.00
     Average Slope     (%)=     1.00         2.00
     Length            (m)=   451.07        40.00
     Mannings n            =    0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.083    0.00 | 6.167    1.12 | 12.250   85.37 | 18.33    1.26
     0.167    0.00 | 6.250    1.12 | 12.333   10.05 | 18.42    1.26
     0.250    0.00 | 6.333    1.26 | 12.417   10.04 | 18.50    1.26
     0.333    0.77 | 6.417    1.26 | 12.500   10.04 | 18.58    1.26
     0.417    0.77 | 6.500    1.26 | 12.583   10.04 | 18.67    1.26
     0.500    0.77 | 6.583    1.26 | 12.667   10.04 | 18.75    1.26
     0.583    0.77 | 6.667    1.26 | 12.750   10.04 | 18.83    1.26
     0.667    0.77 | 6.750    1.26 | 12.833    5.16 | 18.92    1.26
     0.750    0.77 | 6.833    1.26 | 12.917    5.16 | 19.00    1.26
     0.833    0.77 | 6.917    1.26 | 13.000    5.16 | 19.08    1.26
     0.917    0.77 | 7.000    1.26 | 13.083    5.16 | 19.17    1.26
     1.000    0.77 | 7.083    1.26 | 13.167    5.16 | 19.25    1.26
     1.083    0.77 | 7.167    1.26 | 13.250    5.16 | 19.33    1.26
     1.167    0.77 | 7.250    1.26 | 13.333    3.77 | 19.42    1.26
     1.250    0.77 | 7.333    1.53 | 13.417    3.77 | 19.50    1.26
     1.333    0.77 | 7.417    1.53 | 13.500    3.77 | 19.58    1.26
     1.417    0.77 | 7.500    1.53 | 13.583    3.77 | 19.67    1.26
     1.500    0.77 | 7.583    1.53 | 13.667    3.77 | 19.75    1.26
     1.583    0.77 | 7.667    1.53 | 13.750    3.77 | 19.83    1.26
     1.667    0.77 | 7.750    1.53 | 13.833    2.93 | 19.92    1.26
     1.750    0.77 | 7.833    1.53 | 13.917    2.93 | 20.00    1.26
     1.833    0.77 | 7.917    1.53 | 14.000    2.93 | 20.08    1.26
     1.917    0.77 | 8.000    1.53 | 14.083    2.93 | 20.17    1.26
     2.000    0.77 | 8.083    1.53 | 14.167    2.93 | 20.25    1.26
     2.083    0.77 | 8.167    1.53 | 14.250    2.93 | 20.33    0.84
     2.167    0.77 | 8.250    1.53 | 14.333    2.09 | 20.42    0.84
     2.250    0.77 | 8.333    1.81 | 14.417    2.09 | 20.50    0.84
     2.333    0.91 | 8.417    1.81 | 14.500    2.09 | 20.58    0.84
     2.417    0.91 | 8.500    1.81 | 14.583    2.09 | 20.67    0.84
     2.500    0.91 | 8.583    1.81 | 14.667    2.09 | 20.75    0.84
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              2.583    0.91 |  8.667    1.81 | 14.750    2.09 |  20.83    0.84
              2.667    0.91 |  8.750    1.81 | 14.833    2.09 |  20.92    0.84
              2.750    0.91 |  8.833    1.95 | 14.917    2.09 |  21.00    0.84
              2.833    0.91 |  8.917    1.95 | 15.000    2.09 |  21.08    0.84
              2.917    0.91 |  9.000    1.95 | 15.083    2.09 |  21.17    0.84
              3.000    0.91 |  9.083    1.95 | 15.167    2.09 |  21.25    0.84
              3.083    0.91 |  9.167    1.95 | 15.250    2.09 |  21.33    0.84
              3.167    0.91 |  9.250    1.95 | 15.333    2.09 |  21.42    0.84
              3.250    0.91 |  9.333    2.23 | 15.417    2.09 |  21.50    0.84
              3.333    0.91 |  9.417    2.23 | 15.500    2.09 |  21.58    0.84
              3.417    0.91 |  9.500    2.23 | 15.583    2.09 |  21.67    0.84
              3.500    0.91 |  9.583    2.23 | 15.667    2.09 |  21.75    0.84
              3.583    0.91 |  9.667    2.23 | 15.750    2.09 |  21.83    0.84
              3.667    0.91 |  9.750    2.23 | 15.833    2.09 |  21.92    0.84
              3.750    0.91 |  9.833    2.51 | 15.917    2.09 |  22.00    0.84
              3.833    0.91 |  9.917    2.51 | 16.000    2.09 |  22.08    0.84
              3.917    0.91 | 10.000    2.51 | 16.083    2.09 |  22.17    0.84
              4.000    0.91 | 10.083    2.51 | 16.167    2.09 |  22.25    0.84
              4.083    0.91 | 10.167    2.51 | 16.250    2.09 |  22.33    0.84
              4.167    0.91 | 10.250    2.51 | 16.333    1.26 |  22.42    0.84
              4.250    0.91 | 10.333    3.21 | 16.417    1.26 |  22.50    0.84
              4.333    1.12 | 10.417    3.21 | 16.500    1.26 |  22.58    0.84
              4.417    1.12 | 10.500    3.21 | 16.583    1.26 |  22.67    0.84
              4.500    1.12 | 10.583    3.21 | 16.667    1.26 |  22.75    0.84
              4.583    1.12 | 10.667    3.21 | 16.750    1.26 |  22.83    0.84
              4.667    1.12 | 10.750    3.21 | 16.833    1.26 |  22.92    0.84
              4.750    1.12 | 10.833    4.32 | 16.917    1.26 |  23.00    0.84
              4.833    1.12 | 10.917    4.32 | 17.000    1.26 |  23.08    0.84
              4.917    1.12 | 11.000    4.32 | 17.083    1.26 |  23.17    0.84
              5.000    1.12 | 11.083    4.32 | 17.167    1.26 |  23.25    0.84
              5.083    1.12 | 11.167    4.32 | 17.250    1.26 |  23.33    0.84
              5.167    1.12 | 11.250    4.32 | 17.333    1.26 |  23.42    0.84
              5.250    1.12 | 11.333    6.70 | 17.417    1.26 |  23.50    0.84
              5.333    1.12 | 11.417    6.70 | 17.500    1.26 |  23.58    0.84
              5.417    1.12 | 11.500    6.70 | 17.583    1.26 |  23.67    0.84
              5.500    1.12 | 11.583    6.70 | 17.667    1.26 |  23.75    0.84
              5.583    1.12 | 11.667    6.70 | 17.750    1.26 |  23.83    0.84
              5.667    1.12 | 11.750    6.70 | 17.833    1.26 |  23.92    0.84
              5.750    1.12 | 11.833   20.64 | 17.917    1.26 |  24.00    0.84
              5.833    1.12 | 11.917   20.65 | 18.000    1.26 |  24.08    0.84
              5.917    1.12 | 12.000   20.65 | 18.083    1.26 |  24.17    0.84
              6.000    1.12 | 12.083   85.37 | 18.167    1.26 |  24.25    0.84
              6.083    1.12 | 12.167   85.37 | 18.250    1.26 |

     Max.Eff.Inten.(mm/hr)=      85.37       106.03
               over (min)        5.00        15.00
     Storage Coeff.  (min)=     6.72 (ii)   13.61 (ii)
     Unit Hyd. Tpeak (min)=     5.00        15.00
     Unit Hyd. peak  (cms)=     0.18         0.08
                                            *TOTALS*
     PEAK FLOW       (cms)=     0.49         0.10          0.556 (iii)
     TIME TO PEAK    (hrs)=    12.25        12.42         12.25
     RUNOFF VOLUME    (mm)=    64.75        22.08         43.41
     TOTAL RAINFALL   (mm)=    69.75        69.75         69.75
     RUNOFF COEFFICIENT   =     0.93         0.32          0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0100)|
|  1 +  2 =  3     |        AREA    QPEAK     TPEAK      R.V.
--------------------         (ha)    (cms)     (hrs)      (mm)
       ID1= 1 (  0001):    4.21    0.556     12.25     43.41
     + ID2= 2 (  0201):   30.52    4.633     12.25     51.48
       ================================================
       ID = 3 (  0100):   34.73    5.188     12.25     50.50

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                         0.0000     0.0000     |  1.0900     1.0400
                         0.3100     0.5460     |  1.2700     1.1400
                         0.5250     0.7030     |  2.1100     1.5700
                         0.6900     0.8068     |  2.4450     2.0600
                         0.9000     0.9400     |  0.0000     0.0000
```

```
     PEAK FLOW      (cms)=      3.65         1.15          4.633 (iii)
     TIME TO PEAK   (hrs)=     12.25        12.33         12.25
     RUNOFF VOLUME   (mm)=     64.75        35.26         51.48
     TOTAL RAINFALL  (mm)=     69.75        69.75         69.75
     RUNOFF COEFFICIENT  =      0.93         0.51          0.74


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0001)|   Area    (ha)=   4.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      2.11         2.11
     Dep. Storage     (mm)=      5.00         5.00
     Average Slope     (%)=      1.00         2.00
     Length            (m)=    167.53        40.00
     Mannings n            =     0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.083    0.00 | 6.167    1.12 |12.250   85.37 | 18.33    1.26
     0.167    0.00 | 6.250    1.12 |12.333   10.05 | 18.42    1.26
     0.250    0.00 | 6.333    1.26 |12.417   10.04 | 18.50    1.26
     0.333    0.77 | 6.417    1.26 |12.500   10.04 | 18.58    1.26
     0.417    0.77 | 6.500    1.26 |12.583   10.04 | 18.67    1.26
     0.500    0.77 | 6.583    1.26 |12.667   10.04 | 18.75    1.26
     0.583    0.77 | 6.667    1.26 |12.750   10.04 | 18.83    1.26
     0.667    0.77 | 6.750    1.26 |12.833    5.16 | 18.92    1.26
     0.750    0.77 | 6.833    1.26 |12.917    5.16 | 19.00    1.26
     0.833    0.77 | 6.917    1.26 |13.000    5.16 | 19.08    1.26
     0.917    0.77 | 7.000    1.26 |13.083    5.16 | 19.17    1.26
     1.000    0.77 | 7.083    1.26 |13.167    5.16 | 19.25    1.26
     1.083    0.77 | 7.167    1.26 |13.250    5.16 | 19.33    1.26
     1.167    0.77 | 7.250    1.26 |13.333    3.77 | 19.42    1.26
     1.250    0.77 | 7.333    1.53 |13.417    3.77 | 19.50    1.26
     1.333    0.77 | 7.417    1.53 |13.500    3.77 | 19.58    1.26
     1.417    0.77 | 7.500    1.53 |13.583    3.77 | 19.67    1.26
     1.500    0.77 | 7.583    1.53 |13.667    3.77 | 19.75    1.26
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                                AREA     QPEAK     TPEAK      R.V.
                                 (ha)     (cms)     (hrs)      (mm)
   INFLOW : ID= 2 (  0100)      34.730    5.188     12.25      50.50
   OUTFLOW: ID= 1 (  0010)      34.730    0.805     12.83      50.49

                PEAK   FLOW  REDUCTION [Qout/Qin](%)= 15.51
                TIME SHIFT OF PEAK FLOW       (min)= 35.00
                MAXIMUM  STORAGE    USED     (ha.m.)=  0.8799

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| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=  28.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  57.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     19.08         8.98
     Dep. Storage     (mm)=      5.00         5.00
     Average Slope     (%)=      1.00         2.00
     Length            (m)=    432.51        40.00
     Mannings n            =     0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.083    0.00 | 6.167    1.12 |12.250   85.37 | 18.33    1.26
     0.167    0.00 | 6.250    1.12 |12.333   10.05 | 18.42    1.26
     0.250    0.00 | 6.333    1.26 |12.417   10.04 | 18.50    1.26
     0.333    0.77 | 6.417    1.26 |12.500   10.04 | 18.58    1.26
     0.417    0.77 | 6.500    1.26 |12.583   10.04 | 18.67    1.26
     0.500    0.77 | 6.583    1.26 |12.667   10.04 | 18.75    1.26
     0.583    0.77 | 6.667    1.26 |12.750   10.04 | 18.83    1.26
     0.667    0.77 | 6.750    1.26 |12.833    5.16 | 18.92    1.26
     0.750    0.77 | 6.833    1.26 |12.917    5.16 | 19.00    1.26
     0.833    0.77 | 6.917    1.26 |13.000    5.16 | 19.08    1.26
     0.917    0.77 | 7.000    1.26 |13.083    5.16 | 19.17    1.26
     1.000    0.77 | 7.083    1.26 |13.167    5.16 | 19.25    1.26
     1.083    0.77 | 7.167    1.26 |13.250    5.16 | 19.33    1.26
     1.167    0.77 | 7.250    1.26 |13.333    3.77 | 19.42    1.26
     1.250    0.77 | 7.333    1.53 |13.417    3.77 | 19.50    1.26
     1.333    0.77 | 7.417    1.53 |13.500    3.77 | 19.58    1.26
     1.417    0.77 | 7.500    1.53 |13.583    3.77 | 19.67    1.26
     1.500    0.77 | 7.583    1.53 |13.667    3.77 | 19.75    1.26
     1.583    0.77 | 7.667    1.53 |13.750    3.77 | 19.83    1.26
     1.667    0.77 | 7.750    1.53 |13.833    2.93 | 19.92    1.26
     1.750    0.77 | 7.833    1.53 |13.917    2.93 | 20.00    1.26
     1.833    0.77 | 7.917    1.53 |14.000    2.93 | 20.08    1.26
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     1.917    0.77 |  8.000    1.53 | 14.083    2.93 |  20.17    1.26
     2.000    0.77 |  8.083    1.53 | 14.167    2.93 |  20.25    1.26
     2.083    0.77 |  8.167    1.53 | 14.250    2.93 |  20.33    0.84
     2.167    0.77 |  8.250    1.53 | 14.333    2.09 |  20.42    0.84
     2.250    0.77 |  8.333    1.81 | 14.417    2.09 |  20.50    0.84
     2.333    0.91 |  8.417    1.81 | 14.500    2.09 |  20.58    0.84
     2.417    0.91 |  8.500    1.81 | 14.583    2.09 |  20.67    0.84
     2.500    0.91 |  8.583    1.81 | 14.667    2.09 |  20.75    0.84
     2.583    0.91 |  8.667    1.81 | 14.750    2.09 |  20.83    0.84
     2.667    0.91 |  8.750    1.81 | 14.833    2.09 |  20.92    0.84
     2.750    0.91 |  8.833    1.95 | 14.917    2.09 |  21.00    0.84
     2.833    0.91 |  8.917    1.95 | 15.000    2.09 |  21.08    0.84
     2.917    0.91 |  9.000    1.95 | 15.083    2.09 |  21.17    0.84
     3.000    0.91 |  9.083    1.95 | 15.167    2.09 |  21.25    0.84
     3.083    0.91 |  9.167    1.95 | 15.250    2.09 |  21.33    0.84
     3.167    0.91 |  9.250    1.95 | 15.333    2.09 |  21.42    0.84
     3.250    0.91 |  9.333    2.23 | 15.417    2.09 |  21.50    0.84
     3.333    0.91 |  9.417    2.23 | 15.500    2.09 |  21.58    0.84
     3.417    0.91 |  9.500    2.23 | 15.583    2.09 |  21.67    0.84
     3.500    0.91 |  9.583    2.23 | 15.667    2.09 |  21.75    0.84
     3.583    0.91 |  9.667    2.23 | 15.750    2.09 |  21.83    0.84
     3.667    0.91 |  9.750    2.23 | 15.833    2.09 |  21.92    0.84
     3.750    0.91 |  9.833    2.51 | 15.917    2.09 |  22.00    0.84
     3.833    0.91 |  9.917    2.51 | 16.000    2.09 |  22.08    0.84
     3.917    0.91 | 10.000    2.51 | 16.083    2.09 |  22.17    0.84
     4.000    0.91 | 10.083    2.51 | 16.167    2.09 |  22.25    0.84
     4.083    0.91 | 10.167    2.51 | 16.250    2.09 |  22.33    0.84
     4.167    0.91 | 10.250    2.51 | 16.333    1.26 |  22.42    0.84
     4.250    0.91 | 10.333    3.21 | 16.417    1.26 |  22.50    0.84
     4.333    1.12 | 10.417    3.21 | 16.500    1.26 |  22.58    0.84
     4.417    1.12 | 10.500    3.21 | 16.583    1.26 |  22.67    0.84
     4.500    1.12 | 10.583    3.21 | 16.667    1.26 |  22.75    0.84
     4.583    1.12 | 10.667    3.21 | 16.750    1.26 |  22.83    0.84
     4.667    1.12 | 10.750    3.21 | 16.833    1.26 |  22.92    0.84
     4.750    1.12 | 10.833    4.32 | 16.917    1.26 |  23.00    0.84
     4.833    1.12 | 10.917    4.32 | 17.000    1.26 |  23.08    0.84
     4.917    1.12 | 11.000    4.32 | 17.083    1.26 |  23.17    0.84
     5.000    1.12 | 11.083    4.32 | 17.167    1.26 |  23.25    0.84
     5.083    1.12 | 11.167    4.32 | 17.250    1.26 |  23.33    0.84
     5.167    1.12 | 11.250    4.32 | 17.333    1.26 |  23.42    0.84
     5.250    1.12 | 11.333    6.70 | 17.417    1.26 |  23.50    0.84
     5.333    1.12 | 11.417    6.70 | 17.500    1.26 |  23.58    0.84
     5.417    1.12 | 11.500    6.70 | 17.583    1.26 |  23.67    0.84
     5.500    1.12 | 11.583    6.70 | 17.667    1.26 |  23.75    0.84
     5.583    1.12 | 11.667    6.70 | 17.750    1.26 |  23.83    0.84
     5.667    1.12 | 11.750    6.70 | 17.833    1.26 |  23.92    0.84
     5.750    1.12 | 11.833   20.64 | 17.917    1.26 |  24.00    0.84
     5.833    1.12 | 11.917   20.65 | 18.000    1.26 |  24.08    0.84
     5.917    1.12 | 12.000   20.65 | 18.083    1.26 |  24.17    0.84
     6.000    1.12 | 12.083   85.37 | 18.167    1.26 |  24.25    0.84
     6.083    1.12 | 12.167   85.37 | 18.250    1.26 |

     Max.Eff.Inten.(mm/hr)=      85.37       29.98
               over (min)        5.00       20.00
     Storage Coeff.  (min)=     3.64 (ii)   15.07 (ii)
     Unit Hyd. Tpeak (min)=     5.00        20.00
     Unit Hyd. peak  (cms)=     0.25         0.07
                                            *TOTALS*
     PEAK FLOW       (cms)=     0.46         0.09          0.522 (iii)
     TIME TO PEAK    (hrs)=    12.25        12.42         12.25
     RUNOFF VOLUME    (mm)=    64.75        22.08         43.41
     TOTAL RAINFALL   (mm)=    69.75        69.75         69.75
     RUNOFF COEFFICIENT   =     0.93         0.32          0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0200)|
|  1 +  2 =  3     |        AREA    QPEAK     TPEAK      R.V.
--------------------         (ha)    (cms)     (hrs)      (mm)
       ID1= 1 (  0002):    3.95    0.522     12.25     43.41
     + ID2= 2 (  0202):   28.06    3.954     12.25     48.69
       ================================================
       ID = 3 (  0200):   32.01    4.476     12.25     48.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
```

DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	1.8250	0.6819
	0.6400	0.3757	2.1650	0.7600
	1.0700	0.4858	4.0750	1.0700
	1.3800	0.5709	4.7000	1.7300

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0200)	32.010	4.476	12.25	48.04
OUTFLOW: ID= 1 (0020)	32.010	1.308	12.58	48.03

PEAK FLOW REDUCTION [Qout/Qin](%)= 29.22
TIME SHIFT OF PEAK FLOW (min)= 20.00
MAXIMUM STORAGE USED (ha.m.)= 0.5520

CALIB	
STANDHYD (0203)	Area (ha)= 89.62
ID= 1 DT= 5.0 min	Total Imp(%)= 61.00 Dir. Conn.(%)= 44.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	54.67	34.95
Dep. Storage (mm)=	5.00	5.00
Average Slope (%)=	2.00	3.00
Length (m)=	772.96	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.12	12.250	85.37	18.33	1.26
0.167	0.00	6.250	1.12	12.333	10.05	18.42	1.26
0.250	0.00	6.333	1.26	12.417	10.04	18.50	1.26
0.333	0.77	6.417	1.26	12.500	10.04	18.58	1.26
0.417	0.77	6.500	1.26	12.583	10.04	18.67	1.26
0.500	0.77	6.583	1.26	12.667	10.04	18.75	1.26
0.583	0.77	6.667	1.26	12.750	10.04	18.83	1.26
0.667	0.77	6.750	1.26	12.833	5.16	18.92	1.26
0.750	0.77	6.833	1.26	12.917	5.16	19.00	1.26
0.833	0.77	6.917	1.26	13.000	5.16	19.08	1.26
0.917	0.77	7.000	1.26	13.083	5.16	19.17	1.26
1.000	0.77	7.083	1.26	13.167	5.16	19.25	1.26
1.083	0.77	7.167	1.26	13.250	5.16	19.33	1.26
1.167	0.77	7.250	1.26	13.333	3.77	19.42	1.26
1.250	0.77	7.333	1.53	13.417	3.77	19.50	1.26
1.333	0.77	7.417	1.53	13.500	3.77	19.58	1.26
1.417	0.77	7.500	1.53	13.583	3.77	19.67	1.26
1.500	0.77	7.583	1.53	13.667	3.77	19.75	1.26
1.583	0.77	7.667	1.53	13.750	3.77	19.83	1.26
1.667	0.77	7.750	1.53	13.833	2.93	19.92	1.26
1.750	0.77	7.833	1.53	13.917	2.93	20.00	1.26
1.833	0.77	7.917	1.53	14.000	2.93	20.08	1.26
1.917	0.77	8.000	1.53	14.083	2.93	20.17	1.26
2.000	0.77	8.083	1.53	14.167	2.93	20.25	1.26
2.083	0.77	8.167	1.53	14.250	2.93	20.33	0.84
2.167	0.77	8.250	1.53	14.333	2.09	20.42	0.84
2.250	0.77	8.333	1.81	14.417	2.09	20.50	0.84
2.333	0.91	8.417	1.81	14.500	2.09	20.58	0.84
2.417	0.91	8.500	1.81	14.583	2.09	20.67	0.84
2.500	0.91	8.583	1.81	14.667	2.09	20.75	0.84
2.583	0.91	8.667	1.81	14.750	2.09	20.83	0.84
2.667	0.91	8.750	1.81	14.833	2.09	20.92	0.84
2.750	0.91	8.833	1.95	14.917	2.09	21.00	0.84
2.833	0.91	8.917	1.95	15.000	2.09	21.08	0.84
2.917	0.91	9.000	1.95	15.083	2.09	21.17	0.84
3.000	0.91	9.083	1.95	15.167	2.09	21.25	0.84
3.083	0.91	9.167	1.95	15.250	2.09	21.33	0.84
3.167	0.91	9.250	1.95	15.333	2.09	21.42	0.84
3.250	0.91	9.333	2.23	15.417	2.09	21.50	0.84
3.333	0.91	9.417	2.23	15.500	2.09	21.58	0.84
3.417	0.91	9.500	2.23	15.583	2.09	21.67	0.84
3.500	0.91	9.583	2.23	15.667	2.09	21.75	0.84
3.583	0.91	9.667	2.23	15.750	2.09	21.83	0.84
3.667	0.91	9.750	2.23	15.833	2.09	21.92	0.84
3.750	0.91	9.833	2.51	15.917	2.09	22.00	0.84
3.833	0.91	9.917	2.51	16.000	2.09	22.08	0.84
3.917	0.91	10.000	2.51	16.083	2.09	22.17	0.84
4.000	0.91	10.083	2.51	16.167	2.09	22.25	0.84
4.083	0.91	10.167	2.51	16.250	2.09	22.33	0.84
4.167	0.91	10.250	2.51	16.333	1.26	22.42	0.84
4.250	0.91	10.333	3.21	16.417	1.26	22.50	0.84
4.333	1.12	10.417	3.21	16.500	1.26	22.58	0.84
4.417	1.12	10.500	3.21	16.583	1.26	22.67	0.84
4.500	1.12	10.583	3.21	16.667	1.26	22.75	0.84
4.583	1.12	10.667	3.21	16.750	1.26	22.83	0.84
4.667	1.12	10.750	3.21	16.833	1.26	22.92	0.84
4.750	1.12	10.833	4.32	16.917	1.26	23.00	0.84
4.833	1.12	10.917	4.32	17.000	1.26	23.08	0.84
4.917	1.12	11.000	4.32	17.083	1.26	23.17	0.84
5.000	1.12	11.083	4.32	17.167	1.26	23.25	0.84
5.083	1.12	11.167	4.32	17.250	1.26	23.33	0.84
5.167	1.12	11.250	4.32	17.333	1.26	23.42	0.84
5.250	1.12	11.333	6.70	17.417	1.26	23.50	0.84
5.333	1.12	11.417	6.70	17.500	1.26	23.58	0.84
5.417	1.12	11.500	6.70	17.583	1.26	23.67	0.84
5.500	1.12	11.583	6.70	17.667	1.26	23.75	0.84
5.583	1.12	11.667	6.70	17.750	1.26	23.83	0.84
5.667	1.12	11.750	6.70	17.833	1.26	23.92	0.84
5.750	1.12	11.833	20.64	17.917	1.26	24.00	0.84
5.833	1.12	11.917	20.65	18.000	1.26	24.08	0.84
5.917	1.12	12.000	20.65	18.083	1.26	24.17	0.84
6.000	1.12	12.083	85.37	18.167	1.26	24.25	0.84
6.083	1.12	12.167	85.37	18.250	1.26		

Max.Eff.Inten.(mm/hr)=	85.37	29.98			
over (min)	5.00	20.00			
Storage Coeff. (min)=	4.48 (ii)	15.90 (ii)			
Unit Hyd. Tpeak (min)=	5.00	20.00			
Unit Hyd. peak (cms)=	0.23	0.07			
			TOTALS		
PEAK FLOW (cms)=	0.91	0.18	1.025 (iii)		
TIME TO PEAK (hrs)=	12.25	12.42	12.25		
RUNOFF VOLUME (mm)=	64.75	22.08	43.42		
TOTAL RAINFALL (mm)=	69.75	69.75	69.75		
RUNOFF COEFFICIENT =	0.93	0.32	0.62		

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 67.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0300)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0203):	89.62	9.823	12.25	44.52	
+ ID2= 2 (0003):	7.88	1.025	12.25	43.42	

CALIB	
STANDHYD (0201)	Area (ha)= 30.52
ID= 1 DT= 5.0 min	Total Imp(%)= 78.00 Dir. Conn.(%)= 55.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	23.81	6.71
Dep. Storage (mm)=	5.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	451.07	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.42	12.250	108.87	18.33	1.60
0.167	0.00	6.250	1.42	12.333	12.82	18.42	1.60
0.250	0.00	6.333	1.60	12.417	12.81	18.50	1.60
0.333	0.98	6.417	1.60	12.500	12.81	18.58	1.60
0.417	0.98	6.500	1.60	12.583	12.81	18.67	1.60
0.500	0.98	6.583	1.60	12.667	12.81	18.75	1.60
0.583	0.98	6.667	1.60	12.750	12.81	18.83	1.60
0.667	0.98	6.750	1.60	12.833	6.58	18.92	1.60
0.750	0.98	6.833	1.60	12.917	6.58	19.00	1.60
0.833	0.98	6.917	1.60	13.000	6.58	19.08	1.60
0.917	0.98	7.000	1.60	13.083	6.58	19.17	1.60
1.000	0.98	7.083	1.60	13.167	6.58	19.25	1.60
1.083	0.98	7.167	1.60	13.250	6.58	19.33	1.60
1.167	0.98	7.250	1.60	13.333	4.80	19.42	1.60
1.250	0.98	7.333	1.96	13.417	4.80	19.50	1.60
1.333	0.98	7.417	1.96	13.500	4.80	19.58	1.60
1.417	0.98	7.500	1.96	13.583	4.80	19.67	1.60
1.500	0.98	7.583	1.96	13.667	4.80	19.75	1.60
1.583	0.98	7.667	1.96	13.750	4.80	19.83	1.60
1.667	0.98	7.750	1.96	13.833	3.74	19.92	1.60
1.750	0.98	7.833	1.96	13.917	3.74	20.00	1.60
1.833	0.98	7.917	1.96	14.000	3.74	20.08	1.60
1.917	0.98	8.000	1.96	14.083	3.74	20.17	1.60
2.000	0.98	8.083	1.96	14.167	3.74	20.25	1.60
2.083	0.98	8.167	1.96	14.250	3.74	20.33	1.07
2.167	0.98	8.250	1.96	14.333	2.67	20.42	1.07
2.250	0.98	8.333	2.31	14.417	2.67	20.50	1.07
2.333	1.16	8.417	2.31	14.500	2.67	20.58	1.07
2.417	1.16	8.500	2.31	14.583	2.67	20.67	1.07
2.500	1.16	8.583	2.31	14.667	2.67	20.75	1.07
2.583	1.16	8.667	2.31	14.750	2.67	20.83	1.07
2.667	1.16	8.750	2.31	14.833	2.67	20.92	1.07
2.750	1.16	8.833	2.49	14.917	2.67	21.00	1.07
2.833	1.16	8.917	2.49	15.000	2.67	21.08	1.07
2.917	1.16	9.000	2.49	15.083	2.67	21.17	1.07
3.000	1.16	9.083	2.49	15.167	2.67	21.25	1.07
3.083	1.16	9.167	2.49	15.250	2.67	21.33	1.07
3.167	1.16	9.250	2.49	15.333	2.67	21.42	1.07
3.250	1.16	9.333	2.85	15.417	2.67	21.50	1.07
3.333	1.16	9.417	2.85	15.500	2.67	21.58	1.07
3.417	1.16	9.500	2.85	15.583	2.67	21.67	1.07
3.500	1.16	9.583	2.85	15.667	2.67	21.75	1.07
3.583	1.16	9.667	2.85	15.750	2.67	21.83	1.07
3.667	1.16	9.750	2.85	15.833	2.67	21.92	1.07
3.750	1.16	9.833	3.20	15.917	2.67	22.00	1.07
3.833	1.16	9.917	3.20	16.000	2.67	22.08	1.07
3.917	1.16	10.000	3.20	16.083	2.67	22.17	1.07
4.000	1.16	10.083	3.20	16.167	2.67	22.25	1.07
4.083	1.16	10.167	3.20	16.250	2.67	22.33	1.07
4.167	1.16	10.250	3.20	16.333	1.60	22.42	1.07
4.250	1.16	10.333	4.09	16.417	1.60	22.50	1.07
4.333	1.42	10.417	4.09	16.500	1.60	22.58	1.07
4.417	1.42	10.500	4.09	16.583	1.60	22.67	1.07
4.500	1.42	10.583	4.09	16.667	1.60	22.75	1.07
4.583	1.42	10.667	4.09	16.750	1.60	22.83	1.07
4.667	1.42	10.750	4.09	16.833	1.60	22.92	1.07
4.750	1.42	10.833	5.51	16.917	1.60	23.00	1.07
4.833	1.42	10.917	5.51	17.000	1.60	23.08	1.07
4.917	1.42	11.000	5.51	17.083	1.60	23.17	1.07
5.000	1.42	11.083	5.51	17.167	1.60	23.25	1.07
5.083	1.42	11.167	5.51	17.250	1.60	23.33	1.07
5.167	1.42	11.250	5.51	17.333	1.60	23.42	1.07
5.250	1.42	11.333	8.54	17.417	1.60	23.50	1.07
5.333	1.42	11.417	8.54	17.500	1.60	23.58	1.07
5.417	1.42	11.500	8.54	17.583	1.60	23.67	1.07
5.500	1.42	11.583	8.54	17.667	1.60	23.75	1.07
5.583	1.42	11.667	8.54	17.750	1.60	23.83	1.07
5.667	1.42	11.750	8.54	17.833	1.60	23.92	1.07
5.750	1.42	11.833	26.33	17.917	1.60	24.00	1.07
5.833	1.42	11.917	26.33	18.000	1.60	24.08	1.07
5.917	1.42	12.000	26.33	18.083	1.60	24.17	1.07
6.000	1.42	12.083	108.86	18.167	1.60	24.25	1.07
6.083	1.42	12.167	108.87	18.250	1.60		

Max.Eff.Inten.(mm/hr)=	85.37	60.64			
over (min)	10.00	20.00			
Storage Coeff. (min)=	7.54 (ii)	15.17 (ii)			
Unit Hyd. Tpeak (min)=	10.00	20.00			
Unit Hyd. peak (cms)=	0.13	0.07			
			TOTALS		
PEAK FLOW (cms)=	7.79	3.05	9.823 (iii)		
TIME TO PEAK (hrs)=	12.25	12.42	12.25		
RUNOFF VOLUME (mm)=	64.75	28.63	44.52		
TOTAL RAINFALL (mm)=	69.75	69.75	69.75		
RUNOFF COEFFICIENT =	0.93	0.41	0.64		

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 67.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0003)	Area (ha)= 7.88
ID= 1 DT= 5.0 min	Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	3.94	3.94
Dep. Storage (mm)=	5.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	229.20	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.12	12.250	85.37	18.33	1.26
0.167	0.00	6.250	1.12	12.333	10.05	18.42	1.26
0.250	0.00	6.333	1.26	12.417	10.04	18.50	1.26

ID = 3 (0300): 97.50 10.848 12.25 44.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0030)	OVERFLOW IS OFF
IN= 2---> OUT= 1	
DT= 5.0 min	

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	2.7700	2.8400
0.8200	1.4400	3.2200	3.1300
1.3700	1.8900	5.2900	4.3700
1.7800	2.1800	6.1500	5.4900
2.3300	2.5500	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0300)	97.500	10.848	12.25	44.43
OUTFLOW: ID= 1 (0030)	97.500	1.770	13.00	44.43

PEAK FLOW REDUCTION [Qout/Qin](%)= 16.32
TIME SHIFT OF PEAK FLOW (min)= 45.00
MAXIMUM STORAGE USED (ha.m.)= 2.1738

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================================================================================
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        V    V   I    SSSSS  U    U    A    L                (v 6.2.2015)
        V    V   I    SS     U    U   A A   L
         V  V    I     SS    U    U  AAAAA  L
          V V    I      SS   U    U  A   A  L
           VV    I    SSSSS  UUUUU  A   A  LLLLL

         OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO   TM
        O   O    T      T    H   H   Y Y   MM MM  O   O
        O   O    T      T    H   H    Y    M M M  O   O
         OOO     T      T    H   H    Y    M   M   OOO

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                  *****  D E T A I L E D   O U T P U T *****

  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b02841e\91
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24c043-7d81-405b-8e22-03ee985d875b\sc
Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\91
24c043-7d81-405b-8e22-03ee985d875b\sc

DATE: 11-27-2024 TIME: 08:52:04

USER:

COMMENTS: _____

```
**********************************************
** SIMULATION : 3B - 5yr 24hr 15min SCS Type  **
**********************************************
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READ STORM	Filename: C:\Users\jfletcher\AppData\Local\Temp\f7771102-1e26-4a23-9fad-5d61ceae4d2b\fa96227f
Ptotal= 88.95 mm	Comments: 5yr 24hr 15min SCS Type II (MTO)

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	1.60	12.50	12.81	18.75	1.60
0.25	0.98	6.50	1.60	12.75	6.58	19.00	1.60
0.50	0.98	6.75	1.60	13.00	6.58	19.25	1.60
0.75	0.98	7.00	1.60	13.25	4.80	19.50	1.60
1.00	0.98	7.25	1.96	13.50	4.80	19.75	1.60
1.25	0.98	7.50	1.96	13.75	3.74	20.00	1.60
1.50	0.98	7.75	1.96	14.00	3.74	20.25	1.07
1.75	0.98	8.00	1.96	14.25	2.67	20.50	1.07
2.00	0.98	8.25	2.31	14.50	2.67	20.75	1.07
2.25	1.16	8.50	2.31	14.75	2.67	21.00	1.07
2.50	1.16	8.75	2.49	15.00	2.67	21.25	1.07
2.75	1.16	9.00	2.49	15.25	2.67	21.50	1.07
3.00	1.16	9.25	2.85	15.50	2.67	21.75	1.07
3.25	1.16	9.50	2.85	15.75	2.67	22.00	1.07
3.50	1.16	9.75	3.20	16.00	2.67	22.25	1.07
3.75	1.16	10.00	3.20	16.25	1.60	22.50	1.07
4.00	1.16	10.25	4.09	16.50	1.60	22.75	1.07
4.25	1.42	10.50	4.09	16.75	1.60	23.00	1.07
4.50	1.42	10.75	5.51	17.00	1.60	23.25	1.07
4.75	1.42	11.00	5.51	17.25	1.60	23.50	1.07
5.00	1.42	11.25	8.54	17.50	1.60	23.75	1.07
5.25	1.42	11.50	8.54	17.75	1.60	24.00	1.07
5.50	1.42	11.75	26.33	18.00	1.60		
5.75	1.42	12.00	108.87	18.25	1.60		
6.00	1.42	12.25	12.81	18.50	1.60		

```
Max.Eff.Inten.(mm/hr)=     108.87       151.59
          over (min)         5.00        15.00
Storage Coeff.  (min)=       6.10 (ii)   10.83 (ii)
Unit Hyd. Tpeak (min)=       5.00        15.00
Unit Hyd. peak  (cms)=       0.19         0.09
                                                *TOTALS*
PEAK FLOW      (cms)=        4.74         1.83        6.346 (iii)
TIME TO PEAK   (hrs)=       12.25        12.33       12.25
RUNOFF VOLUME   (mm)=       83.95        50.68       68.98
TOTAL RAINFALL  (mm)=       88.95        88.95       88.95
RUNOFF COEFFICIENT   =       0.94         0.57        0.78

   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  67.0    Ia = Dep. Storage  (Above)
  (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
       THAN THE STORAGE COEFFICIENT.
 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
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| CALIB          |
| STANDHYD (  0001)|   Area    (ha)=  4.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
------------------

                        IMPERVIOUS     PERVIOUS (i)
     Surface Area     (ha)=       2.11         2.11
     Dep. Storage     (mm)=       5.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     167.53        40.00
     Mannings n            =      0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.083    0.00 | 6.167    1.42 |12.250  108.87 | 18.33    1.60
     0.167    0.00 | 6.250    1.42 |12.333   12.82 | 18.42    1.60
     0.250    0.00 | 6.333    1.60 |12.417   12.81 | 18.50    1.60
     0.333    0.98 | 6.417    1.60 |12.500   12.81 | 18.58    1.60
     0.417    0.98 | 6.500    1.60 |12.583   12.81 | 18.67    1.60
     0.500    0.98 | 6.583    1.60 |12.667   12.81 | 18.75    1.60
     0.583    0.98 | 6.667    1.60 |12.750   12.81 | 18.83    1.60
     0.667    0.98 | 6.750    1.60 |12.833    6.58 | 18.92    1.60
     0.750    0.98 | 6.833    1.60 |12.917    6.58 | 19.00    1.60
     0.833    0.98 | 6.917    1.60 |13.000    6.58 | 19.08    1.60
     0.917    0.98 | 7.000    1.60 |13.083    6.58 | 19.17    1.60
     1.000    0.98 | 7.083    1.60 |13.167    6.58 | 19.25    1.60
     1.083    0.98 | 7.167    1.60 |13.250    6.58 | 19.33    1.60
     1.167    0.98 | 7.250    1.60 |13.333    4.80 | 19.42    1.60
     1.250    0.98 | 7.333    1.96 |13.417    4.80 | 19.50    1.60
     1.333    0.98 | 7.417    1.96 |13.500    4.80 | 19.58    1.60
     1.417    0.98 | 7.500    1.96 |13.583    4.80 | 19.67    1.60
     1.500    0.98 | 7.583    1.96 |13.667    4.80 | 19.75    1.60
     1.583    0.98 | 7.667    1.96 |13.750    4.80 | 19.83    1.60
     1.667    0.98 | 7.750    1.96 |13.833    3.74 | 19.92    1.60
     1.750    0.98 | 7.833    1.96 |13.917    3.74 | 20.00    1.60
     1.833    0.98 | 7.917    1.96 |14.000    3.74 | 20.08    1.60
     1.917    0.98 | 8.000    1.96 |14.083    3.74 | 20.17    1.60
     2.000    0.98 | 8.083    1.96 |14.167    3.74 | 20.25    1.60
     2.083    0.98 | 8.167    1.96 |14.250    3.74 | 20.33    1.07
     2.167    0.98 | 8.250    1.96 |14.333    2.67 | 20.42    1.07
     2.250    0.98 | 8.333    2.31 |14.417    2.67 | 20.50    1.07
     2.333    1.16 | 8.417    2.31 |14.500    2.67 | 20.58    1.07
     2.417    1.16 | 8.500    2.31 |14.583    2.67 | 20.67    1.07
     2.500    1.16 | 8.583    2.31 |14.667    2.67 | 20.75    1.07
     2.583    1.16 | 8.667    2.31 |14.750    2.67 | 20.83    1.07
     2.667    1.16 | 8.750    2.31 |14.833    2.67 | 20.92    1.07
     2.750    1.16 | 8.833    2.49 |14.917    2.67 | 21.00    1.07
     2.833    1.16 | 8.917    2.49 |15.000    2.67 | 21.08    1.07
     2.917    1.16 | 9.000    2.49 |15.083    2.67 | 21.17    1.07
     3.000    1.16 | 9.083    2.49 |15.167    2.67 | 21.25    1.07
     3.083    1.16 | 9.167    2.49 |15.250    2.67 | 21.33    1.07
     3.167    1.16 | 9.250    2.49 |15.333    2.67 | 21.42    1.07
     3.250    1.16 | 9.333    2.85 |15.417    2.67 | 21.50    1.07
     3.333    1.16 | 9.417    2.85 |15.500    2.67 | 21.58    1.07
     3.417    1.16 | 9.500    2.85 |15.583    2.67 | 21.67    1.07
     3.500    1.16 | 9.583    2.85 |15.667    2.67 | 21.75    1.07
     3.583    1.16 | 9.667    2.85 |15.750    2.67 | 21.83    1.07
     3.667    1.16 | 9.750    2.85 |15.833    2.67 | 21.92    1.07
     3.750    1.16 | 9.833    3.20 |15.917    2.67 | 22.00    1.07
     3.833    1.16 | 9.917    3.20 |16.000    2.67 | 22.08    1.07
     3.917    1.16 |10.000    3.20 |16.083    2.67 | 22.17    1.07
     4.000    1.16 |10.083    3.20 |16.167    2.67 | 22.25    1.07
     4.083    1.16 |10.167    3.20 |16.250    2.67 | 22.33    1.07
     4.167    1.16 |10.250    3.20 |16.333    1.60 | 22.42    1.07
     4.250    1.16 |10.333    4.09 |16.417    1.60 | 22.50    1.07
     4.333    1.42 |10.417    4.09 |16.500    1.60 | 22.58    1.07
     4.417    1.42 |10.500    4.09 |16.583    1.60 | 22.67    1.07
     4.500    1.42 |10.583    4.09 |16.667    1.60 | 22.75    1.07
     4.583    1.42 |10.667    4.09 |16.750    1.60 | 22.83    1.07
     4.667    1.42 |10.750    4.09 |16.833    1.60 | 22.92    1.07
     4.750    1.42 |10.833    5.51 |16.917    1.60 | 23.00    1.07
     4.833    1.42 |10.917    5.51 |17.000    1.60 | 23.08    1.07
     4.917    1.42 |11.000    5.51 |17.083    1.60 | 23.17    1.07
     5.000    1.42 |11.083    5.51 |17.167    1.60 | 23.25    1.07
     5.083    1.42 |11.167    5.51 |17.250    1.60 | 23.33    1.07
     5.167    1.42 |11.250    5.51 |17.333    1.60 | 23.42    1.07
     5.250    1.42 |11.333    8.54 |17.417    1.60 | 23.50    1.07
     5.333    1.42 |11.417    8.54 |17.500    1.60 | 23.58    1.07
     5.417    1.42 |11.500    8.54 |17.583    1.60 | 23.67    1.07
     5.500    1.42 |11.583    8.54 |17.667    1.60 | 23.75    1.07
     5.583    1.42 |11.667    8.54 |17.750    1.60 | 23.83    1.07
     5.667    1.42 |11.750    8.54 |17.833    1.60 | 23.92    1.07
     5.750    1.42 |11.833   26.33 |17.917    1.60 | 24.00    1.07
     5.833    1.42 |11.917   26.33 |18.000    1.60 | 24.08    1.07
     5.917    1.42 |12.000   26.33 |18.083    1.60 | 24.17    1.07
     6.000    1.42 |12.083  108.86 |18.167    1.60 | 24.25    1.07
     6.083    1.42 |12.167  108.87 |18.250    1.60 |

Max.Eff.Inten.(mm/hr)=     108.87        49.75
          over (min)         5.00        15.00
Storage Coeff.  (min)=       3.37 (ii)   12.70 (ii)
Unit Hyd. Tpeak (min)=       5.00        15.00
Unit Hyd. peak  (cms)=       0.26         0.08
                                                *TOTALS*
PEAK FLOW      (cms)=        0.63         0.17        0.775 (iii)
TIME TO PEAK   (hrs)=       12.25        12.33       12.25
RUNOFF VOLUME   (mm)=       83.95        33.71       58.83
TOTAL RAINFALL  (mm)=       88.95        88.95       88.95
RUNOFF COEFFICIENT   =       0.94         0.38        0.66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  67.0    Ia = Dep. Storage  (Above)
  (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
       THAN THE STORAGE COEFFICIENT.
 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
------------------
| ADD HYD  (  0100)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):     4.21    0.775    12.25     58.83
     + ID2= 2 (  0201):    30.52    6.346    12.25     68.98
       ================================================
       ID = 3 (  0100):    34.73    7.121    12.25     67.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
```

```
                        0.0000    0.0000  |   1.0900    1.0400
                        0.3100    0.5460  |   1.2700    1.1400
                        0.5250    0.7030  |   2.1100    1.5700
                        0.6900    0.8068  |   2.4450    2.0600
                        0.9000    0.9400  |   0.0000    0.0000

                           AREA     QPEAK     TPEAK      R.V.
                           (ha)     (cms)     (hrs)      (mm)
  INFLOW : ID= 2 (  0100)     34.730     7.121     12.25      67.75
  OUTFLOW: ID= 1 (  0010)     34.730     1.271     12.75      67.73

            PEAK   FLOW   REDUCTION [Qout/Qin](%)= 17.86
            TIME SHIFT OF PEAK FLOW       (min)= 30.00
            MAXIMUM  STORAGE   USED       (ha.m.)=  1.1418

-------------------------------------------------------------------------------
------------------
| CALIB          |
| STANDHYD (  0202)|   Area    (ha)=  28.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  57.00
------------------

                        IMPERVIOUS     PERVIOUS (i)
     Surface Area     (ha)=      19.08         8.98
     Dep. Storage     (mm)=       5.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     432.51        40.00
     Mannings n            =      0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.083    0.00 | 6.167    1.42 |12.250  108.87 | 18.33    1.60
     0.167    0.00 | 6.250    1.42 |12.333   12.82 | 18.42    1.60
     0.250    0.00 | 6.333    1.60 |12.417   12.81 | 18.50    1.60
     0.333    0.98 | 6.417    1.60 |12.500   12.81 | 18.58    1.60
     0.417    0.98 | 6.500    1.60 |12.583   12.81 | 18.67    1.60
     0.500    0.98 | 6.583    1.60 |12.667   12.81 | 18.75    1.60
     0.583    0.98 | 6.667    1.60 |12.750   12.81 | 18.83    1.60
     0.667    0.98 | 6.750    1.60 |12.833    6.58 | 18.92    1.60
     0.750    0.98 | 6.833    1.60 |12.917    6.58 | 19.00    1.60
     0.833    0.98 | 6.917    1.60 |13.000    6.58 | 19.08    1.60
     0.917    0.98 | 7.000    1.60 |13.083    6.58 | 19.17    1.60
     1.000    0.98 | 7.083    1.60 |13.167    6.58 | 19.25    1.60
     1.083    0.98 | 7.167    1.60 |13.250    6.58 | 19.33    1.60
     1.167    0.98 | 7.250    1.60 |13.333    4.80 | 19.42    1.60
     1.250    0.98 | 7.333    1.96 |13.417    4.80 | 19.50    1.60
     1.333    0.98 | 7.417    1.96 |13.500    4.80 | 19.58    1.60
     1.417    0.98 | 7.500    1.96 |13.583    4.80 | 19.67    1.60
     1.500    0.98 | 7.583    1.96 |13.667    4.80 | 19.75    1.60
     1.583    0.98 | 7.667    1.96 |13.750    4.80 | 19.83    1.60
     1.667    0.98 | 7.750    1.96 |13.833    3.74 | 19.92    1.60
     1.750    0.98 | 7.833    1.96 |13.917    3.74 | 20.00    1.60
     1.833    0.98 | 7.917    1.96 |14.000    3.74 | 20.08    1.60
     1.917    0.98 | 8.000    1.96 |14.083    3.74 | 20.17    1.60
     2.000    0.98 | 8.083    1.96 |14.167    3.74 | 20.25    1.60
     2.083    0.98 | 8.167    1.96 |14.250    3.74 | 20.33    1.07
     2.167    0.98 | 8.250    1.96 |14.333    2.67 | 20.42    1.07
     2.250    0.98 | 8.333    2.31 |14.417    2.67 | 20.50    1.07
     2.333    1.16 | 8.417    2.31 |14.500    2.67 | 20.58    1.07
     2.417    1.16 | 8.500    2.31 |14.583    2.67 | 20.67    1.07
     2.500    1.16 | 8.583    2.31 |14.667    2.67 | 20.75    1.07
     2.583    1.16 | 8.667    2.31 |14.750    2.67 | 20.83    1.07
     2.667    1.16 | 8.750    2.31 |14.833    2.67 | 20.92    1.07
     2.750    1.16 | 8.833    2.49 |14.917    2.67 | 21.00    1.07
     2.833    1.16 | 8.917    2.49 |15.000    2.67 | 21.08    1.07
     2.917    1.16 | 9.000    2.49 |15.083    2.67 | 21.17    1.07
     3.000    1.16 | 9.083    2.49 |15.167    2.67 | 21.25    1.07
     3.083    1.16 | 9.167    2.49 |15.250    2.67 | 21.33    1.07
     3.167    1.16 | 9.250    2.49 |15.333    2.67 | 21.42    1.07
     3.250    1.16 | 9.333    2.85 |15.417    2.67 | 21.50    1.07
     3.333    1.16 | 9.417    2.85 |15.500    2.67 | 21.58    1.07
     3.417    1.16 | 9.500    2.85 |15.583    2.67 | 21.67    1.07
     3.500    1.16 | 9.583    2.85 |15.667    2.67 | 21.75    1.07
     3.583    1.16 | 9.667    2.85 |15.750    2.67 | 21.83    1.07
     3.667    1.16 | 9.750    2.85 |15.833    2.67 | 21.92    1.07
     3.750    1.16 | 9.833    3.20 |15.917    2.67 | 22.00    1.07
     3.833    1.16 | 9.917    3.20 |16.000    2.67 | 22.08    1.07
     3.917    1.16 |10.000    3.20 |16.083    2.67 | 22.17    1.07
     4.000    1.16 |10.083    3.20 |16.167    2.67 | 22.25    1.07
     4.083    1.16 |10.167    3.20 |16.250    2.67 | 22.33    1.07
     4.167    1.16 |10.250    3.20 |16.333    1.60 | 22.42    1.07
     4.250    1.16 |10.333    4.09 |16.417    1.60 | 22.50    1.07
     4.333    1.42 |10.417    4.09 |16.500    1.60 | 22.58    1.07
     4.417    1.42 |10.500    4.09 |16.583    1.60 | 22.67    1.07
     4.500    1.42 |10.583    4.09 |16.667    1.60 | 22.75    1.07
     4.583    1.42 |10.667    4.09 |16.750    1.60 | 22.83    1.07
     4.667    1.42 |10.750    4.09 |16.833    1.60 | 22.92    1.07
     4.750    1.42 |10.833    5.51 |16.917    1.60 | 23.00    1.07
     4.833    1.42 |10.917    5.51 |17.000    1.60 | 23.08    1.07
     4.917    1.42 |11.000    5.51 |17.083    1.60 | 23.17    1.07
     5.000    1.42 |11.083    5.51 |17.167    1.60 | 23.25    1.07
     5.083    1.42 |11.167    5.51 |17.250    1.60 | 23.33    1.07
     5.167    1.42 |11.250    5.51 |17.333    1.60 | 23.42    1.07
     5.250    1.42 |11.333    8.54 |17.417    1.60 | 23.50    1.07
     5.333    1.42 |11.417    8.54 |17.500    1.60 | 23.58    1.07
     5.417    1.42 |11.500    8.54 |17.583    1.60 | 23.67    1.07
     5.500    1.42 |11.583    8.54 |17.667    1.60 | 23.75    1.07
     5.583    1.42 |11.667    8.54 |17.750    1.60 | 23.83    1.07
     5.667    1.42 |11.750    8.54 |17.833    1.60 | 23.92    1.07
     5.750    1.42 |11.833   26.33 |17.917    1.60 | 24.00    1.07
     5.833    1.42 |11.917   26.33 |18.000    1.60 | 24.08    1.07
     5.917    1.42 |12.000   26.33 |18.083    1.60 | 24.17    1.07
     6.000    1.42 |12.083  108.86 |18.167    1.60 | 24.25    1.07
     6.083    1.42 |12.167  108.87 |18.250    1.60 |

Max.Eff.Inten.(mm/hr)=     108.87        49.75
          over (min)         5.00        15.00
Storage Coeff.  (min)=       3.30 (ii)   12.63 (ii)
Unit Hyd. Tpeak (min)=       5.00        15.00
Unit Hyd. peak  (cms)=       0.27         0.08
                                                *TOTALS*
PEAK FLOW      (cms)=        0.59         0.16        0.728 (iii)
TIME TO PEAK   (hrs)=       12.25        12.33       12.25
RUNOFF VOLUME   (mm)=       83.95        33.71       58.83
TOTAL RAINFALL  (mm)=       88.95        88.95       88.95
RUNOFF COEFFICIENT   =       0.94         0.38        0.66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  67.0    Ia = Dep. Storage  (Above)
  (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
       THAN THE STORAGE COEFFICIENT.
 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
------------------
| ADD HYD  (  0200)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0002):     3.95    0.728    12.25     58.83
     + ID2= 2 (  0202):    28.06    5.522    12.25     65.37
       ================================================
       ID = 3 (  0200):    32.01    6.250    12.25     64.56
```

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     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                        0.0000    0.0000    |  1.8250     0.6819
                        0.6400    0.3757    |  2.1650     0.7600
                        1.0700    0.4858    |  4.0750     1.0700
                        1.3800    0.5709    |  4.7000     1.7300

                           AREA     QPEAK     TPEAK      R.V.
                           (ha)     (cms)     (hrs)      (mm)
  INFLOW : ID= 2 (  0200)     32.010     6.250     12.25      64.56
  OUTFLOW: ID= 1 (  0020)     32.010     1.993     12.50      64.56

            PEAK   FLOW   REDUCTION [Qout/Qin](%)= 31.88
            TIME SHIFT OF PEAK FLOW       (min)= 15.00
            MAXIMUM  STORAGE   USED       (ha.m.)=  0.7213

-------------------------------------------------------------------------------
------------------
| CALIB          |
| STANDHYD (  0203)|   Area    (ha)=  89.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  61.00   Dir. Conn.(%)=  44.00
------------------

                        IMPERVIOUS     PERVIOUS (i)
     Surface Area     (ha)=      54.67        34.95
     Dep. Storage     (mm)=       5.00         5.00
     Average Slope     (%)=       2.00         3.00
     Length            (m)=     772.96        40.00
     Mannings n            =      0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.083    0.00 | 6.167    1.42 |12.250  108.87 | 18.33    1.60
     0.167    0.00 | 6.250    1.42 |12.333   12.82 | 18.42    1.60
     0.250    0.00 | 6.333    1.60 |12.417   12.81 | 18.50    1.60
     0.333    0.98 | 6.417    1.60 |12.500   12.81 | 18.58    1.60
     0.417    0.98 | 6.500    1.60 |12.583   12.81 | 18.67    1.60
     0.500    0.98 | 6.583    1.60 |12.667   12.81 | 18.75    1.60
     0.583    0.98 | 6.667    1.60 |12.750   12.81 | 18.83    1.60
     0.667    0.98 | 6.750    1.60 |12.833    6.58 | 18.92    1.60
     0.750    0.98 | 6.833    1.60 |12.917    6.58 | 19.00    1.60
```

0.833	0.98	6.917	1.60	13.000	6.58	19.08	1.60
0.917	0.98	7.000	1.60	13.083	6.58	19.17	1.60
1.000	0.98	7.083	1.60	13.167	6.58	19.25	1.60
1.083	0.98	7.167	1.60	13.250	6.58	19.33	1.60
1.167	0.98	7.250	1.60	13.333	4.80	19.42	1.60
1.250	0.98	7.333	1.96	13.417	4.80	19.50	1.60
1.333	0.98	7.417	1.96	13.500	4.80	19.58	1.60
1.417	0.98	7.500	1.96	13.583	4.80	19.67	1.60
1.500	0.98	7.583	1.96	13.667	4.80	19.75	1.60
1.583	0.98	7.667	1.96	13.750	4.80	19.83	1.60
1.667	0.98	7.750	1.96	13.833	3.74	19.92	1.60
1.750	0.98	7.833	1.96	13.917	3.74	20.00	1.60
1.833	0.98	7.917	1.96	14.000	3.74	20.08	1.60
1.917	0.98	8.000	1.96	14.083	3.74	20.17	1.60
2.000	0.98	8.083	1.96	14.167	3.74	20.25	1.60
2.083	0.98	8.167	1.96	14.250	3.74	20.33	1.07
2.167	0.98	8.250	1.96	14.333	2.67	20.42	1.07
2.250	0.98	8.333	2.31	14.417	2.67	20.50	1.07
2.333	1.16	8.417	2.31	14.500	2.67	20.58	1.07
2.417	1.16	8.500	2.31	14.583	2.67	20.67	1.07
2.500	1.16	8.583	2.31	14.667	2.67	20.75	1.07
2.583	1.16	8.667	2.31	14.750	2.67	20.83	1.07
2.667	1.16	8.750	2.31	14.833	2.67	20.92	1.07
2.750	1.16	8.833	2.49	14.917	2.67	21.00	1.07
2.833	1.16	8.917	2.49	15.000	2.67	21.08	1.07
2.917	1.16	9.000	2.49	15.083	2.67	21.17	1.07
3.000	1.16	9.083	2.49	15.167	2.67	21.25	1.07
3.083	1.16	9.167	2.49	15.250	2.67	21.33	1.07
3.167	1.16	9.250	2.49	15.333	2.67	21.42	1.07
3.250	1.16	9.333	2.85	15.417	2.67	21.50	1.07
3.333	1.16	9.417	2.85	15.500	2.67	21.58	1.07
3.417	1.16	9.500	2.85	15.583	2.67	21.67	1.07
3.500	1.16	9.583	2.85	15.667	2.67	21.75	1.07
3.583	1.16	9.667	2.85	15.750	2.67	21.83	1.07
3.667	1.16	9.750	2.85	15.833	2.67	21.92	1.07
3.750	1.16	9.833	3.20	15.917	2.67	22.00	1.07
3.833	1.16	9.917	3.20	16.000	2.67	22.08	1.07
3.917	1.16	10.000	3.20	16.083	2.67	22.17	1.07
4.000	1.16	10.083	3.20	16.167	2.67	22.25	1.07
4.083	1.16	10.167	3.20	16.250	2.67	22.33	1.07
4.167	1.16	10.250	3.20	16.333	1.60	22.42	1.07
4.250	1.16	10.333	4.09	16.417	1.60	22.50	1.07
4.333	1.42	10.417	4.09	16.500	1.60	22.58	1.07
4.417	1.42	10.500	4.09	16.583	1.60	22.67	1.07
4.500	1.42	10.583	4.09	16.667	1.60	22.75	1.07
4.583	1.42	10.667	4.09	16.750	1.60	22.83	1.07
4.667	1.42	10.750	4.09	16.833	1.60	22.92	1.07
4.750	1.42	10.833	5.51	16.917	1.60	23.00	1.07
4.833	1.42	10.917	5.51	17.000	1.60	23.08	1.07
4.917	1.42	11.000	5.51	17.083	1.60	23.17	1.07
5.000	1.42	11.083	5.51	17.167	1.60	23.25	1.07
5.083	1.42	11.167	5.51	17.250	1.60	23.33	1.07
5.167	1.42	11.250	5.51	17.333	1.60	23.42	1.07
5.250	1.42	11.333	8.54	17.417	1.60	23.50	1.07
5.333	1.42	11.417	8.54	17.500	1.60	23.58	1.07
5.417	1.42	11.500	8.54	17.583	1.60	23.67	1.07
5.500	1.42	11.583	8.54	17.667	1.60	23.75	1.07
5.583	1.42	11.667	8.54	17.750	1.60	23.83	1.07
5.667	1.42	11.750	8.54	17.833	1.60	23.92	1.07
5.750	1.42	11.833	26.33	17.917	1.60	24.00	1.07
5.833	1.42	11.917	26.33	18.000	1.60	24.08	1.07
5.917	1.42	12.000	26.33	18.083	1.60	24.17	1.07
6.000	1.42	12.083	108.86	18.167	1.60	24.25	1.07
6.083	1.42	12.167	108.87	18.250	1.60		

Max.Eff.Inten.(mm/hr)=	108.87	49.75
over (min)	5.00	15.00
Storage Coeff. (min)=	4.06 (ii)	13.39 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.24	0.08
		TOTALS
PEAK FLOW (cms)=	1.17	0.31 1.431 (iii)
TIME TO PEAK (hrs)=	12.25	12.33 12.25
RUNOFF VOLUME (mm)=	83.95	33.71 58.83
TOTAL RAINFALL (mm)=	88.95	88.95 88.95
RUNOFF COEFFICIENT =	0.94	0.38 0.66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 67.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

3.50	1.33	9.75	3.67	16.00	3.06	22.25	1.22
3.75	1.33	10.00	3.67	16.25	1.84	22.50	1.22
4.00	1.33	10.25	4.69	16.50	1.84	22.75	1.22
4.25	1.63	10.50	4.69	16.75	1.84	23.00	1.22
4.50	1.63	10.75	6.32	17.00	1.84	23.25	1.22
4.75	1.63	11.00	6.32	17.25	1.84	23.50	1.22
5.00	1.63	11.25	9.79	17.50	1.84	23.75	1.22
5.25	1.63	11.50	9.79	17.75	1.84	24.00	1.22
5.50	1.63	11.75	30.18	18.00	1.84		
5.75	1.63	12.00	124.81	18.25	1.84		
6.00	1.63	12.25	14.68	18.50	1.84		

CALIB			
STANDHYD (0201)	Area	(ha)= 30.52	
ID= 1 DT= 5.0 min	Total Imp(%)= 78.00	Dir. Conn.(%)= 55.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	23.81	6.71
Dep. Storage (mm)=	5.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	451.07	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.63	12.250	124.81	18.33	1.84
0.167	0.00	6.250	1.63	12.333	14.70	18.42	1.84
0.250	0.00	6.333	1.84	12.417	14.68	18.50	1.84
0.333	1.12	6.417	1.84	12.500	14.68	18.58	1.84
0.417	1.12	6.500	1.84	12.583	14.68	18.67	1.84
0.500	1.12	6.583	1.84	12.667	14.68	18.75	1.84
0.583	1.12	6.667	1.84	12.750	14.68	18.83	1.84
0.667	1.12	6.750	1.84	12.833	7.55	18.92	1.84
0.750	1.12	6.833	1.84	12.917	7.55	19.00	1.84
0.833	1.12	6.917	1.84	13.000	7.55	19.08	1.84
0.917	1.12	7.000	1.84	13.083	7.55	19.17	1.84
1.000	1.12	7.083	1.84	13.167	7.55	19.25	1.84
1.083	1.12	7.167	1.84	13.250	7.55	19.33	1.84
1.167	1.12	7.250	2.24	13.333	5.51	19.42	1.84
1.250	1.12	7.333	2.24	13.417	5.51	19.50	1.84
1.333	1.12	7.417	2.24	13.500	5.51	19.58	1.84
1.417	1.12	7.500	2.24	13.583	5.51	19.67	1.84
1.500	1.12	7.583	2.24	13.667	5.51	19.75	1.84
1.583	1.12	7.667	2.24	13.750	5.51	19.83	1.84
1.667	1.12	7.750	2.24	13.833	4.28	19.92	1.84
1.750	1.12	7.833	2.24	13.917	4.28	20.00	1.84
1.833	1.12	7.917	2.24	14.000	4.28	20.08	1.84
1.917	1.12	8.000	2.24	14.083	4.28	20.17	1.84
2.000	1.12	8.083	2.24	14.167	4.28	20.25	1.84
2.083	1.12	8.167	2.24	14.250	4.28	20.33	1.22
2.167	1.12	8.250	2.24	14.333	3.06	20.42	1.22
2.250	1.12	8.333	2.65	14.417	3.06	20.50	1.22
2.333	1.33	8.417	2.65	14.500	3.06	20.58	1.22
2.417	1.33	8.500	2.65	14.583	3.06	20.67	1.22
2.500	1.33	8.583	2.65	14.667	3.06	20.75	1.22
2.583	1.33	8.667	2.65	14.750	3.06	20.83	1.22
2.667	1.33	8.750	2.65	14.833	3.06	20.92	1.22
2.750	1.33	8.833	2.86	14.917	3.06	21.00	1.22
2.833	1.33	8.917	2.86	15.000	3.06	21.08	1.22
2.917	1.33	9.000	2.86	15.083	3.06	21.17	1.22
3.000	1.33	9.083	2.86	15.167	3.06	21.25	1.22
3.083	1.33	9.167	2.86	15.250	3.06	21.33	1.22
3.167	1.33	9.250	2.86	15.333	3.06	21.42	1.22
3.250	1.33	9.333	3.26	15.417	3.06	21.50	1.22
3.333	1.33	9.417	3.26	15.500	3.06	21.58	1.22
3.417	1.33	9.500	3.26	15.583	3.06	21.67	1.22
3.500	1.33	9.583	3.26	15.667	3.06	21.75	1.22
3.583	1.33	9.667	3.26	15.750	3.06	21.83	1.22
3.667	1.33	9.750	3.26	15.833	3.06	21.92	1.22
3.750	1.33	9.833	3.67	15.917	3.06	22.00	1.22
3.833	1.33	9.917	3.67	16.000	3.06	22.08	1.22
3.917	1.33	10.000	3.67	16.083	3.06	22.17	1.22
4.000	1.33	10.083	3.67	16.167	3.06	22.25	1.22
4.083	1.33	10.167	3.67	16.250	3.06	22.33	1.22
4.167	1.33	10.250	3.67	16.333	1.84	22.42	1.22
4.250	1.33	10.333	4.69	16.417	1.84	22.50	1.22
4.333	1.63	10.417	4.69	16.500	1.84	22.58	1.22
4.417	1.63	10.500	4.69	16.583	1.84	22.67	1.22
4.500	1.63	10.583	4.69	16.667	1.84	22.75	1.22
4.583	1.63	10.667	4.69	16.750	1.84	22.83	1.22
4.667	1.63	10.750	4.69	16.833	1.84	22.92	1.22
4.750	1.63	10.833	6.32	16.917	1.84	23.00	1.22
4.833	1.63	10.917	6.32	17.000	1.84	23.08	1.22
4.917	1.63	11.000	6.32	17.083	1.84	23.17	1.22
5.000	1.63	11.083	6.32	17.167	1.84	23.25	1.22
5.083	1.63	11.167	6.32	17.250	1.84	23.33	1.22
5.167	1.63	11.250	6.32	17.333	1.84	23.42	1.22
5.250	1.63	11.333	9.79	17.417	1.84	23.50	1.22
5.333	1.63	11.417	9.79	17.500	1.84	23.58	1.22
5.417	1.63	11.500	9.79	17.583	1.84	23.67	1.22
5.500	1.63	11.583	9.79	17.667	1.84	23.75	1.22
5.583	1.63	11.667	9.79	17.750	1.84	23.83	1.22
5.667	1.63	11.750	9.79	17.833	1.84	23.92	1.22
5.750	1.63	11.833	30.18	17.917	1.84	24.00	1.22
5.833	1.63	11.917	30.18	18.000	1.84	24.08	1.22
5.917	1.63	12.000	30.18	18.083	1.84	24.17	1.22
6.000	1.63	12.083	124.80	18.167	1.84	24.25	1.22
6.083	1.63	12.167	124.81	18.250	1.84		

Max.Eff.Inten.(mm/hr)=	124.81	183.65
over (min)	5.00	15.00
Storage Coeff. (min)=	5.77 (ii)	10.25 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.20	0.09
		TOTALS
PEAK FLOW (cms)=	5.49	2.28 7.498 (iii)
TIME TO PEAK (hrs)=	12.25	12.33 12.25
RUNOFF VOLUME (mm)=	96.97	61.64 81.07
TOTAL RAINFALL (mm)=	101.97	101.97 101.97
RUNOFF COEFFICIENT =	0.95	0.60 0.80

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 67.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0001)	Area	(ha)= 4.21	
ID= 1 DT= 5.0 min	Total Imp(%)= 50.00	Dir. Conn.(%)= 50.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	2.11	2.11
Dep. Storage (mm)=	5.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	167.53	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.63	12.250	124.81	18.33	1.84
0.167	0.00	6.250	1.63	12.333	14.70	18.42	1.84
0.250	0.00	6.333	1.84	12.417	14.68	18.50	1.84
0.333	1.12	6.417	1.84	12.500	14.68	18.58	1.84
0.417	1.12	6.500	1.84	12.583	14.68	18.67	1.84
0.500	1.12	6.583	1.84	12.667	14.68	18.75	1.84

ADD HYD (0300)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0203):	89.62	15.211	12.25	60.64	
+ ID2= 2 (0003):	7.88	1.431	12.25	58.83	
ID = 3 (0300):	97.50	16.642	12.25	60.49	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0030)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW	STORAGE	OUTFLOW	STORAGE
	(cms)	(ha.m.)	(cms)	(ha.m.)
	0.0000	0.0000	2.7700	2.8400
	0.8200	1.4400	3.2200	3.1300
	1.3700	1.8900	5.2900	4.3700
	1.7800	2.1800	6.1500	5.4900
	2.3300	2.5500	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0300)	97.500	16.642	12.25	60.49
OUTFLOW: ID= 1 (0030)	97.500	2.806	12.83	60.49

PEAK FLOW REDUCTION [Qout/Qin](%)= 16.86
TIME SHIFT OF PEAK FLOW (min)= 35.00
MAXIMUM STORAGE USED (ha.m.)= 2.8661

V V I SSSSS U U A L (v 6.2.2015)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL

OOO TTTTT TTTTT H H Y Y M M OOO TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
OOO T T H H Y M M OOO

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\63c46df6-d808-46e8-a43d-69ff2206a424\sc
Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\63c46df6-d808-46e8-a43d-69ff2206a424\sc

DATE: 11-27-2024 TIME: 08:52:04

USER:

COMMENTS: _____

****
** SIMULATION : 3C - 10yr 24hr 15min SCS Type **
****

READ STORM	Filename: C:\Users\jfletcher\AppData\Local\Temp\f7771102-1e26-4a23-9fad-5d61ceae4d2b\741e36ee
Ptotal=101.97 mm	Comments: 10yr 24hr 15min SCS Type II (MTO)

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	1.84	12.50	14.68	18.75	1.84
0.25	1.12	6.50	1.84	12.75	7.55	19.00	1.84
0.50	1.12	6.75	1.84	13.00	7.55	19.25	1.84
0.75	1.12	7.00	1.84	13.25	5.51	19.50	1.84
1.00	1.12	7.25	2.24	13.50	5.51	19.75	1.84
1.25	1.12	7.50	2.24	13.75	4.28	20.00	1.84
1.50	1.12	7.75	2.24	14.00	4.28	20.25	1.22
1.75	1.12	8.00	2.24	14.25	3.06	20.50	1.22
2.00	1.12	8.25	2.65	14.50	3.06	20.75	1.22
2.25	1.33	8.50	2.65	14.75	3.06	21.00	1.22
2.50	1.33	8.75	2.86	15.00	3.06	21.25	1.22
2.75	1.33	9.00	2.86	15.25	3.06	21.50	1.22
3.00	1.33	9.25	3.26	15.50	3.06	21.75	1.22
3.25	1.33	9.50	3.26	15.75	3.06	22.00	1.22

```
   0.583    1.12 | 6.667    1.84 |12.750   14.68 | 18.83    1.84
   0.667    1.12 | 6.750    1.84 |12.833    7.55 | 18.92    1.84
   0.750    1.12 | 6.833    1.84 |12.917    7.55 | 19.00    1.84
   0.833    1.12 | 6.917    1.84 |13.000    7.55 | 19.08    1.84
   0.917    1.12 | 7.000    1.84 |13.083    7.55 | 19.17    1.84
   1.000    1.12 | 7.083    1.84 |13.167    7.55 | 19.25    1.84
   1.083    1.12 | 7.167    1.84 |13.250    7.55 | 19.33    1.84
   1.167    1.12 | 7.250    1.84 |13.333    5.51 | 19.42    1.84
   1.250    1.12 | 7.333    2.24 |13.417    5.51 | 19.50    1.84
   1.333    1.12 | 7.417    2.24 |13.500    5.51 | 19.58    1.84
   1.417    1.12 | 7.500    2.24 |13.583    5.51 | 19.67    1.84
   1.500    1.12 | 7.583    2.24 |13.667    5.51 | 19.75    1.84
   1.583    1.12 | 7.667    2.24 |13.750    5.51 | 19.83    1.84
   1.667    1.12 | 7.750    2.24 |13.833    4.28 | 19.92    1.84
   1.750    1.12 | 7.833    2.24 |13.917    4.28 | 20.00    1.84
   1.833    1.12 | 7.917    2.24 |14.000    4.28 | 20.08    1.84
   1.917    1.12 | 8.000    2.24 |14.083    4.28 | 20.17    1.84
   2.000    1.12 | 8.083    2.24 |14.167    4.28 | 20.25    1.84
   2.083    1.12 | 8.167    2.24 |14.250    4.28 | 20.33    1.22
   2.167    1.12 | 8.250    2.24 |14.333    3.06 | 20.42    1.22
   2.250    1.12 | 8.333    2.65 |14.417    3.06 | 20.50    1.22
   2.333    1.33 | 8.417    2.65 |14.500    3.06 | 20.58    1.22
   2.417    1.33 | 8.500    2.65 |14.583    3.06 | 20.67    1.22
   2.500    1.33 | 8.583    2.65 |14.667    3.06 | 20.75    1.22
   2.583    1.33 | 8.667    2.65 |14.750    3.06 | 20.83    1.22
   2.667    1.33 | 8.750    2.65 |14.833    3.06 | 20.92    1.22
   2.750    1.33 | 8.833    2.86 |14.917    3.06 | 21.00    1.22
   2.833    1.33 | 8.917    2.86 |15.000    3.06 | 21.08    1.22
   2.917    1.33 | 9.000    2.86 |15.083    3.06 | 21.17    1.22
   3.000    1.33 | 9.083    2.86 |15.167    3.06 | 21.25    1.22
   3.083    1.33 | 9.167    2.86 |15.250    3.06 | 21.33    1.22
   3.167    1.33 | 9.250    2.86 |15.333    3.06 | 21.42    1.22
   3.250    1.33 | 9.333    3.26 |15.417    3.06 | 21.50    1.22
   3.333    1.33 | 9.417    3.26 |15.500    3.06 | 21.58    1.22
   3.417    1.33 | 9.500    3.26 |15.583    3.06 | 21.67    1.22
   3.500    1.33 | 9.583    3.26 |15.667    3.06 | 21.75    1.22
   3.583    1.33 | 9.667    3.26 |15.750    3.06 | 21.83    1.22
   3.667    1.33 | 9.750    3.26 |15.833    3.06 | 21.92    1.22
   3.750    1.33 | 9.833    3.67 |15.917    3.06 | 22.00    1.22
   3.833    1.33 | 9.917    3.67 |16.000    3.06 | 22.08    1.22
   3.917    1.33 |10.000    3.67 |16.083    3.06 | 22.17    1.22
   4.000    1.33 |10.083    3.67 |16.167    3.06 | 22.25    1.22
   4.083    1.33 |10.167    3.67 |16.250    3.06 | 22.33    1.22
   4.167    1.33 |10.250    3.67 |16.333    1.84 | 22.42    1.22
   4.250    1.33 |10.333    4.69 |16.417    1.84 | 22.50    1.22
   4.333    1.63 |10.417    4.69 |16.500    1.84 | 22.58    1.22
   4.417    1.63 |10.500    4.69 |16.583    1.84 | 22.67    1.22
   4.500    1.63 |10.583    4.69 |16.667    1.84 | 22.75    1.22
   4.583    1.63 |10.667    4.69 |16.750    1.84 | 22.83    1.22
   4.667    1.63 |10.750    4.69 |16.833    1.84 | 22.92    1.22
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   4.750    1.63 |10.833    6.32 |16.917    1.84 | 23.00    1.22
   4.833    1.63 |10.917    6.32 |17.000    1.84 | 23.08    1.22
   4.917    1.63 |11.000    6.32 |17.083    1.84 | 23.17    1.22
   5.000    1.63 |11.083    6.32 |17.167    1.84 | 23.25    1.22
   5.083    1.63 |11.167    6.32 |17.250    1.84 | 23.33    1.22
   5.167    1.63 |11.250    6.32 |17.333    1.84 | 23.42    1.22
   5.250    1.63 |11.333    9.79 |17.417    1.84 | 23.50    1.22
   5.333    1.63 |11.417    9.79 |17.500    1.84 | 23.58    1.22
   5.417    1.63 |11.500    9.79 |17.583    1.84 | 23.67    1.22
   5.500    1.63 |11.583    9.79 |17.667    1.84 | 23.75    1.22
   5.583    1.63 |11.667    9.79 |17.750    1.84 | 23.83    1.22
   5.667    1.63 |11.750    9.79 |17.833    1.84 | 23.92    1.22
   5.750    1.63 |11.833   30.18 |17.917    1.84 | 24.00    1.22
   5.833    1.63 |11.917   30.18 |18.000    1.84 | 24.08    1.22
   5.917    1.63 |12.000   30.18 |18.083    1.84 | 24.17    1.22
   6.000    1.63 |12.083  124.80 |18.167    1.84 | 24.25    1.22
   6.083    1.63 |12.167  124.81 |18.250    1.84 |

     Max.Eff.Inten.(mm/hr)=     124.81        62.46
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.19 (ii)   11.71 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.72         0.22        0.915 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.33        12.25
     RUNOFF VOLUME    (mm)=      96.97        42.34        69.65
     TOTAL RAINFALL   (mm)=     101.97       101.97       101.97
     RUNOFF COEFFICIENT   =       0.95         0.42         0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0100)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     4.21   0.915    12.25    69.65
      + ID2= 2 (  0201):    30.52   7.498    12.25    81.07
        =====================================================
        ID = 3 (  0100):    34.73   8.414    12.25    79.69

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   1.0900     1.0400
                          0.3100     0.5460   |   1.2700     1.1400
                          0.5250     0.7030   |   2.1100     1.5700
                          0.6900     0.8068   |   2.4450     2.0600
                          0.9000     0.9400   |   0.0000     0.0000

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
  INFLOW : ID= 2 (  0100)      34.730      8.414     12.25      79.69
  OUTFLOW: ID= 1 (  0010)      34.730      1.613     12.75      79.68

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 19.17
                  TIME SHIFT OF PEAK FLOW         (min)= 30.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.3165

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=  28.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  57.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      19.08         8.98
     Dep. Storage     (mm)=       5.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     432.51        40.00
     Mannings n          =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                            ---- TRANSFORMED HYETOGRAPH ----
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.083    0.00 | 6.167    1.63 |12.250  124.81 | 18.33    1.84
                 0.167    0.00 | 6.250    1.63 |12.333   14.70 | 18.42    1.84
                 0.250    0.00 | 6.333    1.84 |12.417   14.68 | 18.50    1.84
                 0.333    1.12 | 6.417    1.84 |12.500   14.68 | 18.58    1.84
                 0.417    1.12 | 6.500    1.84 |12.583   14.68 | 18.67    1.84
                 0.500    1.12 | 6.583    1.84 |12.667   14.68 | 18.75    1.84
                 0.583    1.12 | 6.667    1.84 |12.750   14.68 | 18.83    1.84
                 0.667    1.12 | 6.750    1.84 |12.833    7.55 | 18.92    1.84
                 0.750    1.12 | 6.833    1.84 |12.917    7.55 | 19.00    1.84
                 0.833    1.12 | 6.917    1.84 |13.000    7.55 | 19.08    1.84
```

```
   0.917    1.12 | 7.000    1.84 |13.083    7.55 | 19.17    1.84
   1.000    1.12 | 7.083    1.84 |13.167    7.55 | 19.25    1.84
   1.083    1.12 | 7.167    1.84 |13.250    7.55 | 19.33    1.84
   1.167    1.12 | 7.250    1.84 |13.333    5.51 | 19.42    1.84
   1.250    1.12 | 7.333    2.24 |13.417    5.51 | 19.50    1.84
   1.333    1.12 | 7.417    2.24 |13.500    5.51 | 19.58    1.84
   1.417    1.12 | 7.500    2.24 |13.583    5.51 | 19.67    1.84
   1.500    1.12 | 7.583    2.24 |13.667    5.51 | 19.75    1.84
   1.583    1.12 | 7.667    2.24 |13.750    5.51 | 19.83    1.84
   1.667    1.12 | 7.750    2.24 |13.833    4.28 | 19.92    1.84
   1.750    1.12 | 7.833    2.24 |13.917    4.28 | 20.00    1.84
   1.833    1.12 | 7.917    2.24 |14.000    4.28 | 20.08    1.84
   1.917    1.12 | 8.000    2.24 |14.083    4.28 | 20.17    1.84
   2.000    1.12 | 8.083    2.24 |14.167    4.28 | 20.25    1.84
   2.083    1.12 | 8.167    2.24 |14.250    4.28 | 20.33    1.22
   2.167    1.12 | 8.250    2.24 |14.333    3.06 | 20.42    1.22
   2.250    1.12 | 8.333    2.65 |14.417    3.06 | 20.50    1.22
   2.333    1.33 | 8.417    2.65 |14.500    3.06 | 20.58    1.22
   2.417    1.33 | 8.500    2.65 |14.583    3.06 | 20.67    1.22
   2.500    1.33 | 8.583    2.65 |14.667    3.06 | 20.75    1.22
   2.583    1.33 | 8.667    2.65 |14.750    3.06 | 20.83    1.22
   2.667    1.33 | 8.750    2.65 |14.833    3.06 | 20.92    1.22
   2.750    1.33 | 8.833    2.86 |14.917    3.06 | 21.00    1.22
   2.833    1.33 | 8.917    2.86 |15.000    3.06 | 21.08    1.22
   2.917    1.33 | 9.000    2.86 |15.083    3.06 | 21.17    1.22
   3.000    1.33 | 9.083    2.86 |15.167    3.06 | 21.25    1.22
   3.083    1.33 | 9.167    2.86 |15.250    3.06 | 21.33    1.22
   3.167    1.33 | 9.250    2.86 |15.333    3.06 | 21.42    1.22
   3.250    1.33 | 9.333    3.26 |15.417    3.06 | 21.50    1.22
   3.333    1.33 | 9.417    3.26 |15.500    3.06 | 21.58    1.22
   3.417    1.33 | 9.500    3.26 |15.583    3.06 | 21.67    1.22
   3.500    1.33 | 9.583    3.26 |15.667    3.06 | 21.75    1.22
   3.583    1.33 | 9.667    3.26 |15.750    3.06 | 21.83    1.22
   3.667    1.33 | 9.750    3.26 |15.833    3.06 | 21.92    1.22
   3.750    1.33 | 9.833    3.67 |15.917    3.06 | 22.00    1.22
   3.833    1.33 | 9.917    3.67 |16.000    3.06 | 22.08    1.22
   3.917    1.33 |10.000    3.67 |16.083    3.06 | 22.17    1.22
   4.000    1.33 |10.083    3.67 |16.167    3.06 | 22.25    1.22
   4.083    1.33 |10.167    3.67 |16.250    3.06 | 22.33    1.22
   4.167    1.33 |10.250    3.67 |16.333    1.84 | 22.42    1.22
   4.250    1.33 |10.333    4.69 |16.417    1.84 | 22.50    1.22
   4.333    1.63 |10.417    4.69 |16.500    1.84 | 22.58    1.22
   4.417    1.63 |10.500    4.69 |16.583    1.84 | 22.67    1.22
   4.500    1.63 |10.583    4.69 |16.667    1.84 | 22.75    1.22
   4.583    1.63 |10.667    4.69 |16.750    1.84 | 22.83    1.22
   4.667    1.63 |10.750    4.69 |16.833    1.84 | 22.92    1.22
   4.750    1.63 |10.833    6.32 |16.917    1.84 | 23.00    1.22
   4.833    1.63 |10.917    6.32 |17.000    1.84 | 23.08    1.22
   4.917    1.63 |11.000    6.32 |17.083    1.84 | 23.17    1.22
   5.000    1.63 |11.083    6.32 |17.167    1.84 | 23.25    1.22
```

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   5.083    1.63 |11.167    6.32 |17.250    1.84 | 23.33    1.22
   5.167    1.63 |11.250    6.32 |17.333    1.84 | 23.42    1.22
   5.250    1.63 |11.333    9.79 |17.417    1.84 | 23.50    1.22
   5.333    1.63 |11.417    9.79 |17.500    1.84 | 23.58    1.22
   5.417    1.63 |11.500    9.79 |17.583    1.84 | 23.67    1.22
   5.500    1.63 |11.583    9.79 |17.667    1.84 | 23.75    1.22
   5.583    1.63 |11.667    9.79 |17.750    1.84 | 23.83    1.22
   5.667    1.63 |11.750    9.79 |17.833    1.84 | 23.92    1.22
   5.750    1.63 |11.833   30.18 |17.917    1.84 | 24.00    1.22
   5.833    1.63 |11.917   30.18 |18.000    1.84 | 24.08    1.22
   5.917    1.63 |12.000   30.18 |18.083    1.84 | 24.17    1.22
   6.000    1.63 |12.083  124.80 |18.167    1.84 | 24.25    1.22
   6.083    1.63 |12.167  124.81 |18.250    1.84 |

     Max.Eff.Inten.(mm/hr)=     124.81        99.72
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       5.63 (ii)   12.69 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.20         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       5.25         1.49        6.525 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.33        12.25
     RUNOFF VOLUME    (mm)=      96.97        50.45        76.96
     TOTAL RAINFALL   (mm)=     101.97       101.97       101.97
     RUNOFF COEFFICIENT   =       0.95         0.49         0.75


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD (  0002)|   Area    (ha)=   3.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.98         1.98
     Dep. Storage     (mm)=       5.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     162.28        40.00
     Mannings n          =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                            ---- TRANSFORMED HYETOGRAPH ----
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```
    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
   0.083    0.00 | 6.167    1.63 |12.250  124.81 | 18.33    1.84
   0.167    0.00 | 6.250    1.63 |12.333   14.70 | 18.42    1.84
   0.250    0.00 | 6.333    1.84 |12.417   14.68 | 18.50    1.84
   0.333    1.12 | 6.417    1.84 |12.500   14.68 | 18.58    1.84
   0.417    1.12 | 6.500    1.84 |12.583   14.68 | 18.67    1.84
   0.500    1.12 | 6.583    1.84 |12.667   14.68 | 18.75    1.84
   0.583    1.12 | 6.667    1.84 |12.750   14.68 | 18.83    1.84
   0.667    1.12 | 6.750    1.84 |12.833    7.55 | 18.92    1.84
   0.750    1.12 | 6.833    1.84 |12.917    7.55 | 19.00    1.84
   0.833    1.12 | 6.917    1.84 |13.000    7.55 | 19.08    1.84
   0.917    1.12 | 7.000    1.84 |13.083    7.55 | 19.17    1.84
   1.000    1.12 | 7.083    1.84 |13.167    7.55 | 19.25    1.84
   1.083    1.12 | 7.167    1.84 |13.250    7.55 | 19.33    1.84
   1.167    1.12 | 7.250    1.84 |13.333    5.51 | 19.42    1.84
   1.250    1.12 | 7.333    2.24 |13.417    5.51 | 19.50    1.84
   1.333    1.12 | 7.417    2.24 |13.500    5.51 | 19.58    1.84
   1.417    1.12 | 7.500    2.24 |13.583    5.51 | 19.67    1.84
   1.500    1.12 | 7.583    2.24 |13.667    5.51 | 19.75    1.84
   1.583    1.12 | 7.667    2.24 |13.750    5.51 | 19.83    1.84
   1.667    1.12 | 7.750    2.24 |13.833    4.28 | 19.92    1.84
   1.750    1.12 | 7.833    2.24 |13.917    4.28 | 20.00    1.84
   1.833    1.12 | 7.917    2.24 |14.000    4.28 | 20.08    1.84
   1.917    1.12 | 8.000    2.24 |14.083    4.28 | 20.17    1.84
   2.000    1.12 | 8.083    2.24 |14.167    4.28 | 20.25    1.84
   2.083    1.12 | 8.167    2.24 |14.250    4.28 | 20.33    1.22
   2.167    1.12 | 8.250    2.24 |14.333    3.06 | 20.42    1.22
   2.250    1.12 | 8.333    2.65 |14.417    3.06 | 20.50    1.22
   2.333    1.33 | 8.417    2.65 |14.500    3.06 | 20.58    1.22
   2.417    1.33 | 8.500    2.65 |14.583    3.06 | 20.67    1.22
   2.500    1.33 | 8.583    2.65 |14.667    3.06 | 20.75    1.22
   2.583    1.33 | 8.667    2.65 |14.750    3.06 | 20.83    1.22
   2.667    1.33 | 8.750    2.65 |14.833    3.06 | 20.92    1.22
   2.750    1.33 | 8.833    2.86 |14.917    3.06 | 21.00    1.22
   2.833    1.33 | 8.917    2.86 |15.000    3.06 | 21.08    1.22
   2.917    1.33 | 9.000    2.86 |15.083    3.06 | 21.17    1.22
   3.000    1.33 | 9.083    2.86 |15.167    3.06 | 21.25    1.22
   3.083    1.33 | 9.167    2.86 |15.250    3.06 | 21.33    1.22
   3.167    1.33 | 9.250    2.86 |15.333    3.06 | 21.42    1.22
   3.250    1.33 | 9.333    3.26 |15.417    3.06 | 21.50    1.22
   3.333    1.33 | 9.417    3.26 |15.500    3.06 | 21.58    1.22
   3.417    1.33 | 9.500    3.26 |15.583    3.06 | 21.67    1.22
   3.500    1.33 | 9.583    3.26 |15.667    3.06 | 21.75    1.22
   3.583    1.33 | 9.667    3.26 |15.750    3.06 | 21.83    1.22
   3.667    1.33 | 9.750    3.26 |15.833    3.06 | 21.92    1.22
   3.750    1.33 | 9.833    3.67 |15.917    3.06 | 22.00    1.22
   3.833    1.33 | 9.917    3.67 |16.000    3.06 | 22.08    1.22
   3.917    1.33 |10.000    3.67 |16.083    3.06 | 22.17    1.22
   4.000    1.33 |10.083    3.67 |16.167    3.06 | 22.25    1.22
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   4.083    1.33 |10.167    3.67 |16.250    3.06 | 22.33    1.22
   4.167    1.33 |10.250    3.67 |16.333    1.84 | 22.42    1.22
   4.250    1.33 |10.333    4.69 |16.417    1.84 | 22.50    1.22
   4.333    1.63 |10.417    4.69 |16.500    1.84 | 22.58    1.22
   4.417    1.63 |10.500    4.69 |16.583    1.84 | 22.67    1.22
   4.500    1.63 |10.583    4.69 |16.667    1.84 | 22.75    1.22
   4.583    1.63 |10.667    4.69 |16.750    1.84 | 22.83    1.22
   4.667    1.63 |10.750    4.69 |16.833    1.84 | 22.92    1.22
   4.750    1.63 |10.833    6.32 |16.917    1.84 | 23.00    1.22
   4.833    1.63 |10.917    6.32 |17.000    1.84 | 23.08    1.22
   4.917    1.63 |11.000    6.32 |17.083    1.84 | 23.17    1.22
   5.000    1.63 |11.083    6.32 |17.167    1.84 | 23.25    1.22
   5.083    1.63 |11.167    6.32 |17.250    1.84 | 23.33    1.22
   5.167    1.63 |11.250    6.32 |17.333    1.84 | 23.42    1.22
   5.250    1.63 |11.333    9.79 |17.417    1.84 | 23.50    1.22
   5.333    1.63 |11.417    9.79 |17.500    1.84 | 23.58    1.22
   5.417    1.63 |11.500    9.79 |17.583    1.84 | 23.67    1.22
   5.500    1.63 |11.583    9.79 |17.667    1.84 | 23.75    1.22
   5.583    1.63 |11.667    9.79 |17.750    1.84 | 23.83    1.22
   5.667    1.63 |11.750    9.79 |17.833    1.84 | 23.92    1.22
   5.750    1.63 |11.833   30.18 |17.917    1.84 | 24.00    1.22
   5.833    1.63 |11.917   30.18 |18.000    1.84 | 24.08    1.22
   5.917    1.63 |12.000   30.18 |18.083    1.84 | 24.17    1.22
   6.000    1.63 |12.083  124.80 |18.167    1.84 | 24.25    1.22
   6.083    1.63 |12.167  124.81 |18.250    1.84 |

     Max.Eff.Inten.(mm/hr)=     124.81        62.46
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.13 (ii)   11.65 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.68         0.21        0.860 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.33        12.25
     RUNOFF VOLUME    (mm)=      96.97        42.34        69.65
     TOTAL RAINFALL   (mm)=     101.97       101.97       101.97
     RUNOFF COEFFICIENT   =       0.95         0.42         0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0200)|
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```
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0002):     3.95   0.860    12.25    69.65
      + ID2= 2 (  0202):    28.06   6.525    12.25    76.96
        =====================================================
        ID = 3 (  0200):    32.01   7.385    12.25    76.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   1.8250     0.6819
                          0.6400     0.3757   |   2.1650     0.7600
                          1.0700     0.4858   |   4.0750     1.0700
                          1.3800     0.5709   |   4.7000     1.7300

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
  INFLOW : ID= 2 (  0200)      32.010      7.385     12.25      76.06
  OUTFLOW: ID= 1 (  0020)      32.010      2.567     12.50      76.06

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 34.76
                  TIME SHIFT OF PEAK FLOW         (min)= 15.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.8297

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--------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=  89.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  61.00   Dir. Conn.(%)=  44.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      54.67        34.95
     Dep. Storage     (mm)=       5.00         5.00
     Average Slope     (%)=       2.00         3.00
     Length            (m)=     772.96        40.00
     Mannings n          =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                            ---- TRANSFORMED HYETOGRAPH ----
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.083    0.00 | 6.167    1.63 |12.250  124.81 | 18.33    1.84
                 0.167    0.00 | 6.250    1.63 |12.333   14.70 | 18.42    1.84
                 0.250    0.00 | 6.333    1.84 |12.417   14.68 | 18.50    1.84
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   0.333    1.12 | 6.417    1.84 |12.500   14.68 | 18.58    1.84
   0.417    1.12 | 6.500    1.84 |12.583   14.68 | 18.67    1.84
   0.500    1.12 | 6.583    1.84 |12.667   14.68 | 18.75    1.84
   0.583    1.12 | 6.667    1.84 |12.750   14.68 | 18.83    1.84
   0.667    1.12 | 6.750    1.84 |12.833    7.55 | 18.92    1.84
   0.750    1.12 | 6.833    1.84 |12.917    7.55 | 19.00    1.84
   0.833    1.12 | 6.917    1.84 |13.000    7.55 | 19.08    1.84
   0.917    1.12 | 7.000    1.84 |13.083    7.55 | 19.17    1.84
   1.000    1.12 | 7.083    1.84 |13.167    7.55 | 19.25    1.84
   1.083    1.12 | 7.167    1.84 |13.250    7.55 | 19.33    1.84
   1.167    1.12 | 7.250    1.84 |13.333    5.51 | 19.42    1.84
   1.250    1.12 | 7.333    2.24 |13.417    5.51 | 19.50    1.84
   1.333    1.12 | 7.417    2.24 |13.500    5.51 | 19.58    1.84
   1.417    1.12 | 7.500    2.24 |13.583    5.51 | 19.67    1.84
   1.500    1.12 | 7.583    2.24 |13.667    5.51 | 19.75    1.84
   1.583    1.12 | 7.667    2.24 |13.750    5.51 | 19.83    1.84
   1.667    1.12 | 7.750    2.24 |13.833    4.28 | 19.92    1.84
   1.750    1.12 | 7.833    2.24 |13.917    4.28 | 20.00    1.84
   1.833    1.12 | 7.917    2.24 |14.000    4.28 | 20.08    1.84
   1.917    1.12 | 8.000    2.24 |14.083    4.28 | 20.17    1.84
   2.000    1.12 | 8.083    2.24 |14.167    4.28 | 20.25    1.84
   2.083    1.12 | 8.167    2.24 |14.250    4.28 | 20.33    1.22
   2.167    1.12 | 8.250    2.24 |14.333    3.06 | 20.42    1.22
   2.250    1.12 | 8.333    2.65 |14.417    3.06 | 20.50    1.22
   2.333    1.33 | 8.417    2.65 |14.500    3.06 | 20.58    1.22
   2.417    1.33 | 8.500    2.65 |14.583    3.06 | 20.67    1.22
   2.500    1.33 | 8.583    2.65 |14.667    3.06 | 20.75    1.22
   2.583    1.33 | 8.667    2.65 |14.750    3.06 | 20.83    1.22
   2.667    1.33 | 8.750    2.65 |14.833    3.06 | 20.92    1.22
   2.750    1.33 | 8.833    2.86 |14.917    3.06 | 21.00    1.22
   2.833    1.33 | 8.917    2.86 |15.000    3.06 | 21.08    1.22
   2.917    1.33 | 9.000    2.86 |15.083    3.06 | 21.17    1.22
   3.000    1.33 | 9.083    2.86 |15.167    3.06 | 21.25    1.22
   3.083    1.33 | 9.167    2.86 |15.250    3.06 | 21.33    1.22
   3.167    1.33 | 9.250    2.86 |15.333    3.06 | 21.42    1.22
   3.250    1.33 | 9.333    3.26 |15.417    3.06 | 21.50    1.22
   3.333    1.33 | 9.417    3.26 |15.500    3.06 | 21.58    1.22
   3.417    1.33 | 9.500    3.26 |15.583    3.06 | 21.67    1.22
   3.500    1.33 | 9.583    3.26 |15.667    3.06 | 21.75    1.22
   3.583    1.33 | 9.667    3.26 |15.750    3.06 | 21.83    1.22
   3.667    1.33 | 9.750    3.26 |15.833    3.06 | 21.92    1.22
   3.750    1.33 | 9.833    3.67 |15.917    3.06 | 22.00    1.22
   3.833    1.33 | 9.917    3.67 |16.000    3.06 | 22.08    1.22
   3.917    1.33 |10.000    3.67 |16.083    3.06 | 22.17    1.22
   4.000    1.33 |10.083    3.67 |16.167    3.06 | 22.25    1.22
   4.083    1.33 |10.167    3.67 |16.250    3.06 | 22.33    1.22
   4.167    1.33 |10.250    3.67 |16.333    1.84 | 22.42    1.22
   4.250    1.33 |10.333    4.69 |16.417    1.84 | 22.50    1.22
   4.333    1.63 |10.417    4.69 |16.500    1.84 | 22.58    1.22
   4.417    1.63 |10.500    4.69 |16.583    1.84 | 22.67    1.22
```

```
        4.500    1.63 |10.583    4.69 |16.667    1.84 |  22.75    1.22
        4.583    1.63 |10.667    4.69 |16.750    1.84 |  22.83    1.22
        4.667    1.63 |10.750    4.69 |16.833    1.84 |  22.92    1.22
        4.750    1.63 |10.833    6.32 |16.917    1.84 |  23.00    1.22
        4.833    1.63 |10.917    6.32 |17.000    1.84 |  23.08    1.22
        4.917    1.63 |11.000    6.32 |17.083    1.84 |  23.17    1.22
        5.000    1.63 |11.083    6.32 |17.167    1.84 |  23.25    1.22
        5.083    1.63 |11.167    6.32 |17.250    1.84 |  23.33    1.22
        5.167    1.63 |11.250    6.32 |17.333    1.84 |  23.42    1.22
        5.250    1.63 |11.333    9.79 |17.417    1.84 |  23.50    1.22
        5.333    1.63 |11.417    9.79 |17.500    1.84 |  23.58    1.22
        5.417    1.63 |11.500    9.79 |17.583    1.84 |  23.67    1.22
        5.500    1.63 |11.583    9.79 |17.667    1.84 |  23.75    1.22
        5.583    1.63 |11.667    9.79 |17.750    1.84 |  23.83    1.22
        5.667    1.63 |11.750    9.79 |17.833    1.84 |  23.92    1.22
        5.750    1.63 |11.833   30.18 |17.917    1.84 |  24.00    1.22
        5.833    1.63 |11.917   30.18 |18.000    1.84 |  24.08    1.22
        5.917    1.63 |12.000   30.18 |18.083    1.84 |  24.17    1.22
        6.000    1.63 |12.083  124.80 |18.167    1.84 |  24.25    1.22
        6.083    1.63 |12.167  124.81 |18.250    1.84 |

    Max.Eff.Inten.(mm/hr)=     124.81       110.26
                over (min)        5.00        15.00
    Storage Coeff.  (min)=     6.48 (ii)   12.49 (ii)
    Unit Hyd. Tpeak (min)=        5.00        15.00
    Unit Hyd. peak  (cms)=        0.18         0.08
                                                    *TOTALS*
    PEAK FLOW       (cms)=       12.63         6.48        18.200 (iii)
    TIME TO PEAK    (hrs)=       12.25        12.33         12.25
    RUNOFF VOLUME    (mm)=       96.97        52.26         71.93
    TOTAL RAINFALL   (mm)=      101.97       101.97        101.97
    RUNOFF COEFFICIENT  =         0.95         0.51          0.71

     (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
         CN* = 67.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD (  0003) |   Area    (ha)=  7.88
|ID= 1 DT= 5.0 min  |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
-------------------
                        IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       3.94         3.94
    Dep. Storage     (mm)=       5.00         5.00
    Average Slope     (%)=       1.00         2.00
```

```
    Length           (m)=     229.20       40.00
    Mannings n          =      0.013       0.250

    NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
     TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
      hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
    0.083    0.00 | 6.167    1.63 |12.250  124.81 | 18.33    1.84
    0.167    0.00 | 6.250    1.63 |12.333   14.70 | 18.42    1.84
    0.250    0.00 | 6.333    1.84 |12.417   14.68 | 18.50    1.84
    0.333    1.12 | 6.417    1.84 |12.500   14.68 | 18.58    1.84
    0.417    1.12 | 6.500    1.84 |12.583   14.68 | 18.67    1.84
    0.500    1.12 | 6.583    1.84 |12.667   14.68 | 18.75    1.84
    0.583    1.12 | 6.667    1.84 |12.750   14.68 | 18.83    1.84
    0.667    1.12 | 6.750    1.84 |12.833    7.55 | 18.92    1.84
    0.750    1.12 | 6.833    1.84 |12.917    7.55 | 19.00    1.84
    0.833    1.12 | 6.917    1.84 |13.000    7.55 | 19.08    1.84
    0.917    1.12 | 7.000    1.84 |13.083    7.55 | 19.17    1.84
    1.000    1.12 | 7.083    1.84 |13.167    7.55 | 19.25    1.84
    1.083    1.12 | 7.167    1.84 |13.250    7.55 | 19.33    1.84
    1.167    1.12 | 7.250    1.84 |13.333    7.55 | 19.42    1.84
    1.250    1.12 | 7.333    2.24 |13.417    5.51 | 19.50    1.84
    1.333    1.12 | 7.417    2.24 |13.500    5.51 | 19.58    1.84
    1.417    1.12 | 7.500    2.24 |13.583    5.51 | 19.67    1.84
    1.500    1.12 | 7.583    2.24 |13.667    5.51 | 19.75    1.84
    1.583    1.12 | 7.667    2.24 |13.750    5.51 | 19.83    1.84
    1.667    1.12 | 7.750    2.24 |13.833    4.28 | 19.92    1.84
    1.750    1.12 | 7.833    2.24 |13.917    4.28 | 20.00    1.84
    1.833    1.12 | 7.917    2.24 |14.000    4.28 | 20.08    1.84
    1.917    1.12 | 8.000    2.24 |14.083    4.28 | 20.17    1.84
    2.000    1.12 | 8.083    2.24 |14.167    4.28 | 20.25    1.84
    2.083    1.12 | 8.167    2.24 |14.250    4.28 | 20.33    1.22
    2.167    1.12 | 8.250    2.24 |14.333    3.06 | 20.42    1.22
    2.250    1.12 | 8.333    2.65 |14.417    3.06 | 20.50    1.22
    2.333    1.33 | 8.417    2.65 |14.500    3.06 | 20.58    1.22
    2.417    1.33 | 8.500    2.65 |14.583    3.06 | 20.67    1.22
    2.500    1.33 | 8.583    2.65 |14.667    3.06 | 20.75    1.22
    2.583    1.33 | 8.667    2.65 |14.750    3.06 | 20.83    1.22
    2.667    1.33 | 8.750    2.65 |14.833    3.06 | 20.92    1.22
    2.750    1.33 | 8.833    2.86 |14.917    3.06 | 21.00    1.22
    2.833    1.33 | 8.917    2.86 |15.000    3.06 | 21.08    1.22
    2.917    1.33 | 9.000    2.86 |15.083    3.06 | 21.17    1.22
    3.000    1.33 | 9.083    2.86 |15.167    3.06 | 21.25    1.22
    3.083    1.33 | 9.167    2.86 |15.250    3.06 | 21.33    1.22
    3.167    1.33 | 9.250    2.86 |15.333    3.06 | 21.42    1.22
    3.250    1.33 | 9.333    3.26 |15.417    3.06 | 21.50    1.22
    3.333    1.33 | 9.417    3.26 |15.500    3.06 | 21.58    1.22
    3.417    1.33 | 9.500    3.26 |15.583    3.06 | 21.67    1.22
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    3.500    1.33 | 9.583    3.26 |15.667    3.06 | 21.75    1.22
    3.583    1.33 | 9.667    3.26 |15.750    3.06 | 21.83    1.22
    3.667    1.33 | 9.750    3.26 |15.833    3.06 | 21.92    1.22
    3.750    1.33 | 9.833    3.67 |15.917    3.06 | 22.00    1.22
    3.833    1.33 | 9.917    3.67 |16.000    3.06 | 22.08    1.22
    3.917    1.33 |10.000    3.67 |16.083    3.06 | 22.17    1.22
    4.000    1.33 |10.083    3.67 |16.167    3.06 | 22.25    1.22
    4.083    1.33 |10.167    3.67 |16.250    3.06 | 22.33    1.22
    4.167    1.33 |10.250    3.67 |16.333    1.84 | 22.42    1.22
    4.250    1.33 |10.333    4.69 |16.417    1.84 | 22.50    1.22
    4.333    1.63 |10.417    4.69 |16.500    1.84 | 22.58    1.22
    4.417    1.63 |10.500    4.69 |16.583    1.84 | 22.67    1.22
    4.500    1.63 |10.583    4.69 |16.667    1.84 | 22.75    1.22
    4.583    1.63 |10.667    4.69 |16.750    1.84 | 22.83    1.22
    4.667    1.63 |10.750    4.69 |16.833    1.84 | 22.92    1.22
    4.750    1.63 |10.833    6.32 |16.917    1.84 | 23.00    1.22
    4.833    1.63 |10.917    6.32 |17.000    1.84 | 23.08    1.22
    4.917    1.63 |11.000    6.32 |17.083    1.84 | 23.17    1.22
    5.000    1.63 |11.083    6.32 |17.167    1.84 | 23.25    1.22
    5.083    1.63 |11.167    6.32 |17.250    1.84 | 23.33    1.22
    5.167    1.63 |11.250    6.32 |17.333    1.84 | 23.42    1.22
    5.250    1.63 |11.333    9.79 |17.417    1.84 | 23.50    1.22
    5.333    1.63 |11.417    9.79 |17.500    1.84 | 23.58    1.22
    5.417    1.63 |11.500    9.79 |17.583    1.84 | 23.67    1.22
    5.500    1.63 |11.583    9.79 |17.667    1.84 | 23.75    1.22
    5.583    1.63 |11.667    9.79 |17.750    1.84 | 23.83    1.22
    5.667    1.63 |11.750    9.79 |17.833    1.84 | 23.92    1.22
    5.750    1.63 |11.833   30.18 |17.917    1.84 | 24.00    1.22
    5.833    1.63 |11.917   30.18 |18.000    1.84 | 24.08    1.22
    5.917    1.63 |12.000   30.18 |18.083    1.84 | 24.17    1.22
    6.000    1.63 |12.083  124.80 |18.167    1.84 | 24.25    1.22
    6.083    1.63 |12.167  124.81 |18.250    1.84 |

Max.Eff.Inten.(mm/hr)=     124.81       62.46
            over (min)        5.00       15.00
Storage Coeff.  (min)=     3.85 (ii)  12.37 (ii)
Unit Hyd. Tpeak (min)=        5.00       15.00
Unit Hyd. peak  (cms)=        0.25        0.08
                                          *TOTALS*
PEAK FLOW       (cms)=       1.34        0.41        1.692 (iii)
TIME TO PEAK    (hrs)=      12.25       12.33          12.25
RUNOFF VOLUME    (mm)=      96.97       42.34          69.66
TOTAL RAINFALL   (mm)=     101.97      101.97         101.97
RUNOFF COEFFICIENT  =        0.95        0.42           0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

     (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
         CN* = 67.0    Ia = Dep. Storage  (Above)
    (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
```

```
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0300)|
|  1 +  2 =  3     |        AREA    QPEAK     TPEAK     R.V.
--------------------        (ha)    (cms)     (hrs)     (mm)
       ID1= 1 (  0203):    89.62  18.200    12.25    71.93
     + ID2= 2 (  0003):     7.88   1.692    12.25    69.66
       =================================================
       ID = 3 (  0300):    97.50  19.892    12.25    71.75

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
----------
| RESERVOIR(  0030)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000    0.0000    |   2.7700     2.8400
                          0.8200    1.4400    |   3.2200     3.1300
                          1.3700    1.8900    |   5.2900     4.3700
                          1.7800    2.1800    |   6.1500     5.4900
                          2.3300    2.5500    |   0.0000     0.0000

                            AREA     QPEAK     TPEAK      R.V.
                            (ha)     (cms)     (hrs)      (mm)
  INFLOW : ID= 2 (  0300)    97.500   19.892    12.25     71.75
  OUTFLOW: ID= 1 (  0030)    97.500    3.576    12.83     71.74

          PEAK   FLOW   REDUCTION [Qout/Qin](%)= 17.98
          TIME SHIFT OF PEAK FLOW       (min)= 35.00
          MAXIMUM  STORAGE   USED       (ha.m.)=  3.3447

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==============================================================================
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```
      V    V   I   SSSSS  U   U    A    L              (v 6.2.2015)
      V    V   I   SS     U   U   A A   L
       V  V    I     SS   U   U  AAAAA  L
       V  V    I      SS  U   U  A   A  L
        VV     I   SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
```

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                 *****  D E T A I L E D   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\ff
9f810c-223B-4ff8-8ca8-79384edc2393\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\ff
9f810c-223B-4ff8-8ca8-79384edc2393\sc

DATE: 11-27-2024                          TIME: 08:52:04

USER:


COMMENTS: _____

------------------------------------------------------------------------------
  ************************************************
  ** SIMULATION : 3D - 25yr 24hr 15min SCS Type **
  ************************************************

-------------------
|    READ STORM    |    Filename: C:\Users\jfletcher\AppD
|                  |              ata\Local\Temp\
|                  |              f7771102-1e26-4a23-9fad-5d61ceae4d2b\0a940c9e
| Ptotal=117.45 mm |    Comments: 25yr 24hr 15min SCS Type II (MTO)
-------------------
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                  0.00    0.00 |  6.25    2.11 | 12.50   16.91 | 18.75    2.11
                  0.25    1.29 |  6.50    2.11 | 12.75    8.69 | 19.00    2.11
                  0.50    1.29 |  6.75    2.11 | 13.00    8.69 | 19.25    2.11
                  0.75    1.29 |  7.00    2.11 | 13.25    6.34 | 19.50    2.11
                  1.00    1.29 |  7.25    2.58 | 13.50    6.34 | 19.75    2.11
                  1.25    1.29 |  7.50    2.58 | 13.75    4.93 | 20.00    2.11
                  1.50    1.29 |  7.75    2.58 | 14.00    4.93 | 20.25    1.41
                  1.75    1.29 |  8.00    2.58 | 14.25    3.52 | 20.50    1.41
```

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    2.00    1.29 |  8.25    3.05 | 14.50    3.52 | 20.75    1.41
    2.25    1.53 |  8.50    3.05 | 14.75    3.52 | 21.00    1.41
    2.50    1.53 |  8.75    3.29 | 15.00    3.52 | 21.25    1.41
    2.75    1.53 |  9.00    3.29 | 15.25    3.52 | 21.50    1.41
    3.00    1.53 |  9.25    3.76 | 15.50    3.52 | 21.75    1.41
    3.25    1.53 |  9.50    3.76 | 15.75    3.52 | 22.00    1.41
    3.50    1.53 |  9.75    4.23 | 16.00    3.52 | 22.25    1.41
    3.75    1.53 | 10.00    4.23 | 16.25    2.11 | 22.50    1.41
    4.00    1.53 | 10.25    5.40 | 16.50    2.11 | 22.75    1.41
    4.25    1.88 | 10.50    5.40 | 16.75    2.11 | 23.00    1.41
    4.50    1.88 | 10.75    7.28 | 17.00    2.11 | 23.25    1.41
    4.75    1.88 | 11.00    7.28 | 17.25    2.11 | 23.50    1.41
    5.00    1.88 | 11.25   11.28 | 17.50    2.11 | 23.75    1.41
    5.25    1.88 | 11.50   11.28 | 17.75    2.11 | 24.00    1.41
    5.50    1.88 | 11.75   34.77 | 18.00    2.11 |
    5.75    1.88 | 12.00  143.76 | 18.25    2.11 |
    6.00    1.88 | 12.25   16.91 | 18.50    2.11 |

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| CALIB             |
| STANDHYD (  0201) |   Area    (ha)=  30.52
|ID= 1 DT= 5.0 min  |   Total Imp(%)=  78.00   Dir. Conn.(%)=  55.00
-------------------
                        IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      23.81        6.71
    Dep. Storage     (mm)=       5.00        5.00
    Average Slope     (%)=       1.00        2.00
    Length           (m)=     451.07       40.00
    Mannings n          =      0.013       0.250

    NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
     TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
      hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
    0.083    0.00 | 6.167    1.88 |12.250  143.76 | 18.33    2.11
    0.167    0.00 | 6.250    1.88 |12.333   16.93 | 18.42    2.11
    0.250    0.00 | 6.333    2.11 |12.417   16.91 | 18.50    2.11
    0.333    1.29 | 6.417    2.11 |12.500   16.91 | 18.58    2.11
    0.417    1.29 | 6.500    2.11 |12.583   16.91 | 18.67    2.11
    0.500    1.29 | 6.583    2.11 |12.667   16.91 | 18.75    2.11
    0.583    1.29 | 6.667    2.11 |12.750   16.91 | 18.83    2.11
    0.667    1.29 | 6.750    2.11 |12.833    8.69 | 18.92    2.11
    0.750    1.29 | 6.833    2.11 |12.917    8.69 | 19.00    2.11
    0.833    1.29 | 6.917    2.11 |13.000    8.69 | 19.08    2.11
    0.917    1.29 | 7.000    2.11 |13.083    8.69 | 19.17    2.11
    1.000    1.29 | 7.083    2.11 |13.167    8.69 | 19.25    2.11
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    1.083    1.29 | 7.167    2.11 |13.250    8.69 | 19.33    2.11
    1.167    1.29 | 7.250    2.11 |13.333    6.34 | 19.42    2.11
    1.250    1.29 | 7.333    2.58 |13.417    6.34 | 19.50    2.11
    1.333    1.29 | 7.417    2.58 |13.500    6.34 | 19.58    2.11
    1.417    1.29 | 7.500    2.58 |13.583    6.34 | 19.67    2.11
    1.500    1.29 | 7.583    2.58 |13.667    6.34 | 19.75    2.11
    1.583    1.29 | 7.667    2.58 |13.750    6.34 | 19.83    2.11
    1.667    1.29 | 7.750    2.58 |13.833    4.93 | 19.92    2.11
    1.750    1.29 | 7.833    2.58 |13.917    4.93 | 20.00    2.11
    1.833    1.29 | 7.917    2.58 |14.000    4.93 | 20.08    2.11
    1.917    1.29 | 8.000    2.58 |14.083    4.93 | 20.17    2.11
    2.000    1.29 | 8.083    2.58 |14.167    4.93 | 20.25    2.11
    2.083    1.29 | 8.167    2.58 |14.250    4.93 | 20.33    1.41
    2.167    1.29 | 8.250    2.58 |14.333    3.52 | 20.42    1.41
    2.250    1.29 | 8.333    3.05 |14.417    3.52 | 20.50    1.41
    2.333    1.53 | 8.417    3.05 |14.500    3.52 | 20.58    1.41
    2.417    1.53 | 8.500    3.05 |14.583    3.52 | 20.67    1.41
    2.500    1.53 | 8.583    3.05 |14.667    3.52 | 20.75    1.41
    2.583    1.53 | 8.667    3.05 |14.750    3.52 | 20.83    1.41
    2.667    1.53 | 8.750    3.05 |14.833    3.52 | 20.92    1.41
    2.750    1.53 | 8.833    3.29 |14.917    3.52 | 21.00    1.41
    2.833    1.53 | 8.917    3.29 |15.000    3.52 | 21.08    1.41
    2.917    1.53 | 9.000    3.29 |15.083    3.52 | 21.17    1.41
    3.000    1.53 | 9.083    3.29 |15.167    3.52 | 21.25    1.41
    3.083    1.53 | 9.167    3.29 |15.250    3.52 | 21.33    1.41
    3.167    1.53 | 9.250    3.29 |15.333    3.52 | 21.42    1.41
    3.250    1.53 | 9.333    3.76 |15.417    3.52 | 21.50    1.41
    3.333    1.53 | 9.417    3.76 |15.500    3.52 | 21.58    1.41
    3.417    1.53 | 9.500    3.76 |15.583    3.52 | 21.67    1.41
    3.500    1.53 | 9.583    3.76 |15.667    3.52 | 21.75    1.41
    3.583    1.53 | 9.667    3.76 |15.750    3.52 | 21.83    1.41
    3.667    1.53 | 9.750    3.76 |15.833    3.52 | 21.92    1.41
    3.750    1.53 | 9.833    4.23 |15.917    3.52 | 22.00    1.41
    3.833    1.53 | 9.917    4.23 |16.000    3.52 | 22.08    1.41
    3.917    1.53 |10.000    4.23 |16.083    3.52 | 22.17    1.41
    4.000    1.53 |10.083    4.23 |16.167    3.52 | 22.25    1.41
    4.083    1.53 |10.167    4.23 |16.250    3.52 | 22.33    1.41
    4.167    1.53 |10.250    4.23 |16.333    2.11 | 22.42    1.41
    4.250    1.53 |10.333    5.40 |16.417    2.11 | 22.50    1.41
    4.333    1.88 |10.417    5.40 |16.500    2.11 | 22.58    1.41
    4.417    1.88 |10.500    5.40 |16.583    2.11 | 22.67    1.41
    4.500    1.88 |10.583    5.40 |16.667    2.11 | 22.75    1.41
    4.583    1.88 |10.667    5.40 |16.750    2.11 | 22.83    1.41
    4.667    1.88 |10.750    5.40 |16.833    2.11 | 22.92    1.41
    4.750    1.88 |10.833    7.28 |16.917    2.11 | 23.00    1.41
    4.833    1.88 |10.917    7.28 |17.000    2.11 | 23.08    1.41
    4.917    1.88 |11.000    7.28 |17.083    2.11 | 23.17    1.41
    5.000    1.88 |11.083    7.28 |17.167    2.11 | 23.25    1.41
    5.083    1.88 |11.167    7.28 |17.250    2.11 | 23.33    1.41
    5.167    1.88 |11.250    7.28 |17.333    2.11 | 23.42    1.41
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    5.250    1.88 |11.333   11.27 |17.417    2.11 | 23.50    1.41
    5.333    1.88 |11.417   11.28 |17.500    2.11 | 23.58    1.41
    5.417    1.88 |11.500   11.28 |17.583    2.11 | 23.67    1.41
    5.500    1.88 |11.583   11.28 |17.667    2.11 | 23.75    1.41
    5.583    1.88 |11.667   11.28 |17.750    2.11 | 23.83    1.41
    5.667    1.88 |11.750   11.28 |17.833    2.11 | 23.92    1.41
    5.750    1.88 |11.833   34.76 |17.917    2.11 | 24.00    1.41
    5.833    1.88 |11.917   34.77 |18.000    2.11 | 24.08    1.41
    5.917    1.88 |12.000   34.77 |18.083    2.11 | 24.17    1.41
    6.000    1.88 |12.083  143.75 |18.167    2.11 | 24.25    1.41
    6.083    1.88 |12.167  143.76 |18.250    2.11 |

Max.Eff.Inten.(mm/hr)=     143.76       222.55
            over (min)        5.00        10.00
Storage Coeff.  (min)=     5.46 (ii)    9.69 (ii)
Unit Hyd. Tpeak (min)=        5.00        10.00
Unit Hyd. peak  (cms)=        0.20         0.11
                                          *TOTALS*
PEAK FLOW       (cms)=       6.37         3.00        9.378 (iii)
TIME TO PEAK    (hrs)=      12.25        12.25          12.25
RUNOFF VOLUME    (mm)=     112.45        75.08          95.63
TOTAL RAINFALL   (mm)=     117.45       117.45         117.45
RUNOFF COEFFICIENT  =         0.96         0.64           0.81

  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
      CN* = 67.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
-------------------
| CALIB             |
| STANDHYD (  0001) |   Area    (ha)=  4.21
|ID= 1 DT= 5.0 min  |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
-------------------
                        IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       2.11        2.11
    Dep. Storage     (mm)=       5.00        5.00
    Average Slope     (%)=       1.00        2.00
    Length           (m)=     167.53       40.00
    Mannings n          =      0.013       0.250

    NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
     TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
      hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
```

```
    0.083    0.00 | 6.167    1.88 |12.250  143.76 | 18.33    2.11
    0.167    0.00 | 6.250    1.88 |12.333   16.93 | 18.42    2.11
    0.250    0.00 | 6.333    2.11 |12.417   16.91 | 18.50    2.11
    0.333    1.29 | 6.417    2.11 |12.500   16.91 | 18.58    2.11
    0.417    1.29 | 6.500    2.11 |12.583   16.91 | 18.67    2.11
    0.500    1.29 | 6.583    2.11 |12.667   16.91 | 18.75    2.11
    0.583    1.29 | 6.667    2.11 |12.750   16.91 | 18.83    2.11
    0.667    1.29 | 6.750    2.11 |12.833    8.69 | 18.92    2.11
    0.750    1.29 | 6.833    2.11 |12.917    8.69 | 19.00    2.11
    0.833    1.29 | 6.917    2.11 |13.000    8.69 | 19.08    2.11
    0.917    1.29 | 7.000    2.11 |13.083    8.69 | 19.17    2.11
    1.000    1.29 | 7.083    2.11 |13.167    8.69 | 19.25    2.11
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   4.250    1.53 |10.333    5.40 |16.417    2.11 | 22.50    1.41
   4.333    1.88 |10.417    5.40 |16.500    2.11 | 22.58    1.41
   4.417    1.88 |10.500    5.40 |16.583    2.11 | 22.67    1.41
   4.500    1.88 |10.583    5.40 |16.667    2.11 | 22.75    1.41
   4.583    1.88 |10.667    5.40 |16.750    2.11 | 22.83    1.41
   4.667    1.88 |10.750    5.40 |16.833    2.11 | 22.92    1.41
   4.750    1.88 |10.833    7.28 |16.917    2.11 | 23.00    1.41
   4.833    1.88 |10.917    7.28 |17.000    2.11 | 23.08    1.41
   4.917    1.88 |11.000    7.28 |17.083    2.11 | 23.17    1.41
   5.000    1.88 |11.083    7.28 |17.167    2.11 | 23.25    1.41
   5.083    1.88 |11.167    7.28 |17.250    2.11 | 23.33    1.41
   5.167    1.88 |11.250    7.28 |17.333    2.11 | 23.42    1.41
   5.250    1.88 |11.333   11.27 |17.417    2.11 | 23.50    1.41
   5.333    1.88 |11.417   11.28 |17.500    2.11 | 23.58    1.41
   5.417    1.88 |11.500   11.28 |17.583    2.11 | 23.67    1.41
   5.500    1.88 |11.583   11.28 |17.667    2.11 | 23.75    1.41
   5.583    1.88 |11.667   11.28 |17.750    2.11 | 23.83    1.41
   5.667    1.88 |11.750   11.28 |17.833    2.11 | 23.92    1.41
   5.750    1.88 |11.833   34.76 |17.917    2.11 | 24.00    1.41
   5.833    1.88 |11.917   34.77 |18.000    2.11 | 24.08    1.41
   5.917    1.88 |12.000   34.77 |18.083    2.11 | 24.17    1.41
   6.000    1.88 |12.083  143.75 |18.167    2.11 | 24.25    1.41
   6.083    1.88 |12.167  143.76 |18.250    2.11 |

     Max.Eff.Inten.(mm/hr)=     143.76       78.45
               over (min)=       5.00       15.00
     Storage Coeff.  (min)=       3.01 (ii)  10.79 (ii)
     Unit Hyd. Tpeak (min)=       5.00       15.00
     Unit Hyd. peak  (cms)=       0.28        0.09
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.84        0.29         1.088 (iii)
     TIME TO PEAK    (hrs)=      12.25       12.33        12.25
     RUNOFF VOLUME    (mm)=     112.45       53.23        82.84
     TOTAL RAINFALL   (mm)=     117.45      117.45       117.45
     RUNOFF COEFFICIENT   =       0.96        0.45         0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD  (  0100)|
|  1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
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```
     ID1= 1 (  0001):    4.21   1.088    12.25    82.84
   + ID2= 2 (  0201):   30.52   9.378    12.25    95.63
     ==========================================================
     ID = 3 (  0100):   34.73  10.466    12.25    94.08

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW   STORAGE   |  OUTFLOW   STORAGE
-------------------       (cms)     (ha.m.)  |    (cms)    (ha.m.)
                        0.0000    0.0000     |   1.0900     1.0400
                        0.3100    0.5460     |   1.2700     1.1400
                        0.5250    0.7030     |   2.1100     1.5700
                        0.6900    0.8068     |   2.4450     2.0600
                        0.9000    0.9400     |   0.0000     0.0000

                                    AREA     QPEAK     TPEAK      R.V.
                                    (ha)     (cms)     (hrs)      (mm)
   INFLOW : ID= 2 (  0100)     34.730    10.466     12.25     94.08
   OUTFLOW: ID= 1 (  0010)     34.730     2.034     12.67     94.07

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 19.44
                  TIME SHIFT OF PEAK FLOW       (min)= 25.00
                  MAXIMUM  STORAGE   USED      (ha.m.)=  1.5336

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-------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=  28.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  57.00
-------------------

                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     19.08        8.98
     Dep. Storage     (mm)=      5.00        5.00
     Average Slope     (%)=      1.00        2.00
     Length            (m)=    432.51       40.00
     Mannings n             =     0.013       0.250

     NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                    ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.88 |12.250  143.76 | 18.33    2.11
 0.167    0.00 | 6.250    1.88 |12.333   16.93 | 18.42    2.11
 0.250    0.00 | 6.333    2.11 |12.417   16.91 | 18.50    2.11
 0.333    1.29 | 6.417    2.11 |12.500   16.91 | 18.58    2.11
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   0.417    1.29 | 6.500    2.11 |12.583   16.91 | 18.67    2.11
   0.500    1.29 | 6.583    2.11 |12.667   16.91 | 18.75    2.11
   0.583    1.29 | 6.667    2.11 |12.750   16.91 | 18.83    2.11
   0.667    1.29 | 6.750    2.11 |12.833    8.69 | 18.92    2.11
   0.750    1.29 | 6.833    2.11 |12.917    8.69 | 19.00    2.11
   0.833    1.29 | 6.917    2.11 |13.000    8.69 | 19.08    2.11
   0.917    1.29 | 7.000    2.11 |13.083    8.69 | 19.17    2.11
   1.000    1.29 | 7.083    2.11 |13.167    8.69 | 19.25    2.11
   1.083    1.29 | 7.167    2.11 |13.250    8.69 | 19.33    2.11
   1.167    1.29 | 7.250    2.11 |13.333    6.34 | 19.42    2.11
   1.250    1.29 | 7.333    2.58 |13.417    6.34 | 19.50    2.11
   1.333    1.29 | 7.417    2.58 |13.500    6.34 | 19.58    2.11
   1.417    1.29 | 7.500    2.58 |13.583    6.34 | 19.67    2.11
   1.500    1.29 | 7.583    2.58 |13.667    6.34 | 19.75    2.11
   1.583    1.29 | 7.667    2.58 |13.750    6.34 | 19.83    2.11
   1.667    1.29 | 7.750    2.58 |13.833    4.93 | 19.92    2.11
   1.750    1.29 | 7.833    2.58 |13.917    4.93 | 20.00    2.11
   1.833    1.29 | 7.917    2.58 |14.000    4.93 | 20.08    2.11
   1.917    1.29 | 8.000    2.58 |14.083    4.93 | 20.17    2.11
   2.000    1.29 | 8.083    2.58 |14.167    4.93 | 20.25    2.11
   2.083    1.29 | 8.167    2.58 |14.250    4.93 | 20.33    2.11
   2.167    1.29 | 8.250    2.58 |14.333    3.52 | 20.42    2.11
   2.250    1.29 | 8.333    3.05 |14.417    3.52 | 20.50    1.41
   2.333    1.53 | 8.417    3.05 |14.500    3.52 | 20.58    1.41
   2.417    1.53 | 8.500    3.05 |14.583    3.52 | 20.67    1.41
   2.500    1.53 | 8.583    3.05 |14.667    3.52 | 20.75    1.41
   2.583    1.53 | 8.667    3.05 |14.750    3.52 | 20.83    1.41
   2.667    1.53 | 8.750    3.05 |14.833    3.52 | 20.92    1.41
   2.750    1.53 | 8.833    3.29 |14.917    3.52 | 21.00    1.41
   2.833    1.53 | 8.917    3.29 |15.000    3.52 | 21.08    1.41
   2.917    1.53 | 9.000    3.29 |15.083    3.52 | 21.17    1.41
   3.000    1.53 | 9.083    3.29 |15.167    3.52 | 21.25    1.41
   3.083    1.53 | 9.167    3.29 |15.250    3.52 | 21.33    1.41
   3.167    1.53 | 9.250    3.29 |15.333    3.52 | 21.42    1.41
   3.250    1.53 | 9.333    3.76 |15.417    3.52 | 21.50    1.41
   3.333    1.53 | 9.417    3.76 |15.500    3.52 | 21.58    1.41
   3.417    1.53 | 9.500    3.76 |15.583    3.52 | 21.67    1.41
   3.500    1.53 | 9.583    3.76 |15.667    3.52 | 21.75    1.41
   3.583    1.53 | 9.667    3.76 |15.750    3.52 | 21.83    1.41
   3.667    1.53 | 9.750    3.76 |15.833    3.52 | 21.92    1.41
   3.750    1.53 | 9.833    4.23 |15.917    3.52 | 22.00    1.41
   3.833    1.53 | 9.917    4.23 |16.000    3.52 | 22.08    1.41
   3.917    1.53 |10.000    4.23 |16.083    3.52 | 22.17    1.41
   4.000    1.53 |10.083    4.23 |16.167    3.52 | 22.25    1.41
   4.083    1.53 |10.167    4.23 |16.250    3.52 | 22.33    1.41
   4.167    1.53 |10.250    4.23 |16.333    2.11 | 22.42    1.41
   4.250    1.53 |10.333    5.40 |16.417    2.11 | 22.50    1.41
   4.333    1.88 |10.417    5.40 |16.500    2.11 | 22.58    1.41
   4.417    1.88 |10.500    5.40 |16.583    2.11 | 22.67    1.41
   4.500    1.88 |10.583    5.40 |16.667    2.11 | 22.75    1.41
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   4.583    1.88 |10.667    5.40 |16.750    2.11 | 22.83    1.41
   4.667    1.88 |10.750    5.40 |16.833    2.11 | 22.92    1.41
   4.750    1.88 |10.833    7.28 |16.917    2.11 | 23.00    1.41
   4.833    1.88 |10.917    7.28 |17.000    2.11 | 23.08    1.41
   4.917    1.88 |11.000    7.28 |17.083    2.11 | 23.17    1.41
   5.000    1.88 |11.083    7.28 |17.167    2.11 | 23.25    1.41
   5.083    1.88 |11.167    7.28 |17.250    2.11 | 23.33    1.41
   5.167    1.88 |11.250    7.28 |17.333    2.11 | 23.42    1.41
   5.250    1.88 |11.333   11.27 |17.417    2.11 | 23.50    1.41
   5.333    1.88 |11.417   11.28 |17.500    2.11 | 23.58    1.41
   5.417    1.88 |11.500   11.28 |17.583    2.11 | 23.67    1.41
   5.500    1.88 |11.583   11.28 |17.667    2.11 | 23.75    1.41
   5.583    1.88 |11.667   11.28 |17.750    2.11 | 23.83    1.41
   5.667    1.88 |11.750   11.28 |17.833    2.11 | 23.92    1.41
   5.750    1.88 |11.833   34.76 |17.917    2.11 | 24.00    1.41
   5.833    1.88 |11.917   34.77 |18.000    2.11 | 24.08    1.41
   5.917    1.88 |12.000   34.77 |18.083    2.11 | 24.17    1.41
   6.000    1.88 |12.083  143.75 |18.167    2.11 | 24.25    1.41
   6.083    1.88 |12.167  143.76 |18.250    2.11 |

     Max.Eff.Inten.(mm/hr)=     143.76       123.31
               over (min)=       5.00        15.00
     Storage Coeff.  (min)=       5.32 (ii)   10.16 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.21         0.10
                                                    *TOTALS*
     PEAK FLOW       (cms)=       6.09         2.03         7.871 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.33        12.25
     RUNOFF VOLUME    (mm)=     112.45        62.54        90.99
     TOTAL RAINFALL   (mm)=     117.45       117.45       117.45
     RUNOFF COEFFICIENT   =       0.96         0.53         0.77

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD (  0002)|   Area    (ha)=   3.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
-------------------

                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.98        1.98
     Dep. Storage     (mm)=      5.00        5.00
     Average Slope     (%)=      1.00        2.00
     Length            (m)=    162.28       40.00
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     Mannings n             =     0.013       0.250

     NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                    ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.88 |12.250  143.76 | 18.33    2.11
 0.167    0.00 | 6.250    1.88 |12.333   16.93 | 18.42    2.11
 0.250    0.00 | 6.333    2.11 |12.417   16.91 | 18.50    2.11
 0.333    1.29 | 6.417    2.11 |12.500   16.91 | 18.58    2.11
 0.417    1.29 | 6.500    2.11 |12.583   16.91 | 18.67    2.11
 0.500    1.29 | 6.583    2.11 |12.667   16.91 | 18.75    2.11
 0.583    1.29 | 6.667    2.11 |12.750   16.91 | 18.83    2.11
 0.667    1.29 | 6.750    2.11 |12.833    8.69 | 18.92    2.11
 0.750    1.29 | 6.833    2.11 |12.917    8.69 | 19.00    2.11
 0.833    1.29 | 6.917    2.11 |13.000    8.69 | 19.08    2.11
 0.917    1.29 | 7.000    2.11 |13.083    8.69 | 19.17    2.11
 1.000    1.29 | 7.083    2.11 |13.167    8.69 | 19.25    2.11
 1.083    1.29 | 7.167    2.11 |13.250    8.69 | 19.33    2.11
 1.167    1.29 | 7.250    2.11 |13.333    6.34 | 19.42    2.11
 1.250    1.29 | 7.333    2.58 |13.417    6.34 | 19.50    2.11
 1.333    1.29 | 7.417    2.58 |13.500    6.34 | 19.58    2.11
 1.417    1.29 | 7.500    2.58 |13.583    6.34 | 19.67    2.11
 1.500    1.29 | 7.583    2.58 |13.667    6.34 | 19.75    2.11
 1.583    1.29 | 7.667    2.58 |13.750    6.34 | 19.83    2.11
 1.667    1.29 | 7.750    2.58 |13.833    4.93 | 19.92    2.11
 1.750    1.29 | 7.833    2.58 |13.917    4.93 | 20.00    2.11
 1.833    1.29 | 7.917    2.58 |14.000    4.93 | 20.08    2.11
 1.917    1.29 | 8.000    2.58 |14.083    4.93 | 20.17    2.11
 2.000    1.29 | 8.083    2.58 |14.167    4.93 | 20.25    2.11
 2.083    1.29 | 8.167    2.58 |14.250    4.93 | 20.33    2.11
 2.167    1.29 | 8.250    2.58 |14.333    3.52 | 20.42    1.41
 2.250    1.29 | 8.333    3.05 |14.417    3.52 | 20.50    1.41
 2.333    1.53 | 8.417    3.05 |14.500    3.52 | 20.58    1.41
 2.417    1.53 | 8.500    3.05 |14.583    3.52 | 20.67    1.41
 2.500    1.53 | 8.583    3.05 |14.667    3.52 | 20.75    1.41
 2.583    1.53 | 8.667    3.05 |14.750    3.52 | 20.83    1.41
 2.667    1.53 | 8.750    3.05 |14.833    3.52 | 20.92    1.41
 2.750    1.53 | 8.833    3.29 |14.917    3.52 | 21.00    1.41
 2.833    1.53 | 8.917    3.29 |15.000    3.52 | 21.08    1.41
 2.917    1.53 | 9.000    3.29 |15.083    3.52 | 21.17    1.41
 3.000    1.53 | 9.083    3.29 |15.167    3.52 | 21.25    1.41
 3.083    1.53 | 9.167    3.29 |15.250    3.52 | 21.33    1.41
 3.167    1.53 | 9.250    3.29 |15.333    3.52 | 21.42    1.41
 3.250    1.53 | 9.333    3.76 |15.417    3.52 | 21.50    1.41
 3.333    1.53 | 9.417    3.76 |15.500    3.52 | 21.58    1.41
 3.417    1.53 | 9.500    3.76 |15.583    3.52 | 21.67    1.41
 3.500    1.53 | 9.583    3.76 |15.667    3.52 | 21.75    1.41
 3.583    1.53 | 9.667    3.76 |15.750    3.52 | 21.83    1.41
 3.667    1.53 | 9.750    3.76 |15.833    3.52 | 21.92    1.41
 3.750    1.53 | 9.833    4.23 |15.917    3.52 | 22.00    1.41
 3.833    1.53 | 9.917    4.23 |16.000    3.52 | 22.08    1.41
 3.917    1.53 |10.000    4.23 |16.083    3.52 | 22.17    1.41
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   4.000    1.53 |10.083    4.23 |16.167    3.52 | 22.25    1.41
   4.083    1.53 |10.167    4.23 |16.250    3.52 | 22.33    1.41
   4.167    1.53 |10.250    4.23 |16.333    2.11 | 22.42    1.41
   4.250    1.53 |10.333    5.40 |16.417    2.11 | 22.50    1.41
   4.333    1.88 |10.417    5.40 |16.500    2.11 | 22.58    1.41
   4.417    1.88 |10.500    5.40 |16.583    2.11 | 22.67    1.41
   4.500    1.88 |10.583    5.40 |16.667    2.11 | 22.75    1.41
   4.583    1.88 |10.667    5.40 |16.750    2.11 | 22.83    1.41
   4.667    1.88 |10.750    5.40 |16.833    2.11 | 22.92    1.41
   4.750    1.88 |10.833    7.28 |16.917    2.11 | 23.00    1.41
   4.833    1.88 |10.917    7.28 |17.000    2.11 | 23.08    1.41
   4.917    1.88 |11.000    7.28 |17.083    2.11 | 23.17    1.41
   5.000    1.88 |11.083    7.28 |17.167    2.11 | 23.25    1.41
   5.083    1.88 |11.167    7.28 |17.250    2.11 | 23.33    1.41
   5.167    1.88 |11.250    7.28 |17.333    2.11 | 23.42    1.41
   5.250    1.88 |11.333   11.27 |17.417    2.11 | 23.50    1.41
   5.333    1.88 |11.417   11.28 |17.500    2.11 | 23.58    1.41
   5.417    1.88 |11.500   11.28 |17.583    2.11 | 23.67    1.41
   5.500    1.88 |11.583   11.28 |17.667    2.11 | 23.75    1.41
   5.583    1.88 |11.667   11.28 |17.750    2.11 | 23.83    1.41
   5.667    1.88 |11.750   11.28 |17.833    2.11 | 23.92    1.41
   5.750    1.88 |11.833   34.76 |17.917    2.11 | 24.00    1.41
   5.833    1.88 |11.917   34.77 |18.000    2.11 | 24.08    1.41
   5.917    1.88 |12.000   34.77 |18.083    2.11 | 24.17    1.41
   6.000    1.88 |12.083  143.75 |18.167    2.11 | 24.25    1.41
   6.083    1.88 |12.167  143.76 |18.250    2.11 |

     Max.Eff.Inten.(mm/hr)=     143.76       78.45
               over (min)=       5.00       15.00
     Storage Coeff.  (min)=       2.95 (ii)  10.73 (ii)
     Unit Hyd. Tpeak (min)=       5.00       15.00
     Unit Hyd. peak  (cms)=       0.28        0.09
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.78        0.27         1.022 (iii)
     TIME TO PEAK    (hrs)=      12.25       12.33        12.25
     RUNOFF VOLUME    (mm)=     112.45       53.23        82.84
     TOTAL RAINFALL   (mm)=     117.45      117.45       117.45
     RUNOFF COEFFICIENT   =       0.96        0.45         0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD  (  0200)|
|  1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
     ID1= 1 (  0002):    3.95   1.022    12.25    82.84
   + ID2= 2 (  0202):   28.06   7.871    12.25    90.99
     ==========================================================
     ID = 3 (  0200):   32.01   8.892    12.25    89.98

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW   STORAGE   |  OUTFLOW   STORAGE
-------------------       (cms)     (ha.m.)  |    (cms)    (ha.m.)
                        0.0000    0.0000     |   1.8250     0.6819
                        0.6400    0.3757     |   2.1650     0.7600
                        1.0700    0.4858     |   4.0750     1.0700
                        1.3800    0.5709     |   4.7000     1.7300

                                    AREA     QPEAK     TPEAK      R.V.
                                    (ha)     (cms)     (hrs)      (mm)
   INFLOW : ID= 2 (  0200)     32.010     8.892     12.25     89.98
   OUTFLOW: ID= 1 (  0020)     32.010     3.363     12.42     89.98

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 37.82
                  TIME SHIFT OF PEAK FLOW       (min)= 10.00
                  MAXIMUM  STORAGE   USED      (ha.m.)=  0.9609

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| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=  89.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  61.00   Dir. Conn.(%)=  44.00
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                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     54.67       34.95
     Dep. Storage     (mm)=      5.00        5.00
     Average Slope     (%)=      2.00        3.00
     Length            (m)=    772.96       40.00
     Mannings n             =     0.013       0.250

     NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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                    ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.88 |12.250  143.76 | 18.33    2.11
 0.167    0.00 | 6.250    1.88 |12.333   16.93 | 18.42    2.11
 0.250    0.00 | 6.333    2.11 |12.417   16.91 | 18.50    2.11
 0.333    1.29 | 6.417    2.11 |12.500   16.91 | 18.58    2.11
 0.417    1.29 | 6.500    2.11 |12.583   16.91 | 18.67    2.11
 0.500    1.29 | 6.583    2.11 |12.667   16.91 | 18.75    2.11
 0.583    1.29 | 6.667    2.11 |12.750   16.91 | 18.83    2.11
 0.667    1.29 | 6.750    2.11 |12.833    8.69 | 18.92    2.11
 0.750    1.29 | 6.833    2.11 |12.917    8.69 | 19.00    2.11
 0.833    1.29 | 6.917    2.11 |13.000    8.69 | 19.08    2.11
 0.917    1.29 | 7.000    2.11 |13.083    8.69 | 19.17    2.11
 1.000    1.29 | 7.083    2.11 |13.167    8.69 | 19.25    2.11
 1.083    1.29 | 7.167    2.11 |13.250    8.69 | 19.33    2.11
 1.167    1.29 | 7.250    2.11 |13.333    6.34 | 19.42    2.11
 1.250    1.29 | 7.333    2.58 |13.417    6.34 | 19.50    2.11
 1.333    1.29 | 7.417    2.58 |13.500    6.34 | 19.58    2.11
 1.417    1.29 | 7.500    2.58 |13.583    6.34 | 19.67    2.11
 1.500    1.29 | 7.583    2.58 |13.667    6.34 | 19.75    2.11
 1.583    1.29 | 7.667    2.58 |13.750    6.34 | 19.83    2.11
 1.667    1.29 | 7.750    2.58 |13.833    4.93 | 19.92    2.11
 1.750    1.29 | 7.833    2.58 |13.917    4.93 | 20.00    2.11
 1.833    1.29 | 7.917    2.58 |14.000    4.93 | 20.08    2.11
 1.917    1.29 | 8.000    2.58 |14.083    4.93 | 20.17    2.11
 2.000    1.29 | 8.083    2.58 |14.167    4.93 | 20.25    2.11
 2.083    1.29 | 8.167    2.58 |14.250    4.93 | 20.33    2.11
 2.167    1.29 | 8.250    2.58 |14.333    3.52 | 20.42    1.41
 2.250    1.29 | 8.333    3.05 |14.417    3.52 | 20.50    1.41
 2.333    1.53 | 8.417    3.05 |14.500    3.52 | 20.58    1.41
 2.417    1.53 | 8.500    3.05 |14.583    3.52 | 20.67    1.41
 2.500    1.53 | 8.583    3.05 |14.667    3.52 | 20.75    1.41
 2.583    1.53 | 8.667    3.05 |14.750    3.52 | 20.83    1.41
 2.667    1.53 | 8.750    3.05 |14.833    3.52 | 20.92    1.41
 2.750    1.53 | 8.833    3.29 |14.917    3.52 | 21.00    1.41
 2.833    1.53 | 8.917    3.29 |15.000    3.52 | 21.08    1.41
 2.917    1.53 | 9.000    3.29 |15.083    3.52 | 21.17    1.41
 3.000    1.53 | 9.083    3.29 |15.167    3.52 | 21.25    1.41
 3.083    1.53 | 9.167    3.29 |15.250    3.52 | 21.33    1.41
 3.167    1.53 | 9.250    3.29 |15.333    3.52 | 21.42    1.41
 3.250    1.53 | 9.333    3.76 |15.417    3.52 | 21.50    1.41
 3.333    1.53 | 9.417    3.76 |15.500    3.52 | 21.58    1.41
 3.417    1.53 | 9.500    3.76 |15.583    3.52 | 21.67    1.41
 3.500    1.53 | 9.583    3.76 |15.667    3.52 | 21.75    1.41
 3.583    1.53 | 9.667    3.76 |15.750    3.52 | 21.83    1.41
 3.667    1.53 | 9.750    3.76 |15.833    3.52 | 21.92    1.41
 3.750    1.53 | 9.833    4.23 |15.917    3.52 | 22.00    1.41
 3.833    1.53 | 9.917    4.23 |16.000    3.52 | 22.08    1.41
 3.917    1.53 |10.000    4.23 |16.083    3.52 | 22.17    1.41
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   4.000    1.53 |10.083    4.23 |16.167    3.52 | 22.25    1.41
   4.083    1.53 |10.167    4.23 |16.250    3.52 | 22.33    1.41
   4.167    1.53 |10.250    4.23 |16.333    2.11 | 22.42    1.41
   4.250    1.53 |10.333    5.40 |16.417    2.11 | 22.50    1.41
   4.333    1.88 |10.417    5.40 |16.500    2.11 | 22.58    1.41
   4.417    1.88 |10.500    5.40 |16.583    2.11 | 22.67    1.41
   4.500    1.88 |10.583    5.40 |16.667    2.11 | 22.75    1.41
   4.583    1.88 |10.667    5.40 |16.750    2.11 | 22.83    1.41
   4.667    1.88 |10.750    5.40 |16.833    2.11 | 22.92    1.41
   4.750    1.88 |10.833    7.28 |16.917    2.11 | 23.00    1.41
   4.833    1.88 |10.917    7.28 |17.000    2.11 | 23.08    1.41
   4.917    1.88 |11.000    7.28 |17.083    2.11 | 23.17    1.41
   5.000    1.88 |11.083    7.28 |17.167    2.11 | 23.25    1.41
   5.083    1.88 |11.167    7.28 |17.250    2.11 | 23.33    1.41
   5.167    1.88 |11.250    7.28 |17.333    2.11 | 23.42    1.41
   5.250    1.88 |11.333   11.27 |17.417    2.11 | 23.50    1.41
   5.333    1.88 |11.417   11.28 |17.500    2.11 | 23.58    1.41
   5.417    1.88 |11.500   11.28 |17.583    2.11 | 23.67    1.41
   5.500    1.88 |11.583   11.28 |17.667    2.11 | 23.75    1.41
   5.583    1.88 |11.667   11.28 |17.750    2.11 | 23.83    1.41
   5.667    1.88 |11.750   11.28 |17.833    2.11 | 23.92    1.41
   5.750    1.88 |11.833   34.76 |17.917    2.11 | 24.00    1.41
   5.833    1.88 |11.917   34.77 |18.000    2.11 | 24.08    1.41
   5.917    1.88 |12.000   34.77 |18.083    2.11 | 24.17    1.41
   6.000    1.88 |12.083  143.75 |18.167    2.11 | 24.25    1.41
   6.083    1.88 |12.167  143.76 |18.250    2.11 |

     Max.Eff.Inten.(mm/hr)=     143.76       135.89
               over (min)=       5.00        15.00
     Storage Coeff.  (min)=       6.12 (ii)   11.65 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.19         0.09
                                                    *TOTALS*
     PEAK FLOW       (cms)=      14.70         8.27        21.885 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.33        12.25
     RUNOFF VOLUME    (mm)=     113.45        64.59        85.65
     TOTAL RAINFALL   (mm)=     117.45       117.45       117.45
     RUNOFF COEFFICIENT   =       0.96         0.55         0.73

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* = 67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD (  0003)|   Area    (ha)=   7.88
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|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
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                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      3.94         3.94
     Dep. Storage     (mm)=      5.00         5.00
     Average Slope    (%)=      1.00         2.00
     Length           (m)=    229.20        40.00
     Mannings n             =     0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.88 |12.250  143.76 | 18.33    2.11
 0.167    0.00 | 6.250    1.88 |12.333   16.93 | 18.42    2.11
 0.250    0.00 | 6.333    2.11 |12.417   16.91 | 18.50    2.11
 0.333    1.29 | 6.417    2.11 |12.500   16.91 | 18.58    2.11
 0.417    1.29 | 6.500    2.11 |12.583   16.91 | 18.67    2.11
 0.500    1.29 | 6.583    2.11 |12.667   16.91 | 18.75    2.11
 0.583    1.29 | 6.667    2.11 |12.750   16.91 | 18.83    2.11
 0.667    1.29 | 6.750    2.11 |12.833    8.69 | 18.92    2.11
 0.750    1.29 | 6.833    2.11 |12.917    8.69 | 19.00    2.11
 0.833    1.29 | 6.917    2.11 |13.000    8.69 | 19.08    2.11
 0.917    1.29 | 7.000    2.11 |13.083    8.69 | 19.17    2.11
 1.000    1.29 | 7.083    2.11 |13.167    8.69 | 19.25    2.11
 1.083    1.29 | 7.167    2.11 |13.250    8.69 | 19.33    2.11
 1.167    1.29 | 7.250    2.11 |13.333    6.34 | 19.42    2.11
 1.250    1.29 | 7.333    2.58 |13.417    6.34 | 19.50    2.11
 1.333    1.29 | 7.417    2.58 |13.500    6.34 | 19.58    2.11
 1.417    1.29 | 7.500    2.58 |13.583    6.34 | 19.67    2.11
 1.500    1.29 | 7.583    2.58 |13.667    6.34 | 19.75    2.11
 1.583    1.29 | 7.667    2.58 |13.750    6.34 | 19.83    2.11
 1.667    1.29 | 7.750    2.58 |13.833    4.93 | 19.92    2.11
 1.750    1.29 | 7.833    2.58 |13.917    4.93 | 20.00    2.11
 1.833    1.29 | 7.917    2.58 |14.000    4.93 | 20.08    2.11
 1.917    1.29 | 8.000    2.58 |14.083    4.93 | 20.17    2.11
 2.000    1.29 | 8.083    2.58 |14.167    4.93 | 20.25    2.11
 2.083    1.29 | 8.167    2.58 |14.250    4.93 | 20.33    1.41
 2.167    1.29 | 8.250    2.58 |14.333    3.52 | 20.42    1.41
 2.250    1.29 | 8.333    3.05 |14.417    3.52 | 20.50    1.41
 2.333    1.53 | 8.417    3.05 |14.500    3.52 | 20.58    1.41
 2.417    1.53 | 8.500    3.05 |14.583    3.52 | 20.67    1.41
 2.500    1.53 | 8.583    3.05 |14.667    3.52 | 20.75    1.41
 2.583    1.53 | 8.667    3.05 |14.750    3.52 | 20.83    1.41
 2.667    1.53 | 8.750    3.05 |14.833    3.52 | 20.92    1.41
 2.750    1.53 | 8.833    3.29 |14.917    3.52 | 21.00    1.41
 2.833    1.53 | 8.917    3.29 |15.000    3.52 | 21.08    1.41
 2.917    1.53 | 9.000    3.29 |15.083    3.52 | 21.17    1.41
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 3.000    1.53 | 9.083    3.29 |15.167    3.52 | 21.25    1.41
 3.083    1.53 | 9.167    3.29 |15.250    3.52 | 21.33    1.41
 3.167    1.53 | 9.250    3.29 |15.333    3.52 | 21.42    1.41
 3.250    1.53 | 9.333    3.76 |15.417    3.52 | 21.50    1.41
 3.333    1.53 | 9.417    3.76 |15.500    3.52 | 21.58    1.41
 3.417    1.53 | 9.500    3.76 |15.583    3.52 | 21.67    1.41
 3.500    1.53 | 9.583    3.76 |15.667    3.52 | 21.75    1.41
 3.583    1.53 | 9.667    3.76 |15.750    3.52 | 21.83    1.41
 3.667    1.53 | 9.750    3.76 |15.833    3.52 | 21.92    1.41
 3.750    1.53 | 9.833    4.23 |15.917    3.52 | 22.00    1.41
 3.833    1.53 | 9.917    4.23 |16.000    3.52 | 22.08    1.41
 3.917    1.53 |10.000    4.23 |16.083    3.52 | 22.17    1.41
 4.000    1.53 |10.083    4.23 |16.167    3.52 | 22.25    1.41
 4.083    1.53 |10.167    4.23 |16.250    3.52 | 22.33    1.41
 4.167    1.53 |10.250    4.23 |16.333    2.11 | 22.42    1.41
 4.250    1.53 |10.333    5.40 |16.417    2.11 | 22.50    1.41
 4.333    1.88 |10.417    5.40 |16.500    2.11 | 22.58    1.41
 4.417    1.88 |10.500    5.40 |16.583    2.11 | 22.67    1.41
 4.500    1.88 |10.583    5.40 |16.667    2.11 | 22.75    1.41
 4.583    1.88 |10.667    5.40 |16.750    2.11 | 22.83    1.41
 4.667    1.88 |10.750    5.40 |16.833    2.11 | 22.92    1.41
 4.750    1.88 |10.833    7.28 |16.917    2.11 | 23.00    1.41
 4.833    1.88 |10.917    7.28 |17.000    2.11 | 23.08    1.41
 4.917    1.88 |11.000    7.28 |17.083    2.11 | 23.17    1.41
 5.000    1.88 |11.083    7.28 |17.167    2.11 | 23.25    1.41
 5.083    1.88 |11.167    7.28 |17.250    2.11 | 23.33    1.41
 5.167    1.88 |11.250    7.28 |17.333    2.11 | 23.42    1.41
 5.250    1.88 |11.333   11.27 |17.417    2.11 | 23.50    1.41
 5.333    1.88 |11.417   11.28 |17.500    2.11 | 23.58    1.41
 5.417    1.88 |11.500   11.28 |17.583    2.11 | 23.67    1.41
 5.500    1.88 |11.583   11.28 |17.667    2.11 | 23.75    1.41
 5.583    1.88 |11.667   11.28 |17.750    2.11 | 23.83    1.41
 5.667    1.88 |11.750   11.28 |17.833    2.11 | 23.92    1.41
 5.750    1.88 |11.833   34.76 |17.917    2.11 | 24.00    1.41
 5.833    1.88 |11.917   34.77 |18.000    2.11 | 24.08    1.41
 5.917    1.88 |12.000   34.77 |18.083    2.11 | 24.17    1.41
 6.000    1.88 |12.083  143.75 |18.167    2.11 | 24.25    1.41
 6.083    1.88 |12.167  143.76 |18.250    2.11 |

  Max.Eff.Inten.(mm/hr)=     143.76        78.45
            over (min)         5.00        15.00
  Storage Coeff.  (min)=       3.63 (ii)   11.41 (ii)
  Unit Hyd. Tpeak (min)=       5.00        15.00
  Unit Hyd. peak  (cms)=       0.25         0.09
                                          *TOTALS*
  PEAK FLOW       (cms)=       1.55         0.53          2.013 (iii)
  TIME TO PEAK    (hrs)=      12.25        12.33         12.25
  RUNOFF VOLUME    (mm)=     112.45        53.23         82.84
  TOTAL RAINFALL   (mm)=     117.45       117.45        117.45
  RUNOFF COEFFICIENT   =       0.96         0.45          0.71
```

```
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  67.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0300)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
      ID1= 1 (  0203):    89.62  21.885    12.25    85.65
    + ID2= 2 (  0003):     7.88   2.013    12.25    82.84
      ==========================================================
      ID = 3 (  0300):    97.50  23.898    12.25    85.42

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
------------------
| RESERVOIR(  0030)|    OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
------------------     (cms)     (ha.m.)   |   (cms)     (ha.m.)
                       0.0000     0.0000    |   2.7700     2.8400
                       0.8200     1.4400    |   3.2200     3.1300
                       1.3700     1.8900    |   5.2900     4.3700
                       1.7800     2.1800    |   6.1500     5.4900
                       2.3300     2.5500    |   0.0000     0.0000

                            AREA     QPEAK     TPEAK      R.V.
                             (ha)     (cms)     (hrs)      (mm)
  INFLOW : ID= 2 (  0300)    97.500    23.898     12.25     85.42
 OUTFLOW: ID= 1 (  0030)    97.500     4.533     12.83     85.42

              PEAK   FLOW   REDUCTION [Qout/Qin](%)= 18.97
              TIME SHIFT OF PEAK FLOW          (min)= 35.00
              MAXIMUM  STORAGE   USED        (ha.m.)=  3.9245
```

```
-------------------------------------------------------------------------------
================================================================================
======================


     V     V   I    SSSSS  U   U    A     L                    (v 6.2.2015)
     V     V   I   SS      U   U   A A    L
      V   V    I    SS     U   U  AAAAA   L
       V V     I      SS   U   U  A   A   L
```

```
      VV     I    SSSSS  UUUUU   A    A   LLLLL

       OOO   TTTTT  TTTTT  H    H   Y    Y   M    M   OOO    TM
      O   O    T      T    H    H    Y  Y    MM  MM  O   O
      O   O    T      T    H    H     Y     M  M  M  O   O
       OOO     T      T    H    H     Y     M    M   OOO
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            *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\f8
ea6acf-22cd-444f-8202-c8d21828e788\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\f8
ea6acf-22cd-444f-8202-c8d21828e788\sc

DATE: 11-27-2024                          TIME: 08:52:04

USER:


COMMENTS: _____

-------------------------------------------------------------------------------
---------------------
  **********************************************
  ** SIMULATION : 3E - 50yr 24hr 15min SCS Type **
  **********************************************


--------------------
|     READ STORM   |     Filename: C:\Users\jfletcher\AppD
|                  |               ata\Local\Temp\
|                  |               f7771102-1e26-4a23-9fad-5d61ceae4d2b\557e7cbb
| Ptotal=129.38 mm |    Comments: 50yr 24hr 15min SCS Type II (MTO)
--------------------
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
  0.00    0.00 |  6.25    2.33 | 12.50   18.63 | 18.75    2.33
  0.25    1.42 |  6.50    2.33 | 12.75    9.57 | 19.00    2.33
```

```
 0.50    1.42 |  6.75    2.33 | 13.00    9.57 | 19.25    2.33
 0.75    1.42 |  7.00    2.33 | 13.25    6.99 | 19.50    2.33
 1.00    1.42 |  7.25    2.85 | 13.50    6.99 | 19.75    2.33
 1.25    1.42 |  7.50    2.85 | 13.75    5.43 | 20.00    2.33
 1.50    1.42 |  7.75    2.85 | 14.00    5.43 | 20.25    1.55
 1.75    1.42 |  8.00    2.85 | 14.25    3.88 | 20.50    1.55
 2.00    1.42 |  8.25    3.36 | 14.50    3.88 | 20.75    1.55
 2.25    1.68 |  8.50    3.36 | 14.75    3.88 | 21.00    1.55
 2.50    1.68 |  8.75    3.62 | 15.00    3.88 | 21.25    1.55
 2.75    1.68 |  9.00    3.62 | 15.25    3.88 | 21.50    1.55
 3.00    1.68 |  9.25    4.14 | 15.50    3.88 | 21.75    1.55
 3.25    1.68 |  9.50    4.14 | 15.75    3.88 | 22.00    1.55
 3.50    1.68 |  9.75    4.66 | 16.00    3.88 | 22.25    1.55
 3.75    1.68 | 10.00    4.66 | 16.25    2.33 | 22.50    1.55
 4.00    1.68 | 10.25    5.95 | 16.50    2.33 | 22.75    1.55
 4.25    2.07 | 10.50    5.95 | 16.75    2.33 | 23.00    1.55
 4.50    2.07 | 10.75    8.02 | 17.00    2.33 | 23.25    1.55
 4.75    2.07 | 11.00    8.02 | 17.25    2.33 | 23.50    1.55
 5.00    2.07 | 11.25   12.42 | 17.50    2.33 | 23.75    1.55
 5.25    2.07 | 11.50   12.42 | 17.75    2.33 | 24.00    1.55
 5.50    2.07 | 11.75   38.30 | 18.00    2.33 |
 5.75    2.07 | 12.00  158.36 | 18.25    2.33 |
 6.00    2.07 | 12.25   18.63 | 18.50    2.33 |
```

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--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=  30.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=  55.00
--------------------
                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     23.81         6.71
     Dep. Storage     (mm)=      5.00         5.00
     Average Slope    (%)=      1.00         2.00
     Length           (m)=    451.07        40.00
     Mannings n             =     0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    2.07 |12.250  158.36 | 18.33    2.33
 0.167    0.00 | 6.250    2.07 |12.333   18.65 | 18.42    2.33
 0.250    0.00 | 6.333    2.33 |12.417   18.63 | 18.50    2.33
 0.333    1.42 | 6.417    2.33 |12.500   18.63 | 18.58    2.33
 0.417    1.42 | 6.500    2.33 |12.583   18.63 | 18.67    2.33
 0.500    1.42 | 6.583    2.33 |12.667   18.63 | 18.75    2.33
 0.583    1.42 | 6.667    2.33 |12.750   18.63 | 18.83    2.33
 0.667    1.42 | 6.750    2.33 |12.833    9.58 | 18.92    2.33
 0.750    1.42 | 6.833    2.33 |12.917    9.57 | 19.00    2.33
 0.833    1.42 | 6.917    2.33 |13.000    9.57 | 19.08    2.33
 0.917    1.42 | 7.000    2.33 |13.083    9.57 | 19.17    2.33
 1.000    1.42 | 7.083    2.33 |13.167    9.57 | 19.25    2.33
 1.083    1.42 | 7.167    2.33 |13.250    9.57 | 19.33    2.33
 1.167    1.42 | 7.250    2.33 |13.333    6.99 | 19.42    2.33
 1.250    1.42 | 7.333    2.85 |13.417    6.99 | 19.50    2.33
 1.333    1.42 | 7.417    2.85 |13.500    6.99 | 19.58    2.33
 1.417    1.42 | 7.500    2.85 |13.583    6.99 | 19.67    2.33
 1.500    1.42 | 7.583    2.85 |13.667    6.99 | 19.75    2.33
 1.583    1.42 | 7.667    2.85 |13.750    6.99 | 19.83    2.33
 1.667    1.42 | 7.750    2.85 |13.833    5.43 | 19.92    2.33
 1.750    1.42 | 7.833    2.85 |13.917    5.43 | 20.00    2.33
 1.833    1.42 | 7.917    2.85 |14.000    5.43 | 20.08    2.33
 1.917    1.42 | 8.000    2.85 |14.083    5.43 | 20.17    2.33
 2.000    1.42 | 8.083    2.85 |14.167    5.43 | 20.25    2.33
 2.083    1.42 | 8.167    2.85 |14.250    5.43 | 20.33    1.55
 2.167    1.42 | 8.250    2.85 |14.333    3.88 | 20.42    1.55
 2.250    1.42 | 8.333    3.36 |14.417    3.88 | 20.50    1.55
 2.333    1.68 | 8.417    3.36 |14.500    3.88 | 20.58    1.55
 2.417    1.68 | 8.500    3.36 |14.583    3.88 | 20.67    1.55
 2.500    1.68 | 8.583    3.36 |14.667    3.88 | 20.75    1.55
 2.583    1.68 | 8.667    3.36 |14.750    3.88 | 20.83    1.55
 2.667    1.68 | 8.750    3.36 |14.833    3.88 | 20.92    1.55
 2.750    1.68 | 8.833    3.62 |14.917    3.88 | 21.00    1.55
 2.833    1.68 | 8.917    3.62 |15.000    3.88 | 21.08    1.55
 2.917    1.68 | 9.000    3.62 |15.083    3.88 | 21.17    1.55
 3.000    1.68 | 9.083    3.62 |15.167    3.88 | 21.25    1.55
 3.083    1.68 | 9.167    3.62 |15.250    3.88 | 21.33    1.55
 3.167    1.68 | 9.250    3.62 |15.333    3.88 | 21.42    1.55
 3.250    1.68 | 9.333    4.14 |15.417    3.88 | 21.50    1.55
 3.333    1.68 | 9.417    4.14 |15.500    3.88 | 21.58    1.55
 3.417    1.68 | 9.500    4.14 |15.583    3.88 | 21.67    1.55
 3.500    1.68 | 9.583    4.14 |15.667    3.88 | 21.75    1.55
 3.583    1.68 | 9.667    4.14 |15.750    3.88 | 21.83    1.55
 3.667    1.68 | 9.750    4.14 |15.833    3.88 | 21.92    1.55
 3.750    1.68 | 9.833    4.66 |15.917    3.88 | 22.00    1.55
 3.833    1.68 | 9.917    4.66 |16.000    3.88 | 22.08    1.55
 3.917    1.68 |10.000    4.66 |16.083    3.88 | 22.17    1.55
 4.000    1.68 |10.083    4.66 |16.167    3.88 | 22.25    1.55
 4.083    1.68 |10.167    4.66 |16.250    3.88 | 22.33    1.55
 4.167    1.68 |10.250    4.66 |16.333    2.33 | 22.42    1.55
 4.250    1.68 |10.333    5.95 |16.417    2.33 | 22.50    1.55
 4.333    2.07 |10.417    5.95 |16.500    2.33 | 22.58    1.55
 4.417    2.07 |10.500    5.95 |16.583    2.33 | 22.67    1.55
 4.500    2.07 |10.583    5.95 |16.667    2.33 | 22.75    1.55
 4.583    2.07 |10.667    5.95 |16.750    2.33 | 22.83    1.55
 4.667    2.07 |10.750    5.95 |16.833    2.33 | 22.92    1.55
```

```
 4.750    2.07 |10.833    8.02 |16.917    2.33 | 23.00    1.55
 4.833    2.07 |10.917    8.02 |17.000    2.33 | 23.08    1.55
 4.917    2.07 |11.000    8.02 |17.083    2.33 | 23.17    1.55
 5.000    2.07 |11.083    8.02 |17.167    2.33 | 23.25    1.55
 5.083    2.07 |11.167    8.02 |17.250    2.33 | 23.33    1.55
 5.167    2.07 |11.250    8.02 |17.333    2.33 | 23.42    1.55
 5.250    2.07 |11.333   12.42 |17.417    2.33 | 23.50    1.55
 5.333    2.07 |11.417   12.42 |17.500    2.33 | 23.58    1.55
 5.417    2.07 |11.500   12.42 |17.583    2.33 | 23.67    1.55
 5.500    2.07 |11.583   12.42 |17.667    2.33 | 23.75    1.55
 5.583    2.07 |11.667   12.42 |17.750    2.33 | 23.83    1.55
 5.667    2.07 |11.750   12.42 |17.833    2.33 | 23.92    1.55
 5.750    2.07 |11.833   38.29 |17.917    2.33 | 24.00    1.55
 5.833    2.07 |11.917   38.30 |18.000    2.33 | 24.08    1.55
 5.917    2.07 |12.000   38.30 |18.083    2.33 | 24.17    1.55
 6.000    2.07 |12.083  158.35 |18.167    2.33 | 24.25    1.55
 6.083    2.07 |12.167  158.36 |18.250    2.33 |

  Max.Eff.Inten.(mm/hr)=     158.36       252.91
            over (min)         5.00        10.00
  Storage Coeff.  (min)=       5.25 (ii)    9.32 (ii)
  Unit Hyd. Tpeak (min)=       5.00        10.00
  Unit Hyd. peak  (cms)=       0.21         0.12
                                          *TOTALS*
  PEAK FLOW       (cms)=       7.06         3.48         10.542 (iii)
  TIME TO PEAK    (hrs)=      12.25        12.25         12.25
  RUNOFF VOLUME    (mm)=     124.38        85.66        106.96
  TOTAL RAINFALL   (mm)=     129.38       129.38        129.38
  RUNOFF COEFFICIENT   =       0.96         0.66          0.83


    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
        CN*  =  67.0    Ia = Dep. Storage  (Above)
   (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
        THAN THE STORAGE COEFFICIENT.
  (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0001)|   Area    (ha)=   4.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------
                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      2.11         2.11
     Dep. Storage     (mm)=      5.00         5.00
     Average Slope    (%)=      1.00         2.00
     Length           (m)=    167.53        40.00
     Mannings n             =     0.013        0.250
```

```
NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    2.07 |12.250  158.36 | 18.33    2.33
 0.167    0.00 | 6.250    2.07 |12.333   18.65 | 18.42    2.33
 0.250    0.00 | 6.333    2.33 |12.417   18.63 | 18.50    2.33
 0.333    1.42 | 6.417    2.33 |12.500   18.63 | 18.58    2.33
 0.417    1.42 | 6.500    2.33 |12.583   18.63 | 18.67    2.33
 0.500    1.42 | 6.583    2.33 |12.667   18.63 | 18.75    2.33
 0.583    1.42 | 6.667    2.33 |12.750   18.63 | 18.83    2.33
 0.667    1.42 | 6.750    2.33 |12.833    9.58 | 18.92    2.33
 0.750    1.42 | 6.833    2.33 |12.917    9.57 | 19.00    2.33
 0.833    1.42 | 6.917    2.33 |13.000    9.57 | 19.08    2.33
 0.917    1.42 | 7.000    2.33 |13.083    9.57 | 19.17    2.33
 1.000    1.42 | 7.083    2.33 |13.167    9.57 | 19.25    2.33
 1.083    1.42 | 7.167    2.33 |13.250    9.57 | 19.33    2.33
 1.167    1.42 | 7.250    2.33 |13.333    6.99 | 19.42    2.33
 1.250    1.42 | 7.333    2.85 |13.417    6.99 | 19.50    2.33
 1.333    1.42 | 7.417    2.85 |13.500    6.99 | 19.58    2.33
 1.417    1.42 | 7.500    2.85 |13.583    6.99 | 19.67    2.33
 1.500    1.42 | 7.583    2.85 |13.667    6.99 | 19.75    2.33
 1.583    1.42 | 7.667    2.85 |13.750    6.99 | 19.83    2.33
 1.667    1.42 | 7.750    2.85 |13.833    5.43 | 19.92    2.33
 1.750    1.42 | 7.833    2.85 |13.917    5.43 | 20.00    2.33
 1.833    1.42 | 7.917    2.85 |14.000    5.43 | 20.08    2.33
 1.917    1.42 | 8.000    2.85 |14.083    5.43 | 20.17    2.33
 2.000    1.42 | 8.083    2.85 |14.167    5.43 | 20.25    2.33
 2.083    1.42 | 8.167    2.85 |14.250    5.43 | 20.33    1.55
 2.167    1.42 | 8.250    2.85 |14.333    3.88 | 20.42    1.55
 2.250    1.42 | 8.333    3.36 |14.417    3.88 | 20.50    1.55
 2.333    1.68 | 8.417    3.36 |14.500    3.88 | 20.58    1.55
 2.417    1.68 | 8.500    3.36 |14.583    3.88 | 20.67    1.55
 2.500    1.68 | 8.583    3.36 |14.667    3.88 | 20.75    1.55
 2.583    1.68 | 8.667    3.36 |14.750    3.88 | 20.83    1.55
 2.667    1.68 | 8.750    3.36 |14.833    3.88 | 20.92    1.55
 2.750    1.68 | 8.833    3.62 |14.917    3.88 | 21.00    1.55
 2.833    1.68 | 8.917    3.62 |15.000    3.88 | 21.08    1.55
 2.917    1.68 | 9.000    3.62 |15.083    3.88 | 21.17    1.55
 3.000    1.68 | 9.083    3.62 |15.167    3.88 | 21.25    1.55
 3.083    1.68 | 9.167    3.62 |15.250    3.88 | 21.33    1.55
 3.167    1.68 | 9.250    3.62 |15.333    3.88 | 21.42    1.55
 3.250    1.68 | 9.333    4.14 |15.417    3.88 | 21.50    1.55
 3.333    1.68 | 9.417    4.14 |15.500    3.88 | 21.58    1.55
 3.417    1.68 | 9.500    4.14 |15.583    3.88 | 21.67    1.55
 3.500    1.68 | 9.583    4.14 |15.667    3.88 | 21.75    1.55
 3.583    1.68 | 9.667    4.14 |15.750    3.88 | 21.83    1.55
 3.667    1.68 | 9.750    4.14 |15.833    3.88 | 21.92    1.55
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 3.750    1.68 | 9.833    4.66 |15.917    3.88 | 22.00    1.55
 3.833    1.68 | 9.917    4.66 |16.000    3.88 | 22.08    1.55
 3.917    1.68 |10.000    4.66 |16.083    3.88 | 22.17    1.55
 4.000    1.68 |10.083    4.66 |16.167    3.88 | 22.25    1.55
 4.083    1.68 |10.167    4.66 |16.250    3.88 | 22.33    1.55
 4.167    1.68 |10.250    4.66 |16.333    2.33 | 22.42    1.55
 4.250    1.68 |10.333    5.95 |16.417    2.33 | 22.50    1.55
 4.333    2.07 |10.417    5.95 |16.500    2.33 | 22.58    1.55
 4.417    2.07 |10.500    5.95 |16.583    2.33 | 22.67    1.55
 4.500    2.07 |10.583    5.95 |16.667    2.33 | 22.75    1.55
 4.583    2.07 |10.667    5.95 |16.750    2.33 | 22.83    1.55
 4.667    2.07 |10.750    5.95 |16.833    2.33 | 22.92    1.55
 4.750    2.07 |10.833    8.02 |16.917    2.33 | 23.00    1.55
 4.833    2.07 |10.917    8.02 |17.000    2.33 | 23.08    1.55
 4.917    2.07 |11.000    8.02 |17.083    2.33 | 23.17    1.55
 5.000    2.07 |11.083    8.02 |17.167    2.33 | 23.25    1.55
 5.083    2.07 |11.167    8.02 |17.250    2.33 | 23.33    1.55
 5.167    2.07 |11.250    8.02 |17.333    2.33 | 23.42    1.55
 5.250    2.07 |11.333   12.42 |17.417    2.33 | 23.50    1.55
 5.333    2.07 |11.417   12.42 |17.500    2.33 | 23.58    1.55
 5.417    2.07 |11.500   12.42 |17.583    2.33 | 23.67    1.55
 5.500    2.07 |11.583   12.42 |17.667    2.33 | 23.75    1.55
 5.583    2.07 |11.667   12.42 |17.750    2.33 | 23.83    1.55
 5.667    2.07 |11.750   12.42 |17.833    2.33 | 23.92    1.55
 5.750    2.07 |11.833   38.29 |17.917    2.33 | 24.00    1.55
 5.833    2.07 |11.917   38.30 |18.000    2.33 | 24.08    1.55
 5.917    2.07 |12.000   38.30 |18.083    2.33 | 24.17    1.55
 6.000    2.07 |12.083  158.35 |18.167    2.33 | 24.25    1.55
 6.083    2.07 |12.167  158.36 |18.250    2.33 |

  Max.Eff.Inten.(mm/hr)=     158.36       91.29
            over (min)         5.00       15.00
  Storage Coeff.  (min)=       2.90 (ii)   10.22 (ii)
  Unit Hyd. Tpeak (min)=       5.00       15.00
  Unit Hyd. peak  (cms)=       0.28        0.09
                                         *TOTALS*
  PEAK FLOW       (cms)=       0.92        0.35          1.225 (iii)
  TIME TO PEAK    (hrs)=      12.25       12.33         12.25
  RUNOFF VOLUME    (mm)=     124.38       62.01         93.19
  TOTAL RAINFALL   (mm)=     129.38      129.38        129.38
  RUNOFF COEFFICIENT   =       0.96        0.48          0.72

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  67.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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| ADD HYD  (  0100)|
|  1 +  2 =  3     |        AREA    QPEAK    TPEAK     R.V.
--------------------       (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    4.21   1.225    12.25    93.19
     + ID2= 2 (  0201):   30.52  10.542    12.25   106.96
       ==========================================================
       ID = 3 (  0100):   34.73  11.767    12.25   105.29

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
---------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW   STORAGE   | OUTFLOW   STORAGE
--------------------       (cms)    (ha.m.)  |  (cms)    (ha.m.)
                           0.0000   0.0000   |  1.0900    1.0400
                           0.3100   0.5460   |  1.2700    1.1400
                           0.5250   0.7030   |  2.1100    1.5700
                           0.6900   0.8068   |  2.4450    2.0600
                           0.9000   0.9400   |  0.0000    0.0000

                             AREA     QPEAK     TPEAK      R.V.
                             (ha)     (cms)     (hrs)      (mm)
  INFLOW : ID= 2 (  0100)    34.730   11.767    12.25    105.29
  OUTFLOW: ID= 1 (  0010)    34.730    2.205    12.67    105.28

               PEAK   FLOW   REDUCTION [Qout/Qin](%)= 18.74
               TIME SHIFT OF PEAK FLOW       (min)= 25.00
               MAXIMUM  STORAGE   USED       (ha.m.)=  1.7104
-------------------------------------------------------------------------------
---------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=  28.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  57.00
--------------------

                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     19.08        8.98
     Dep. Storage     (mm)=      5.00        5.00
     Average Slope     (%)=      1.00        2.00
     Length            (m)=    432.51       40.00
     Mannings n            =     0.013       0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
 TIME   RAIN |  TIME   RAIN |'  TIME   RAIN |  TIME   RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083   0.00 | 6.167   2.07 |12.250  158.36 | 18.33   2.33
 0.167   0.00 | 6.250   2.07 |12.333   18.65 | 18.42   2.33
 0.250   0.00 | 6.333   2.33 |12.417   18.63 | 18.50   2.33
 0.333   1.42 | 6.417   2.33 |12.500   18.63 | 18.58   2.33
 0.417   1.42 | 6.500   2.33 |12.583   18.63 | 18.67   2.33
 0.500   1.42 | 6.583   2.33 |12.667   18.63 | 18.75   2.33
 0.583   1.42 | 6.667   2.33 |12.750   18.63 | 18.83   2.33
 0.667   1.42 | 6.750   2.33 |12.833    9.58 | 18.92   2.33
 0.750   1.42 | 6.833   2.33 |12.917    9.57 | 19.00   2.33
 0.833   1.42 | 6.917   2.33 |13.000    9.57 | 19.08   2.33
 0.917   1.42 | 7.000   2.33 |13.083    9.57 | 19.17   2.33
 1.000   1.42 | 7.083   2.33 |13.167    9.57 | 19.25   2.33
 1.083   1.42 | 7.167   2.33 |13.250    9.57 | 19.33   2.33
 1.167   1.42 | 7.250   2.33 |13.333    6.99 | 19.42   2.33
 1.250   1.42 | 7.333   2.85 |13.417    6.99 | 19.50   2.33
 1.333   1.42 | 7.417   2.85 |13.500    6.99 | 19.58   2.33
 1.417   1.42 | 7.500   2.85 |13.583    6.99 | 19.67   2.33
 1.500   1.42 | 7.583   2.85 |13.667    6.99 | 19.75   2.33
 1.583   1.42 | 7.667   2.85 |13.750    6.99 | 19.83   2.33
 1.667   1.42 | 7.750   2.85 |13.833    5.43 | 19.92   2.33
 1.750   1.42 | 7.833   2.85 |13.917    5.43 | 20.00   2.33
 1.833   1.42 | 7.917   2.85 |14.000    5.43 | 20.08   2.33
 1.917   1.42 | 8.000   2.85 |14.083    5.43 | 20.17   2.33
 2.000   1.42 | 8.083   2.85 |14.167    5.43 | 20.25   2.33
 2.083   1.42 | 8.167   2.85 |14.250    5.43 | 20.33   1.55
 2.167   1.42 | 8.250   2.85 |14.333    3.88 | 20.42   1.55
 2.250   1.42 | 8.333   3.36 |14.417    3.88 | 20.50   1.55
 2.333   1.68 | 8.417   3.36 |14.500    3.88 | 20.58   1.55
 2.417   1.68 | 8.500   3.36 |14.583    3.88 | 20.67   1.55
 2.500   1.68 | 8.583   3.36 |14.667    3.88 | 20.75   1.55
 2.583   1.68 | 8.667   3.36 |14.750    3.88 | 20.83   1.55
 2.667   1.68 | 8.750   3.36 |14.833    3.88 | 20.92   1.55
 2.750   1.68 | 8.833   3.62 |14.917    3.88 | 21.00   1.55
 2.833   1.68 | 8.917   3.62 |15.000    3.88 | 21.08   1.55
 2.917   1.68 | 9.000   3.62 |15.083    3.88 | 21.17   1.55
 3.000   1.68 | 9.083   3.62 |15.167    3.88 | 21.25   1.55
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 TIME   RAIN |  TIME   RAIN |'  TIME   RAIN |  TIME   RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083   0.00 | 6.167   2.07 |12.250  158.36 | 18.33   2.33
 0.167   0.00 | 6.250   2.07 |12.333   18.65 | 18.42   2.33
 0.250   0.00 | 6.333   2.33 |12.417   18.63 | 18.50   2.33
 0.333   1.42 | 6.417   2.33 |12.500   18.63 | 18.58   2.33
 0.417   1.42 | 6.500   2.33 |12.583   18.63 | 18.67   2.33
 0.500   1.42 | 6.583   2.33 |12.667   18.63 | 18.75   2.33
 0.583   1.42 | 6.667   2.33 |12.750   18.63 | 18.83   2.33
 0.667   1.42 | 6.750   2.33 |12.833    9.58 | 18.92   2.33
 0.750   1.42 | 6.833   2.33 |12.917    9.57 | 19.00   2.33
 0.833   1.42 | 6.917   2.33 |13.000    9.57 | 19.08   2.33
 0.917   1.42 | 7.000   2.33 |13.083    9.57 | 19.17   2.33
 1.000   1.42 | 7.083   2.33 |13.167    9.57 | 19.25   2.33
 1.083   1.42 | 7.167   2.33 |13.250    9.57 | 19.33   2.33
 1.167   1.42 | 7.250   2.33 |13.333    6.99 | 19.42   2.33
 1.250   1.42 | 7.333   2.85 |13.417    6.99 | 19.50   2.33
 1.333   1.42 | 7.417   2.85 |13.500    6.99 | 19.58   2.33
 1.417   1.42 | 7.500   2.85 |13.583    6.99 | 19.67   2.33
 1.500   1.42 | 7.583   2.85 |13.667    6.99 | 19.75   2.33
 1.583   1.42 | 7.667   2.85 |13.750    6.99 | 19.83   2.33
 1.667   1.42 | 7.750   2.85 |13.833    5.43 | 19.92   2.33
 1.750   1.42 | 7.833   2.85 |13.917    5.43 | 20.00   2.33
 1.833   1.42 | 7.917   2.85 |14.000    5.43 | 20.08   2.33
 1.917   1.42 | 8.000   2.85 |14.083    5.43 | 20.17   2.33
 2.000   1.42 | 8.083   2.85 |14.167    5.43 | 20.25   2.33
 2.083   1.42 | 8.167   2.85 |14.250    5.43 | 20.33   1.55
 2.167   1.42 | 8.250   2.85 |14.333    3.88 | 20.42   1.55
 2.250   1.42 | 8.333   3.36 |14.417    3.88 | 20.50   1.55
 2.333   1.68 | 8.417   3.36 |14.500    3.88 | 20.58   1.55
 2.417   1.68 | 8.500   3.36 |14.583    3.88 | 20.67   1.55
 2.500   1.68 | 8.583   3.36 |14.667    3.88 | 20.75   1.55
 2.583   1.68 | 8.667   3.36 |14.750    3.88 | 20.83   1.55
 2.667   1.68 | 8.750   3.36 |14.833    3.88 | 20.92   1.55
 2.750   1.68 | 8.833   3.62 |14.917    3.88 | 21.00   1.55
 2.833   1.68 | 8.917   3.62 |15.000    3.88 | 21.08   1.55
 2.917   1.68 | 9.000   3.62 |15.083    3.88 | 21.17   1.55
 3.000   1.68 | 9.083   3.62 |15.167    3.88 | 21.25   1.55
 3.083   1.68 | 9.167   3.62 |15.250    3.88 | 21.33   1.55
 3.167   1.68 | 9.250   3.62 |15.333    3.88 | 21.42   1.55
 3.250   1.68 | 9.333   4.14 |15.417    3.88 | 21.50   1.55
 3.333   1.68 | 9.417   4.14 |15.500    3.88 | 21.58   1.55
 3.417   1.68 | 9.500   4.14 |15.583    3.88 | 21.67   1.55
 3.500   1.68 | 9.583   4.14 |15.667    3.88 | 21.75   1.55
 3.583   1.68 | 9.667   4.14 |15.750    3.88 | 21.83   1.55
 3.667   1.68 | 9.750   4.14 |15.833    3.88 | 21.92   1.55
 3.750   1.68 | 9.833   4.66 |15.917    3.88 | 22.00   1.55
 3.833   1.68 | 9.917   4.66 |16.000    3.88 | 22.08   1.55
 3.917   1.68 |10.000   4.66 |16.083    3.88 | 22.17   1.55
 4.000   1.68 |10.083   4.66 |16.167    3.88 | 22.25   1.55
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 4.083   1.68 |10.167   4.66 |16.250    3.88 | 22.33   1.55
 4.167   1.68 |10.250   4.66 |16.333    2.33 | 22.42   1.55
 4.250   1.68 |10.333   5.95 |16.417    2.33 | 22.50   1.55
 4.333   2.07 |10.417   5.95 |16.500    2.33 | 22.58   1.55
 4.417   2.07 |10.500   5.95 |16.583    2.33 | 22.67   1.55
 4.500   2.07 |10.583   5.95 |16.667    2.33 | 22.75   1.55
 4.583   2.07 |10.667   5.95 |16.750    2.33 | 22.83   1.55
 4.667   2.07 |10.750   5.95 |16.833    2.33 | 22.92   1.55
 4.750   2.07 |10.833   8.02 |16.917    2.33 | 23.00   1.55
 4.833   2.07 |10.917   8.02 |17.000    2.33 | 23.08   1.55
 4.917   2.07 |11.000   8.02 |17.083    2.33 | 23.17   1.55
 5.000   2.07 |11.083   8.02 |17.167    2.33 | 23.25   1.55
 5.083   2.07 |11.167   8.02 |17.250    2.33 | 23.33   1.55
 5.167   2.07 |11.250   8.02 |17.333    2.33 | 23.42   1.55
 5.250   2.07 |11.333   12.42 |17.417    2.33 | 23.50   1.55
 5.333   2.07 |11.417   12.42 |17.500    2.33 | 23.58   1.55
 5.417   2.07 |11.500   12.42 |17.583    2.33 | 23.67   1.55
 5.500   2.07 |11.583   12.42 |17.667    2.33 | 23.75   1.55
 5.583   2.07 |11.667   12.42 |17.750    2.33 | 23.83   1.55
 5.667   2.07 |11.750   12.42 |17.833    2.33 | 23.92   1.55
 5.750   2.07 |11.833   38.29 |17.917    2.33 | 24.00   1.55
 5.833   2.07 |11.917   38.30 |18.000    2.33 | 24.08   1.55
 5.917   2.07 |12.000   38.30 |18.083    2.33 | 24.17   1.55
 6.000   2.07 |12.083  158.35 |18.167    2.33 | 24.25   1.55
 6.083   2.07 |12.167  158.36 |18.250    2.33 |

  Max.Eff.Inten.(mm/hr)=    158.36       142.01
            over (min)        5.00        10.00
  Storage Coeff.  (min)=    5.12 (ii)    9.78 (ii)
  Unit Hyd. Tpeak (min)=    5.00        10.00
  Unit Hyd. peak  (cms)=    0.21         0.11

                                        *TOTALS*
  PEAK FLOW      (cms)=      6.75         2.52         9.264 (iii)
  TIME TO PEAK   (hrs)=     12.25        12.25        12.25
  RUNOFF VOLUME   (mm)=    124.38        72.18       101.93
  TOTAL RAINFALL  (mm)=    129.38       129.38       129.38
  RUNOFF COEFFICIENT   =     0.96         0.56         0.79

    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
        CN*  =  67.0    Ia = Dep. Storage  (Above)
   (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
        THAN THE STORAGE COEFFICIENT.
  (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD (  0002)|   Area    (ha)=   3.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
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| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=  28.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  57.00
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                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     19.08        8.98
     Dep. Storage     (mm)=      5.00        5.00
     Average Slope     (%)=      1.00        2.00
     Length            (m)=    432.51       40.00
     Mannings n            =     0.013       0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
 TIME   RAIN |  TIME   RAIN |'  TIME   RAIN |  TIME   RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083   0.00 | 6.167   2.07 |12.250  158.36 | 18.33   2.33
 0.167   0.00 | 6.250   2.07 |12.333   18.65 | 18.42   2.33
 0.250   0.00 | 6.333   2.33 |12.417   18.63 | 18.50   2.33
 0.333   1.42 | 6.417   2.33 |12.500   18.63 | 18.58   2.33
 0.417   1.42 | 6.500   2.33 |12.583   18.63 | 18.67   2.33
 0.500   1.42 | 6.583   2.33 |12.667   18.63 | 18.75   2.33
 0.583   1.42 | 6.667   2.33 |12.750   18.63 | 18.83   2.33
 0.667   1.42 | 6.750   2.33 |12.833    9.58 | 18.92   2.33
 0.750   1.42 | 6.833   2.33 |12.917    9.57 | 19.00   2.33
 0.833   1.42 | 6.917   2.33 |13.000    9.57 | 19.08   2.33
 0.917   1.42 | 7.000   2.33 |13.083    9.57 | 19.17   2.33
 1.000   1.42 | 7.083   2.33 |13.167    9.57 | 19.25   2.33
 1.083   1.42 | 7.167   2.33 |13.250    9.57 | 19.33   2.33
 1.167   1.42 | 7.250   2.33 |13.333    6.99 | 19.42   2.33
 1.250   1.42 | 7.333   2.85 |13.417    6.99 | 19.50   2.33
 1.333   1.42 | 7.417   2.85 |13.500    6.99 | 19.58   2.33
 1.417   1.42 | 7.500   2.85 |13.583    6.99 | 19.67   2.33
 1.500   1.42 | 7.583   2.85 |13.667    6.99 | 19.75   2.33
 1.583   1.42 | 7.667   2.85 |13.750    6.99 | 19.83   2.33
 1.667   1.42 | 7.750   2.85 |13.833    5.43 | 19.92   2.33
 1.750   1.42 | 7.833   2.85 |13.917    5.43 | 20.00   2.33
 1.833   1.42 | 7.917   2.85 |14.000    5.43 | 20.08   2.33
 1.917   1.42 | 8.000   2.85 |14.083    5.43 | 20.17   2.33
 2.000   1.42 | 8.083   2.85 |14.167    5.43 | 20.25   2.33
 2.083   1.42 | 8.167   2.85 |14.250    5.43 | 20.33   1.55
 2.167   1.42 | 8.250   2.85 |14.333    3.88 | 20.42   1.55
 2.250   1.42 | 8.333   3.36 |14.417    3.88 | 20.50   1.55
 2.333   1.68 | 8.417   3.36 |14.500    3.88 | 20.58   1.55
 2.417   1.68 | 8.500   3.36 |14.583    3.88 | 20.67   1.55
 2.500   1.68 | 8.583   3.36 |14.667    3.88 | 20.75   1.55
 2.583   1.68 | 8.667   3.36 |14.750    3.88 | 20.83   1.55
 2.667   1.68 | 8.750   3.36 |14.833    3.88 | 20.92   1.55
 2.750   1.68 | 8.833   3.62 |14.917    3.88 | 21.00   1.55
 2.833   1.68 | 8.917   3.62 |15.000    3.88 | 21.08   1.55
 2.917   1.68 | 9.000   3.62 |15.083    3.88 | 21.17   1.55
 3.000   1.68 | 9.083   3.62 |15.167    3.88 | 21.25   1.55
 3.083   1.68 | 9.167   3.62 |15.250    3.88 | 21.33   1.55
 3.167   1.68 | 9.250   3.62 |15.333    3.88 | 21.42   1.55
 3.250   1.68 | 9.333   4.14 |15.417    3.88 | 21.50   1.55
 3.333   1.68 | 9.417   4.14 |15.500    3.88 | 21.58   1.55
 3.417   1.68 | 9.500   4.14 |15.583    3.88 | 21.67   1.55
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 3.500   1.68 | 9.583   4.14 |15.667    3.88 | 21.75   1.55
 3.583   1.68 | 9.667   4.14 |15.750    3.88 | 21.83   1.55
 3.667   1.68 | 9.750   4.14 |15.833    3.88 | 21.92   1.55
 3.750   1.68 | 9.833   4.66 |15.917    3.88 | 22.00   1.55
 3.833   1.68 | 9.917   4.66 |16.000    3.88 | 22.08   1.55
 3.917   1.68 |10.000   4.66 |16.083    3.88 | 22.17   1.55
 4.000   1.68 |10.083   4.66 |16.167    3.88 | 22.25   1.55
 4.083   1.68 |10.167   4.66 |16.250    3.88 | 22.33   1.55
 4.167   1.68 |10.250   4.66 |16.333    2.33 | 22.42   1.55
 4.250   1.68 |10.333   5.95 |16.417    2.33 | 22.50   1.55
 4.333   2.07 |10.417   5.95 |16.500    2.33 | 22.58   1.55
 4.417   2.07 |10.500   5.95 |16.583    2.33 | 22.67   1.55
 4.500   2.07 |10.583   5.95 |16.667    2.33 | 22.75   1.55
 4.583   2.07 |10.667   5.95 |16.750    2.33 | 22.83   1.55
 4.667   2.07 |10.750   5.95 |16.833    2.33 | 22.92   1.55
 4.750   2.07 |10.833   8.02 |16.917    2.33 | 23.00   1.55
 4.833   2.07 |10.917   8.02 |17.000    2.33 | 23.08   1.55
 4.917   2.07 |11.000   8.02 |17.083    2.33 | 23.17   1.55
 5.000   2.07 |11.083   8.02 |17.167    2.33 | 23.25   1.55
 5.083   2.07 |11.167   8.02 |17.250    2.33 | 23.33   1.55
 5.167   2.07 |11.250   8.02 |17.333    2.33 | 23.42   1.55
 5.250   2.07 |11.333   12.42 |17.417    2.33 | 23.50   1.55
 5.333   2.07 |11.417   12.42 |17.500    2.33 | 23.58   1.55
 5.417   2.07 |11.500   12.42 |17.583    2.33 | 23.67   1.55
 5.500   2.07 |11.583   12.42 |17.667    2.33 | 23.75   1.55
 5.583   2.07 |11.667   12.42 |17.750    2.33 | 23.83   1.55
 5.667   2.07 |11.750   12.42 |17.833    2.33 | 23.92   1.55
 5.750   2.07 |11.833   38.29 |17.917    2.33 | 24.00   1.55
 5.833   2.07 |11.917   38.30 |18.000    2.33 | 24.08   1.55
 5.917   2.07 |12.000   38.30 |18.083    2.33 | 24.17   1.55
 6.000   2.07 |12.083  158.35 |18.167    2.33 | 24.25   1.55
 6.083   2.07 |12.167  158.36 |18.250    2.33 |

  Max.Eff.Inten.(mm/hr)=    158.36       156.16
            over (min)        5.00        15.00
  Storage Coeff.  (min)=    5.89 (ii)   10.84 (ii)
  Unit Hyd. Tpeak (min)=    5.00        15.00
  Unit Hyd. peak  (cms)=    0.19         0.09

                                        *TOTALS*
  PEAK FLOW      (cms)=     16.30         9.82        24.906 (iii)
  TIME TO PEAK   (hrs)=     12.25        12.33        12.25
  RUNOFF VOLUME   (mm)=    124.38        74.41        96.39
  TOTAL RAINFALL  (mm)=    129.38       129.38       129.38
  RUNOFF COEFFICIENT   =     0.96         0.58         0.75

    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
        CN*  =  67.0    Ia = Dep. Storage  (Above)
   (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
        THAN THE STORAGE COEFFICIENT.
```

```
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
        CN*  =  67.0    Ia = Dep. Storage  (Above)
   (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
        THAN THE STORAGE COEFFICIENT.
  (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
---------------------
| ADD HYD  (  0200)|
|  1 +  2 =  3     |        AREA    QPEAK    TPEAK     R.V.
--------------------       (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0002):    3.95   1.150    12.25    93.19
     + ID2= 2 (  0202):   28.06   9.264    12.25   101.93
       ==========================================================
       ID = 3 (  0200):   32.01  10.414    12.25   100.86

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
---------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW   STORAGE   | OUTFLOW   STORAGE
--------------------       (cms)    (ha.m.)  |  (cms)    (ha.m.)
                           0.0000   0.0000   |  1.8250    0.6819
                           0.6400   0.3757   |  2.1650    0.7600
                           1.0700   0.4858   |  4.0750    1.0700
                           1.3800   0.5709   |  4.7000    1.7300

                             AREA     QPEAK     TPEAK      R.V.
                             (ha)     (cms)     (hrs)      (mm)
  INFLOW : ID= 2 (  0200)    32.010   10.414    12.25    100.86
  OUTFLOW: ID= 1 (  0020)    32.010    4.073    12.42    100.85

               PEAK   FLOW   REDUCTION [Qout/Qin](%)= 39.11
               TIME SHIFT OF PEAK FLOW       (min)= 10.00
               MAXIMUM  STORAGE   USED       (ha.m.)=  1.0747
-------------------------------------------------------------------------------
---------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=  89.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  61.00   Dir. Conn.(%)=  44.00
--------------------

                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     54.67       34.95
     Dep. Storage     (mm)=      5.00        5.00
     Average Slope     (%)=      2.00        3.00
```

```
     Length            (m)=    772.96       40.00
     Mannings n            =     0.013       0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
 TIME   RAIN |  TIME   RAIN |'  TIME   RAIN |  TIME   RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083   0.00 | 6.167   2.07 |12.250  158.36 | 18.33   2.33
 0.167   0.00 | 6.250   2.07 |12.333   18.65 | 18.42   2.33
 0.250   0.00 | 6.333   2.33 |12.417   18.63 | 18.50   2.33
 0.333   1.42 | 6.417   2.33 |12.500   18.63 | 18.58   2.33
 0.417   1.42 | 6.500   2.33 |12.583   18.63 | 18.67   2.33
 0.500   1.42 | 6.583   2.33 |12.667   18.63 | 18.75   2.33
 0.583   1.42 | 6.667   2.33 |12.750   18.63 | 18.83   2.33
 0.667   1.42 | 6.750   2.33 |12.833    9.58 | 18.92   2.33
 0.750   1.42 | 6.833   2.33 |12.917    9.57 | 19.00   2.33
 0.833   1.42 | 6.917   2.33 |13.000    9.57 | 19.08   2.33
 0.917   1.42 | 7.000   2.33 |13.083    9.57 | 19.17   2.33
 1.000   1.42 | 7.083   2.33 |13.167    9.57 | 19.25   2.33
 1.083   1.42 | 7.167   2.33 |13.250    9.57 | 19.33   2.33
 1.167   1.42 | 7.250   2.33 |13.333    6.99 | 19.42   2.33
 1.250   1.42 | 7.333   2.85 |13.417    6.99 | 19.50   2.33
 1.333   1.42 | 7.417   2.85 |13.500    6.99 | 19.58   2.33
 1.417   1.42 | 7.500   2.85 |13.583    6.99 | 19.67   2.33
 1.500   1.42 | 7.583   2.85 |13.667    6.99 | 19.75   2.33
 1.583   1.42 | 7.667   2.85 |13.750    6.99 | 19.83   2.33
 1.667   1.42 | 7.750   2.85 |13.833    5.43 | 19.92   2.33
 1.750   1.42 | 7.833   2.85 |13.917    5.43 | 20.00   2.33
 1.833   1.42 | 7.917   2.85 |14.000    5.43 | 20.08   2.33
 1.917   1.42 | 8.000   2.85 |14.083    5.43 | 20.17   2.33
 2.000   1.42 | 8.083   2.85 |14.167    5.43 | 20.25   2.33
 2.083   1.42 | 8.167   2.85 |14.250    5.43 | 20.33   1.55
 2.167   1.42 | 8.250   2.85 |14.333    3.88 | 20.42   1.55
 2.250   1.42 | 8.333   3.36 |14.417    3.88 | 20.50   1.55
 2.333   1.68 | 8.417   3.36 |14.500    3.88 | 20.58   1.55
 2.417   1.68 | 8.500   3.36 |14.583    3.88 | 20.67   1.55
```

2.500	1.68	8.583	3.36	14.667	3.88	20.75	1.55
2.583	1.68	8.667	3.36	14.750	3.88	20.83	1.55
2.667	1.68	8.750	3.36	14.833	3.88	20.92	1.55
2.750	1.68	8.833	3.62	14.917	3.88	21.00	1.55
2.833	1.68	8.917	3.62	15.000	3.88	21.08	1.55
2.917	1.68	9.000	3.62	15.083	3.88	21.17	1.55
3.000	1.68	9.083	3.62	15.167	3.88	21.25	1.55
3.083	1.68	9.167	3.62	15.250	3.88	21.33	1.55
3.167	1.68	9.250	3.62	15.333	3.88	21.42	1.55
3.250	1.68	9.333	4.14	15.417	3.88	21.50	1.55
3.333	1.68	9.417	4.14	15.500	3.88	21.58	1.55
3.417	1.68	9.500	4.14	15.583	3.88	21.67	1.55
3.500	1.68	9.583	4.14	15.667	3.88	21.75	1.55
3.583	1.68	9.667	4.14	15.750	3.88	21.83	1.55
3.667	1.68	9.750	4.14	15.833	3.88	21.92	1.55
3.750	1.68	9.833	4.66	15.917	3.88	22.00	1.55
3.833	1.68	9.917	4.66	16.000	3.88	22.08	1.55
3.917	1.68	10.000	4.66	16.083	3.88	22.17	1.55
4.000	1.68	10.083	4.66	16.167	3.88	22.25	1.55
4.083	1.68	10.167	4.66	16.250	3.88	22.33	1.55
4.167	1.68	10.250	4.66	16.333	2.33	22.42	1.55
4.250	1.68	10.333	5.95	16.417	2.33	22.50	1.55
4.333	2.07	10.417	5.95	16.500	2.33	22.58	1.55
4.417	2.07	10.500	5.95	16.583	2.33	22.67	1.55
4.500	2.07	10.583	5.95	16.667	2.33	22.75	1.55
4.583	2.07	10.667	5.95	16.750	2.33	22.83	1.55
4.667	2.07	10.750	5.95	16.833	2.33	22.92	1.55
4.750	2.07	10.833	8.02	16.917	2.33	23.00	1.55
4.833	2.07	10.917	8.02	17.000	2.33	23.08	1.55
4.917	2.07	11.000	8.02	17.083	2.33	23.17	1.55
5.000	2.07	11.083	8.02	17.167	2.33	23.25	1.55
5.083	2.07	11.167	8.02	17.250	2.33	23.33	1.55
5.167	2.07	11.250	8.02	17.333	2.33	23.42	1.55
5.250	2.07	11.333	12.42	17.417	2.33	23.50	1.55
5.333	2.07	11.417	12.42	17.500	2.33	23.58	1.55
5.417	2.07	11.500	12.42	17.583	2.33	23.67	1.55
5.500	2.07	11.583	12.42	17.667	2.33	23.75	1.55
5.583	2.07	11.667	12.42	17.750	2.33	23.83	1.55
5.667	2.07	11.750	12.42	17.833	2.33	23.92	1.55
5.750	2.07	11.833	38.29	17.917	2.33	24.00	1.55
5.833	2.07	11.917	38.30	18.000	2.33	24.08	1.55
5.917	2.07	12.000	38.30	18.083	2.33	24.17	1.55
6.000	2.07	12.083	158.35	18.167	2.33	24.25	1.55
6.083	2.07	12.167	158.36	18.250	2.33		

Max.Eff.Inten.(mm/hr)=	158.36	91.29
over (min)	5.00	15.00
Storage Coeff. (min)=	3.50 (ii)	10.82 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.26	0.09

TOTALS

PEAK FLOW	(cms)=	1.72	0.64	2.267 (iii)
TIME TO PEAK	(hrs)=	12.25	12.33	12.25
RUNOFF VOLUME	(mm)=	124.38	62.01	93.19
TOTAL RAINFALL	(mm)=	129.38	129.38	129.38
RUNOFF COEFFICIENT	=	0.96	0.48	0.72

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 67.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0300)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0203):		89.62	24.906	12.25	96.39
+ ID2= 2 (0003):		7.88	2.267	12.25	93.19
ID = 3 (0300):		97.50	27.173	12.25	96.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0030)	IN= 2---> OUT= 1	OVERFLOW IS OFF			
DT= 5.0 min		OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
		0.0000	0.0000	2.7700	2.8400
		0.8200	1.4400	3.2200	3.1300
		1.3700	1.8900	5.2900	4.3700
		1.7800	2.1800	6.1500	5.4900
		2.3300	2.5500	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0300)	97.500	27.173	12.25	96.14
OUTFLOW: ID= 1 (0030)	97.500	5.294	12.75	96.13

PEAK FLOW REDUCTION [Qout/Qin](%)= 19.48
TIME SHIFT OF PEAK FLOW (min)= 30.00
MAXIMUM STORAGE USED (ha.m.)= 4.3804

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        V    V   I    SSSSS  U   U     A     L              (v 6.2.2015)
        V    V   I   SS      U   U    A A    L
         V  V    I    SS     U   U   AAAAA   L
          V V    I     SS    U   U   A   A   L
           VV    I   SSSSS   UUUUU   A   A   LLLLL

     OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
    O   O    T      T    H   H   Y Y   MM MM  O   O
    O   O    T      T    H   H    Y    M M M  O   O
     OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\c7
da5510-c62a-494c-aad1-ae99f1ba46b2\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\c7
da5510-c62a-494c-aad1-ae99f1ba46b2\sc

DATE: 11-27-2024                          TIME: 08:52:04

USER:


COMMENTS: _____

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  ************************************************
  ** SIMULATION : 3F - 100yr 24hr 15min SCS Typ **
  ************************************************

--------------------
|    READ STORM    |    Filename: C:\Users\jfletcher\AppD
|                  |              ata\Local\Temp\
|                  |              f7771102-1e26-4a23-9fad-5d61ceae4d2b\9c936a26
```

Ptotal=141.42 mm	Comments: 100yr 24hr 15min SCS Type II (MTO)

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	2.55	12.50	20.36	18.75	2.55
0.25	1.56	6.50	2.55	12.75	10.47	19.00	2.55
0.50	1.56	6.75	2.55	13.00	10.47	19.25	2.55
0.75	1.56	7.00	2.55	13.25	7.64	19.50	2.55
1.00	1.56	7.25	3.11	13.50	7.64	19.75	2.55
1.25	1.56	7.50	3.11	13.75	5.94	20.00	2.55
1.50	1.56	7.75	3.11	14.00	5.94	20.25	1.70
1.75	1.56	8.00	3.11	14.25	4.24	20.50	1.70
2.00	1.56	8.25	3.68	14.50	4.24	20.75	1.70
2.25	1.84	8.50	3.68	14.75	4.24	21.00	1.70
2.50	1.84	8.75	3.96	15.00	4.24	21.25	1.70
2.75	1.84	9.00	3.96	15.25	4.24	21.50	1.70
3.00	1.84	9.25	4.53	15.50	4.24	21.75	1.70
3.25	1.84	9.50	4.53	15.75	4.24	22.00	1.70
3.50	1.84	9.75	5.09	16.00	4.24	22.25	1.70
3.75	1.84	10.00	5.09	16.25	2.55	22.50	1.70
4.00	1.84	10.25	6.51	16.50	2.55	22.75	1.70
4.25	2.26	10.50	6.51	16.75	2.55	23.00	1.70
4.50	2.26	10.75	8.77	17.00	2.55	23.25	1.70
4.75	2.26	11.00	8.77	17.25	2.55	23.50	1.70
5.00	2.26	11.25	13.58	17.50	2.55	23.75	1.70
5.25	2.26	11.50	13.58	17.75	2.55	24.00	1.70
5.50	2.26	11.75	41.86	18.00	2.55		
5.75	2.26	12.00	173.10	18.25	2.55		
6.00	2.26	12.25	20.36	18.50	2.55		

CALIB	
STANDHYD (0201)	Area (ha)= 30.52
ID= 1 DT= 5.0 min	Total Imp(%)= 78.00 Dir. Conn.(%)= 55.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	23.81	6.71
Dep. Storage (mm)=	5.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	451.07	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.26	12.250	173.10	18.33	2.55
0.167	0.00	6.250	2.26	12.333	20.38	18.42	2.55
0.250	0.00	6.333	2.55	12.417	20.36	18.50	2.55
0.333	1.56	6.417	2.55	12.500	20.36	18.58	2.55
0.417	1.56	6.500	2.55	12.583	20.36	18.67	2.55
0.500	1.56	6.583	2.55	12.667	20.36	18.75	2.55
0.583	1.56	6.667	2.55	12.750	20.36	18.83	2.55
0.667	1.56	6.750	2.55	12.833	10.47	18.92	2.55
0.750	1.56	6.833	2.55	12.917	10.47	19.00	2.55
0.833	1.56	6.917	2.55	13.000	10.47	19.08	2.55
0.917	1.56	7.000	2.55	13.083	10.47	19.17	2.55
1.000	1.56	7.083	2.55	13.167	10.47	19.25	2.55
1.083	1.56	7.167	2.55	13.250	10.47	19.33	2.55
1.167	1.56	7.250	2.55	13.333	7.64	19.42	2.55
1.250	1.56	7.333	3.11	13.417	7.64	19.50	2.55
1.333	1.56	7.417	3.11	13.500	7.64	19.58	2.55
1.417	1.56	7.500	3.11	13.583	7.64	19.67	2.55
1.500	1.56	7.583	3.11	13.667	7.64	19.75	2.55
1.583	1.56	7.667	3.11	13.750	7.64	19.83	2.55
1.667	1.56	7.750	3.11	13.833	5.94	19.92	2.55
1.750	1.56	7.833	3.11	13.917	5.94	20.00	2.55
1.833	1.56	7.917	3.11	14.000	5.94	20.08	2.55
1.917	1.56	8.000	3.11	14.083	5.94	20.17	2.55
2.000	1.56	8.083	3.11	14.167	5.94	20.25	2.55
2.083	1.56	8.167	3.11	14.250	5.94	20.33	1.70
2.167	1.56	8.250	3.11	14.333	4.24	20.42	1.70
2.250	1.56	8.333	3.68	14.417	4.24	20.50	1.70
2.333	1.84	8.417	3.68	14.500	4.24	20.58	1.70
2.417	1.84	8.500	3.68	14.583	4.24	20.67	1.70
2.500	1.84	8.583	3.68	14.667	4.24	20.75	1.70
2.583	1.84	8.667	3.68	14.750	4.24	20.83	1.70
2.667	1.84	8.750	3.68	14.833	4.24	20.92	1.70
2.750	1.84	8.833	3.96	14.917	4.24	21.00	1.70
2.833	1.84	8.917	3.96	15.000	4.24	21.08	1.70
2.917	1.84	9.000	3.96	15.083	4.24	21.17	1.70
3.000	1.84	9.083	3.96	15.167	4.24	21.25	1.70
3.083	1.84	9.167	3.96	15.250	4.24	21.33	1.70
3.167	1.84	9.250	3.96	15.333	4.24	21.42	1.70
3.250	1.84	9.333	4.53	15.417	4.24	21.50	1.70
3.333	1.84	9.417	4.53	15.500	4.24	21.58	1.70
3.417	1.84	9.500	4.53	15.583	4.24	21.67	1.70
3.500	1.84	9.583	4.53	15.667	4.24	21.75	1.70
3.583	1.84	9.667	4.53	15.750	4.24	21.83	1.70
3.667	1.84	9.750	4.53	15.833	4.24	21.92	1.70
3.750	1.84	9.833	5.09	15.917	4.24	22.00	1.70
3.833	1.84	9.917	5.09	16.000	4.24	22.08	1.70
3.917	1.84	10.000	5.09	16.083	4.24	22.17	1.70
4.000	1.84	10.083	5.09	16.167	4.24	22.25	1.70
4.083	1.84	10.167	5.09	16.250	4.24	22.33	1.70
4.167	1.84	10.250	5.09	16.333	2.55	22.42	1.70
4.250	1.84	10.333	6.51	16.417	2.55	22.50	1.70
4.333	2.26	10.417	6.51	16.500	2.55	22.58	1.70
4.417	2.26	10.500	6.51	16.583	2.55	22.67	1.70
4.500	2.26	10.583	6.51	16.667	2.55	22.75	1.70
4.583	2.26	10.667	6.51	16.750	2.55	22.83	1.70
4.667	2.26	10.750	6.51	16.833	2.55	22.92	1.70
4.750	2.26	10.833	8.77	16.917	2.55	23.00	1.70
4.833	2.26	10.917	8.77	17.000	2.55	23.08	1.70
4.917	2.26	11.000	8.77	17.083	2.55	23.17	1.70
5.000	2.26	11.083	8.77	17.167	2.55	23.25	1.70
5.083	2.26	11.167	8.77	17.250	2.55	23.33	1.70
5.167	2.26	11.250	8.77	17.333	2.55	23.42	1.70
5.250	2.26	11.333	13.58	17.417	2.55	23.50	1.70
5.333	2.26	11.417	13.58	17.500	2.55	23.58	1.70
5.417	2.26	11.500	13.58	17.583	2.55	23.67	1.70
5.500	2.26	11.583	13.58	17.667	2.55	23.75	1.70
5.583	2.26	11.667	13.58	17.750	2.55	23.83	1.70
5.667	2.26	11.750	13.58	17.833	2.55	23.92	1.70
5.750	2.26	11.833	41.86	17.917	2.55	24.00	1.70
5.833	2.26	11.917	41.86	18.000	2.55	24.08	1.70
5.917	2.26	12.000	41.86	18.083	2.55	24.17	1.70
6.000	2.26	12.083	173.08	18.167	2.55	24.25	1.70
6.083	2.26	12.167	173.10	18.250	2.55		

Max.Eff.Inten.(mm/hr)=	173.10	283.80
over (min)	5.00	10.00
Storage Coeff. (min)=	5.06 (ii)	8.99 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.21	0.12

TOTALS

PEAK FLOW	(cms)=	7.75	3.98	11.728 (iii)
TIME TO PEAK	(hrs)=	12.25	12.25	12.25
RUNOFF VOLUME	(mm)=	136.42	96.50	118.46
TOTAL RAINFALL	(mm)=	141.42	141.42	141.42
RUNOFF COEFFICIENT	=	0.96	0.68	0.84

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 67.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0001)	Area (ha)= 4.21
ID= 1 DT= 5.0 min	Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	2.11	2.11
Dep. Storage (mm)=	5.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	167.53	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.26	12.250	173.10	18.33	2.55
0.167	0.00	6.250	2.26	12.333	20.38	18.42	2.55
0.250	0.00	6.333	2.55	12.417	20.36	18.50	2.55
0.333	1.56	6.417	2.55	12.500	20.36	18.58	2.55
0.417	1.56	6.500	2.55	12.583	20.36	18.67	2.55
0.500	1.56	6.583	2.55	12.667	20.36	18.75	2.55
0.583	1.56	6.667	2.55	12.750	20.36	18.83	2.55
0.667	1.56	6.750	2.55	12.833	10.47	18.92	2.55
0.750	1.56	6.833	2.55	12.917	10.47	19.00	2.55
0.833	1.56	6.917	2.55	13.000	10.47	19.08	2.55
0.917	1.56	7.000	2.55	13.083	10.47	19.17	2.55
1.000	1.56	7.083	2.55	13.167	10.47	19.25	2.55
1.083	1.56	7.167	2.55	13.250	10.47	19.33	2.55
1.167	1.56	7.250	2.55	13.333	7.64	19.42	2.55
1.250	1.56	7.333	3.11	13.417	7.64	19.50	2.55
1.333	1.56	7.417	3.11	13.500	7.64	19.58	2.55
1.417	1.56	7.500	3.11	13.583	7.64	19.67	2.55
1.500	1.56	7.583	3.11	13.667	7.64	19.75	2.55
1.583	1.56	7.667	3.11	13.750	7.64	19.83	2.55
1.667	1.56	7.750	3.11	13.833	5.94	19.92	2.55
1.750	1.56	7.833	3.11	13.917	5.94	20.00	2.55
1.833	1.56	7.917	3.11	14.000	5.94	20.08	2.55
1.917	1.56	8.000	3.11	14.083	5.94	20.17	2.55
2.000	1.56	8.083	3.11	14.167	5.94	20.25	2.55
2.083	1.56	8.167	3.11	14.250	5.94	20.33	1.70
2.167	1.56	8.250	3.11	14.333	4.24	20.42	1.70
2.250	1.56	8.333	3.68	14.417	4.24	20.50	1.70
2.333	1.84	8.417	3.68	14.500	4.24	20.58	1.70
2.417	1.84	8.500	3.68	14.583	4.24	20.67	1.70
2.500	1.84	8.583	3.68	14.667	4.24	20.75	1.70
2.583	1.84	8.667	3.68	14.750	4.24	20.83	1.70
2.667	1.84	8.750	3.68	14.833	4.24	20.92	1.70
2.750	1.84	8.833	3.96	14.917	4.24	21.00	1.70
2.833	1.84	8.917	3.96	15.000	4.24	21.08	1.70
2.917	1.84	9.000	3.96	15.083	4.24	21.17	1.70
3.000	1.84	9.083	3.96	15.167	4.24	21.25	1.70
3.083	1.84	9.167	3.96	15.250	4.24	21.33	1.70
3.167	1.84	9.250	3.96	15.333	4.24	21.42	1.70
3.250	1.84	9.333	4.53	15.417	4.24	21.50	1.70
3.333	1.84	9.417	4.53	15.500	4.24	21.58	1.70
3.417	1.84	9.500	4.53	15.583	4.24	21.67	1.70
3.500	1.84	9.583	4.53	15.667	4.24	21.75	1.70
3.583	1.84	9.667	4.53	15.750	4.24	21.83	1.70
3.667	1.84	9.750	4.53	15.833	4.24	21.92	1.70
3.750	1.84	9.833	5.09	15.917	4.24	22.00	1.70
3.833	1.84	9.917	5.09	16.000	4.24	22.08	1.70
3.917	1.84	10.000	5.09	16.083	4.24	22.17	1.70
4.000	1.84	10.083	5.09	16.167	4.24	22.25	1.70
4.083	1.84	10.167	5.09	16.250	4.24	22.33	1.70
4.167	1.84	10.250	5.09	16.333	2.55	22.42	1.70
4.250	1.84	10.333	6.51	16.417	2.55	22.50	1.70
4.333	2.26	10.417	6.51	16.500	2.55	22.58	1.70
4.417	2.26	10.500	6.51	16.583	2.55	22.67	1.70
4.500	2.26	10.583	6.51	16.667	2.55	22.75	1.70
4.583	2.26	10.667	6.51	16.750	2.55	22.83	1.70
4.667	2.26	10.750	6.51	16.833	2.55	22.92	1.70
4.750	2.26	10.833	8.77	16.917	2.55	23.00	1.70
4.833	2.26	10.917	8.77	17.000	2.55	23.08	1.70
4.917	2.26	11.000	8.77	17.083	2.55	23.17	1.70
5.000	2.26	11.083	8.77	17.167	2.55	23.25	1.70
5.083	2.26	11.167	8.77	17.250	2.55	23.33	1.70
5.167	2.26	11.250	8.77	17.333	2.55	23.42	1.70
5.250	2.26	11.333	13.58	17.417	2.55	23.50	1.70
5.333	2.26	11.417	13.58	17.500	2.55	23.58	1.70
5.417	2.26	11.500	13.58	17.583	2.55	23.67	1.70
5.500	2.26	11.583	13.58	17.667	2.55	23.75	1.70
5.583	2.26	11.667	13.58	17.750	2.55	23.83	1.70
5.667	2.26	11.750	13.58	17.833	2.55	23.92	1.70
5.750	2.26	11.833	41.86	17.917	2.55	24.00	1.70
5.833	2.26	11.917	41.86	18.000	2.55	24.08	1.70
5.917	2.26	12.000	41.86	18.083	2.55	24.17	1.70
6.000	2.26	12.083	173.08	18.167	2.55	24.25	1.70
6.083	2.26	12.167	173.10	18.250	2.55		

Max.Eff.Inten.(mm/hr)=	173.10	104.63
over (min)	5.00	10.00
Storage Coeff. (min)=	2.80 (ii)	9.73 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.28	0.11

TOTALS

PEAK FLOW	(cms)=	1.01	0.43	1.440 (iii)
TIME TO PEAK	(hrs)=	12.25	12.25	12.25
RUNOFF VOLUME	(mm)=	136.42	71.16	103.79
TOTAL RAINFALL	(mm)=	141.42	141.42	141.42
RUNOFF COEFFICIENT	=	0.96	0.50	0.73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 67.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0100)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0001):		4.21	1.440	12.25	103.79
+ ID2= 2 (0201):		30.52	11.728	12.25	118.46
ID = 3 (0100):		34.73	13.168	12.25	116.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0010)	IN= 2---> OUT= 1	OVERFLOW IS OFF			
DT= 5.0 min		OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
		0.0000	0.0000	1.0900	1.0400
		0.3100	0.5460	1.2700	1.1400
		0.5250	0.7030	2.1100	1.5700
		0.6900	0.8068	2.6410	2.0600
		0.9000	0.9400	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0100)	34.730	13.168	12.25	116.68
OUTFLOW: ID= 1 (0010)	34.730	2.336	12.67	116.67

PEAK FLOW REDUCTION [Qout/Qin](%)= 17.74
TIME SHIFT OF PEAK FLOW (min)= 25.00
MAXIMUM STORAGE USED (ha.m.)= 1.9022

CALIB	
STANDHYD (0202)	Area (ha)= 28.06
ID= 1 DT= 5.0 min	Total Imp(%)= 68.00 Dir. Conn.(%)= 57.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	19.08	8.98
Dep. Storage (mm)=	5.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	432.51	40.00

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Mannings n          =      0.013        0.250

    NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.26	12.250	173.10	18.33	2.55
0.167	0.00	6.250	2.26	12.333	20.38	18.42	2.55
0.250	0.00	6.333	2.55	12.417	20.36	18.50	2.55
0.333	1.56	6.417	2.55	12.500	20.36	18.58	2.55
0.417	1.56	6.500	2.55	12.583	20.36	18.67	2.55
0.500	1.56	6.583	2.55	12.667	20.36	18.75	2.55
0.583	1.56	6.667	2.55	12.750	20.36	18.83	2.55
0.667	1.56	6.750	2.55	12.833	10.47	18.92	2.55
0.750	1.56	6.833	2.55	12.917	10.47	19.00	2.55
0.833	1.56	6.917	2.55	13.000	10.47	19.08	2.55
0.917	1.56	7.000	2.55	13.083	10.47	19.17	2.55
1.000	1.56	7.083	2.55	13.167	10.47	19.25	2.55
1.083	1.56	7.167	2.55	13.250	10.47	19.33	2.55
1.167	1.56	7.250	2.55	13.333	7.64	19.42	2.55
1.250	1.56	7.333	3.11	13.417	7.64	19.50	2.55
1.333	1.56	7.417	3.11	13.500	7.64	19.58	2.55
1.417	1.56	7.500	3.11	13.583	7.64	19.67	2.55
1.500	1.56	7.583	3.11	13.667	7.64	19.75	2.55
1.583	1.56	7.667	3.11	13.750	7.64	19.83	2.55
1.667	1.56	7.750	3.11	13.833	5.94	19.92	2.55
1.750	1.56	7.833	3.11	13.917	5.94	20.00	2.55
1.833	1.56	7.917	3.11	14.000	5.94	20.08	2.55
1.917	1.56	8.000	3.11	14.083	5.94	20.17	2.55
2.000	1.56	8.083	3.11	14.167	5.94	20.25	2.55
2.083	1.56	8.167	3.11	14.250	5.94	20.33	1.70
2.167	1.56	8.250	3.11	14.333	4.24	20.42	1.70
2.250	1.56	8.333	3.68	14.417	4.24	20.50	1.70
2.333	1.84	8.417	3.68	14.500	4.24	20.58	1.70
2.417	1.84	8.500	3.68	14.583	4.24	20.67	1.70
2.500	1.84	8.583	3.68	14.667	4.24	20.75	1.70
2.583	1.84	8.667	3.68	14.750	4.24	20.83	1.70
2.667	1.84	8.750	3.68	14.833	4.24	20.92	1.70
2.750	1.84	8.833	3.96	14.917	4.24	21.00	1.70
2.833	1.84	8.917	3.96	15.000	4.24	21.08	1.70
2.917	1.84	9.000	3.96	15.083	4.24	21.17	1.70
3.000	1.84	9.083	3.96	15.167	4.24	21.25	1.70
3.083	1.84	9.167	3.96	15.250	4.24	21.33	1.70
3.167	1.84	9.250	3.96	15.333	4.24	21.42	1.70
3.250	1.84	9.333	4.53	15.417	4.24	21.50	1.70
3.333	1.84	9.417	4.53	15.500	4.24	21.58	1.70
3.417	1.84	9.500	4.53	15.583	4.24	21.67	1.70
3.500	1.84	9.583	4.53	15.667	4.24	21.75	1.70
3.583	1.84	9.667	4.53	15.750	4.24	21.83	1.70
3.667	1.84	9.750	4.53	15.833	4.24	21.92	1.70
3.750	1.84	9.833	5.09	15.917	4.24	22.00	1.70
3.833	1.84	9.917	5.09	16.000	4.24	22.08	1.70
3.917	1.84	10.000	5.09	16.083	4.24	22.17	1.70
4.000	1.84	10.083	5.09	16.167	4.24	22.25	1.70
4.083	1.84	10.167	5.09	16.250	4.24	22.33	1.70
4.167	1.84	10.250	5.09	16.333	2.55	22.42	1.70
4.250	1.84	10.333	6.51	16.417	2.55	22.50	1.70
4.333	2.26	10.417	6.51	16.500	2.55	22.58	1.70
4.417	2.26	10.500	6.51	16.583	2.55	22.67	1.70
4.500	2.26	10.583	6.51	16.667	2.55	22.75	1.70
4.583	2.26	10.667	6.51	16.750	2.55	22.83	1.70
4.667	2.26	10.750	6.51	16.833	2.55	22.92	1.70
4.750	2.26	10.833	8.77	16.917	2.55	23.00	1.70
4.833	2.26	10.917	8.77	17.000	2.55	23.08	1.70
4.917	2.26	11.000	8.77	17.083	2.55	23.17	1.70
5.000	2.26	11.083	8.77	17.167	2.55	23.25	1.70
5.083	2.26	11.167	8.77	17.250	2.55	23.33	1.70
5.167	2.26	11.250	8.77	17.333	2.55	23.42	1.70
5.250	2.26	11.333	13.58	17.417	2.55	23.50	1.70
5.333	2.26	11.417	13.58	17.500	2.55	23.58	1.70
5.417	2.26	11.500	13.58	17.583	2.55	23.67	1.70
5.500	2.26	11.583	13.58	17.667	2.55	23.75	1.70
5.583	2.26	11.667	13.58	17.750	2.55	23.83	1.70
5.667	2.26	11.750	13.58	17.833	2.55	23.92	1.70
5.750	2.26	11.833	41.86	17.917	2.55	24.00	1.70
5.833	2.26	11.917	41.86	18.000	2.55	24.08	1.70
5.917	2.26	12.000	41.86	18.083	2.55	24.17	1.70
6.000	2.26	12.083	173.08	18.167	2.55	24.25	1.70
6.083	2.26	12.167	173.10	18.250	2.55		

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Max.Eff.Inten.(mm/hr)=     173.10       161.25
           over (min)        5.00        10.00
Storage Coeff.  (min)=       4.94 (ii)    9.44 (ii)
Unit Hyd. Tpeak (min)=       5.00        10.00
Unit Hyd. peak  (cms)=       0.22         0.12
                                                      *TOTALS*
PEAK FLOW       (cms)=       7.41         2.91         10.319 (iii)
TIME TO PEAK    (hrs)=      12.25        12.25          12.25
RUNOFF VOLUME    (mm)=     136.42        82.15         113.09
TOTAL RAINFALL   (mm)=     141.42       141.42         141.42
RUNOFF COEFFICIENT   =       0.96         0.58           0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB              |
| STANDHYD (  0002)|   Area    (ha)=   3.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
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                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       1.98          1.98
    Dep. Storage     (mm)=       5.00          5.00
    Average Slope     (%)=       1.00          2.00
    Length            (m)=     162.28         40.00
    Mannings n          =       0.013         0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.26	12.250	173.10	18.33	2.55
0.167	0.00	6.250	2.26	12.333	20.38	18.42	2.55
0.250	0.00	6.333	2.55	12.417	20.36	18.50	2.55
0.333	1.56	6.417	2.55	12.500	20.36	18.58	2.55
0.417	1.56	6.500	2.55	12.583	20.36	18.67	2.55
0.500	1.56	6.583	2.55	12.667	20.36	18.75	2.55
0.583	1.56	6.667	2.55	12.750	20.36	18.83	2.55
0.667	1.56	6.750	2.55	12.833	10.47	18.92	2.55
0.750	1.56	6.833	2.55	12.917	10.47	19.00	2.55
0.833	1.56	6.917	2.55	13.000	10.47	19.08	2.55
0.917	1.56	7.000	2.55	13.083	10.47	19.17	2.55
1.000	1.56	7.083	2.55	13.167	10.47	19.25	2.55
1.083	1.56	7.167	2.55	13.250	10.47	19.33	2.55
1.167	1.56	7.250	2.55	13.333	7.64	19.42	2.55
1.250	1.56	7.333	3.11	13.417	7.64	19.50	2.55
1.333	1.56	7.417	3.11	13.500	7.64	19.58	2.55
1.417	1.56	7.500	3.11	13.583	7.64	19.67	2.55
1.500	1.56	7.583	3.11	13.667	7.64	19.75	2.55
1.583	1.56	7.667	3.11	13.750	7.64	19.83	2.55
1.667	1.56	7.750	3.11	13.833	5.94	19.92	2.55
1.750	1.56	7.833	3.11	13.917	5.94	20.00	2.55
1.833	1.56	7.917	3.11	14.000	5.94	20.08	2.55
1.917	1.56	8.000	3.11	14.083	5.94	20.17	2.55
2.000	1.56	8.083	3.11	14.167	5.94	20.25	2.55
2.083	1.56	8.167	3.11	14.250	5.94	20.33	1.70
2.167	1.56	8.250	3.11	14.333	4.24	20.42	1.70
2.250	1.56	8.333	3.68	14.417	4.24	20.50	1.70
2.333	1.84	8.417	3.68	14.500	4.24	20.58	1.70
2.417	1.84	8.500	3.68	14.583	4.24	20.67	1.70
2.500	1.84	8.583	3.68	14.667	4.24	20.75	1.70
2.583	1.84	8.667	3.68	14.750	4.24	20.83	1.70
2.667	1.84	8.750	3.68	14.833	4.24	20.92	1.70
2.750	1.84	8.833	3.96	14.917	4.24	21.00	1.70
2.833	1.84	8.917	3.96	15.000	4.24	21.08	1.70
2.917	1.84	9.000	3.96	15.083	4.24	21.17	1.70
3.000	1.84	9.083	3.96	15.167	4.24	21.25	1.70
3.083	1.84	9.167	3.96	15.250	4.24	21.33	1.70
3.167	1.84	9.250	3.96	15.333	4.24	21.42	1.70
3.250	1.84	9.333	4.53	15.417	4.24	21.50	1.70
3.333	1.84	9.417	4.53	15.500	4.24	21.58	1.70
3.417	1.84	9.500	4.53	15.583	4.24	21.67	1.70
3.500	1.84	9.583	4.53	15.667	4.24	21.75	1.70
3.583	1.84	9.667	4.53	15.750	4.24	21.83	1.70
3.667	1.84	9.750	4.53	15.833	4.24	21.92	1.70
3.750	1.84	9.833	5.09	15.917	4.24	22.00	1.70
3.833	1.84	9.917	5.09	16.000	4.24	22.08	1.70
3.917	1.84	10.000	5.09	16.083	4.24	22.17	1.70
4.000	1.84	10.083	5.09	16.167	4.24	22.25	1.70
4.083	1.84	10.167	5.09	16.250	4.24	22.33	1.70
4.167	1.84	10.250	5.09	16.333	2.55	22.42	1.70
4.250	1.84	10.333	6.51	16.417	2.55	22.50	1.70
4.333	2.26	10.417	6.51	16.500	2.55	22.58	1.70
4.417	2.26	10.500	6.51	16.583	2.55	22.67	1.70
4.500	2.26	10.583	6.51	16.667	2.55	22.75	1.70
4.583	2.26	10.667	6.51	16.750	2.55	22.83	1.70
4.667	2.26	10.750	6.51	16.833	2.55	22.92	1.70
4.750	2.26	10.833	8.77	16.917	2.55	23.00	1.70
4.833	2.26	10.917	8.77	17.000	2.55	23.08	1.70
4.917	2.26	11.000	8.77	17.083	2.55	23.17	1.70
5.000	2.26	11.083	8.77	17.167	2.55	23.25	1.70
5.083	2.26	11.167	8.77	17.250	2.55	23.33	1.70
5.167	2.26	11.250	8.77	17.333	2.55	23.42	1.70
5.250	2.26	11.333	13.58	17.417	2.55	23.50	1.70
5.333	2.26	11.417	13.58	17.500	2.55	23.58	1.70
5.417	2.26	11.500	13.58	17.583	2.55	23.67	1.70
5.500	2.26	11.583	13.58	17.667	2.55	23.75	1.70
5.583	2.26	11.667	13.58	17.750	2.55	23.83	1.70
5.667	2.26	11.750	13.58	17.833	2.55	23.92	1.70
5.750	2.26	11.833	41.86	17.917	2.55	24.00	1.70
5.833	2.26	11.917	41.86	18.000	2.55	24.08	1.70
5.917	2.26	12.000	41.86	18.083	2.55	24.17	1.70
6.000	2.26	12.083	173.08	18.167	2.55	24.25	1.70
6.083	2.26	12.167	173.10	18.250	2.55		

```
Max.Eff.Inten.(mm/hr)=     173.10       104.63
           over (min)        5.00        10.00
Storage Coeff.  (min)=       2.74 (ii)    9.67 (ii)
Unit Hyd. Tpeak (min)=       5.00        10.00
Unit Hyd. peak  (cms)=       0.28         0.11
                                                      *TOTALS*
PEAK FLOW       (cms)=       0.95         0.41          1.352 (iii)
TIME TO PEAK    (hrs)=      12.25        12.25          12.25
RUNOFF VOLUME    (mm)=     136.42        71.16         103.79
TOTAL RAINFALL   (mm)=     141.42       141.42         141.42
RUNOFF COEFFICIENT   =       0.96         0.50           0.73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0200)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0002):      3.95   1.352    12.25   103.79
      + ID2= 2 (  0202):     28.06  10.319    12.25   113.09
        ==================================================
        ID = 3 (  0200):     32.01  11.671    12.25   111.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   1.8250     0.6819
                          0.6400     0.3757   |   2.1650     0.7600
                          1.0700     0.4858   |   4.0750     1.0700
                          1.3800     0.5709   |   4.7000     1.7300

                                AREA     QPEAK      TPEAK       R.V.
                                (ha)     (cms)      (hrs)       (mm)
   INFLOW : ID= 2 (  0200)     32.010     11.671     12.25      111.94
   OUTFLOW: ID= 1 (  0020)     32.010      4.190     12.42      111.93

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 35.90
                  TIME SHIFT OF PEAK FLOW        (min)= 10.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.1941

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| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=  89.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  61.00   Dir. Conn.(%)=  44.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      54.67         34.95
    Dep. Storage     (mm)=       5.00          5.00
    Average Slope     (%)=       2.00          3.00
    Length            (m)=     772.96         40.00
    Mannings n          =       0.013         0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.26	12.250	173.10	18.33	2.55
0.167	0.00	6.250	2.26	12.333	20.38	18.42	2.55
0.250	0.00	6.333	2.55	12.417	20.36	18.50	2.55
0.333	1.56	6.417	2.55	12.500	20.36	18.58	2.55
0.417	1.56	6.500	2.55	12.583	20.36	18.67	2.55
0.500	1.56	6.583	2.55	12.667	20.36	18.75	2.55
0.583	1.56	6.667	2.55	12.750	20.36	18.83	2.55
0.667	1.56	6.750	2.55	12.833	10.47	18.92	2.55
0.750	1.56	6.833	2.55	12.917	10.47	19.00	2.55
0.833	1.56	6.917	2.55	13.000	10.47	19.08	2.55
0.917	1.56	7.000	2.55	13.083	10.47	19.17	2.55
1.000	1.56	7.083	2.55	13.167	10.47	19.25	2.55
1.083	1.56	7.167	2.55	13.250	10.47	19.33	2.55
1.167	1.56	7.250	2.55	13.333	7.64	19.42	2.55
1.250	1.56	7.333	3.11	13.417	7.64	19.50	2.55
1.333	1.56	7.417	3.11	13.500	7.64	19.58	2.55
1.417	1.56	7.500	3.11	13.583	7.64	19.67	2.55
1.500	1.56	7.583	3.11	13.667	7.64	19.75	2.55
1.583	1.56	7.667	3.11	13.750	7.64	19.83	2.55
1.667	1.56	7.750	3.11	13.833	5.94	19.92	2.55
1.750	1.56	7.833	3.11	13.917	5.94	20.00	2.55
1.833	1.56	7.917	3.11	14.000	5.94	20.08	2.55
1.917	1.56	8.000	3.11	14.083	5.94	20.17	2.55
2.000	1.56	8.083	3.11	14.167	5.94	20.25	2.55
2.083	1.56	8.167	3.11	14.250	5.94	20.33	1.70
2.167	1.56	8.250	3.11	14.333	4.24	20.42	1.70
2.250	1.56	8.333	3.68	14.417	4.24	20.50	1.70
2.333	1.84	8.417	3.68	14.500	4.24	20.58	1.70
2.417	1.84	8.500	3.68	14.583	4.24	20.67	1.70
2.500	1.84	8.583	3.68	14.667	4.24	20.75	1.70
2.583	1.84	8.667	3.68	14.750	4.24	20.83	1.70
2.667	1.84	8.750	3.68	14.833	4.24	20.92	1.70
2.750	1.84	8.833	3.96	14.917	4.24	21.00	1.70
2.833	1.84	8.917	3.96	15.000	4.24	21.08	1.70
2.917	1.84	9.000	3.96	15.083	4.24	21.17	1.70
3.000	1.84	9.083	3.96	15.167	4.24	21.25	1.70
3.083	1.84	9.167	3.96	15.250	4.24	21.33	1.70
3.167	1.84	9.250	3.96	15.333	4.24	21.42	1.70
3.250	1.84	9.333	4.53	15.417	4.24	21.50	1.70
3.333	1.84	9.417	4.53	15.500	4.24	21.58	1.70
3.417	1.84	9.500	4.53	15.583	4.24	21.67	1.70
3.500	1.84	9.583	4.53	15.667	4.24	21.75	1.70
3.583	1.84	9.667	4.53	15.750	4.24	21.83	1.70
3.667	1.84	9.750	4.53	15.833	4.24	21.92	1.70
3.750	1.84	9.833	5.09	15.917	4.24	22.00	1.70
3.833	1.84	9.917	5.09	16.000	4.24	22.08	1.70
3.917	1.84	10.000	5.09	16.083	4.24	22.17	1.70
4.000	1.84	10.083	5.09	16.167	4.24	22.25	1.70
4.083	1.84	10.167	5.09	16.250	4.24	22.33	1.70
4.167	1.84	10.250	5.09	16.333	2.55	22.42	1.70
4.250	1.84	10.333	6.51	16.417	2.55	22.50	1.70
4.333	2.26	10.417	6.51	16.500	2.55	22.58	1.70
4.417	2.26	10.500	6.51	16.583	2.55	22.67	1.70
4.500	2.26	10.583	6.51	16.667	2.55	22.75	1.70
4.583	2.26	10.667	6.51	16.750	2.55	22.83	1.70
4.667	2.26	10.750	6.51	16.833	2.55	22.92	1.70
4.750	2.26	10.833	8.77	16.917	2.55	23.00	1.70
4.833	2.26	10.917	8.77	17.000	2.55	23.08	1.70
4.917	2.26	11.000	8.77	17.083	2.55	23.17	1.70
5.000	2.26	11.083	8.77	17.167	2.55	23.25	1.70
5.083	2.26	11.167	8.77	17.250	2.55	23.33	1.70
5.167	2.26	11.250	8.77	17.333	2.55	23.42	1.70
5.250	2.26	11.333	13.58	17.417	2.55	23.50	1.70
5.333	2.26	11.417	13.58	17.500	2.55	23.58	1.70
5.417	2.26	11.500	13.58	17.583	2.55	23.67	1.70
5.500	2.26	11.583	13.58	17.667	2.55	23.75	1.70
5.583	2.26	11.667	13.58	17.750	2.55	23.83	1.70
5.667	2.26	11.750	13.58	17.833	2.55	23.92	1.70
5.750	2.26	11.833	41.86	17.917	2.55	24.00	1.70
5.833	2.26	11.917	41.86	18.000	2.55	24.08	1.70
5.917	2.26	12.000	41.86	18.083	2.55	24.17	1.70
6.000	2.26	12.083	173.08	18.167	2.55	24.25	1.70
6.083	2.26	12.167	173.10	18.250	2.55		

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Max.Eff.Inten.(mm/hr)=     173.10       176.96
           over (min)        5.00        15.00
Storage Coeff.  (min)=       5.68 (ii)   10.46 (ii)
Unit Hyd. Tpeak (min)=       5.00        15.00
Unit Hyd. peak  (cms)=       0.20         0.09
                                                      *TOTALS*
PEAK FLOW       (cms)=      17.92        11.32         27.898 (iii)
TIME TO PEAK    (hrs)=      12.25        12.33          12.25
RUNOFF VOLUME    (mm)=     136.42        84.54         107.37
TOTAL RAINFALL   (mm)=     141.42       141.42         141.42
RUNOFF COEFFICIENT   =       0.96         0.60           0.76

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0003)|   Area    (ha)=   7.88
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       3.94          3.94
    Dep. Storage     (mm)=       5.00          5.00
    Average Slope     (%)=       1.00          2.00
    Length            (m)=     229.20         40.00
    Mannings n          =       0.013         0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	2.26	12.250	173.10	18.33	2.55
0.167	0.00	6.250	2.26	12.333	20.38	18.42	2.55
0.250	0.00	6.333	2.55	12.417	20.36	18.50	2.55
0.333	1.56	6.417	2.55	12.500	20.36	18.58	2.55
0.417	1.56	6.500	2.55	12.583	20.36	18.67	2.55
0.500	1.56	6.583	2.55	12.667	20.36	18.75	2.55
0.583	1.56	6.667	2.55	12.750	20.36	18.83	2.55
0.667	1.56	6.750	2.55	12.833	10.47	18.92	2.55
0.750	1.56	6.833	2.55	12.917	10.47	19.00	2.55
0.833	1.56	6.917	2.55	13.000	10.47	19.08	2.55
0.917	1.56	7.000	2.55	13.083	10.47	19.17	2.55
1.000	1.56	7.083	2.55	13.167	10.47	19.25	2.55
1.083	1.56	7.167	2.55	13.250	10.47	19.33	2.55
1.167	1.56	7.250	2.55	13.333	7.64	19.42	2.55
1.250	1.56	7.333	3.11	13.417	7.64	19.50	2.55
1.333	1.56	7.417	3.11	13.500	7.64	19.58	2.55
1.417	1.56	7.500	3.11	13.583	7.64	19.67	2.55
1.500	1.56	7.583	3.11	13.667	7.64	19.75	2.55
1.583	1.56	7.667	3.11	13.750	7.64	19.83	2.55
1.667	1.56	7.750	3.11	13.833	5.94	19.92	2.55
1.750	1.56	7.833	3.11	13.917	5.94	20.00	2.55
1.833	1.56	7.917	3.11	14.000	5.94	20.08	2.55
1.917	1.56	8.000	3.11	14.083	5.94	20.17	2.55
2.000	1.56	8.083	3.11	14.167	5.94	20.25	2.55
2.083	1.56	8.167	3.11	14.250	5.94	20.33	1.70
2.167	1.56	8.250	3.11	14.333	4.24	20.42	1.70
2.250	1.56	8.333	3.68	14.417	4.24	20.50	1.70
2.333	1.84	8.417	3.68	14.500	4.24	20.58	1.70
2.417	1.84	8.500	3.68	14.583	4.24	20.67	1.70
2.500	1.84	8.583	3.68	14.667	4.24	20.75	1.70
2.583	1.84	8.667	3.68	14.750	4.24	20.83	1.70
2.667	1.84	8.750	3.68	14.833	4.24	20.92	1.70
2.750	1.84	8.833	3.96	14.917	4.24	21.00	1.70
2.833	1.84	8.917	3.96	15.000	4.24	21.08	1.70
2.917	1.84	9.000	3.96	15.083	4.24	21.17	1.70
3.000	1.84	9.083	3.96	15.167	4.24	21.25	1.70
3.083	1.84	9.167	3.96	15.250	4.24	21.33	1.70
3.167	1.84	9.250	3.96	15.333	4.24	21.42	1.70
3.250	1.84	9.333	4.53	15.417	4.24	21.50	1.70
3.333	1.84	9.417	4.53	15.500	4.24	21.58	1.70
3.417	1.84	9.500	4.53	15.583	4.24	21.67	1.70
3.500	1.84	9.583	4.53	15.667	4.24	21.75	1.70
3.583	1.84	9.667	4.53	15.750	4.24	21.83	1.70
3.667	1.84	9.750	4.53	15.833	4.24	21.92	1.70
3.750	1.84	9.833	5.09	15.917	4.24	22.00	1.70
3.833	1.84	9.917	5.09	16.000	4.24	22.08	1.70
3.917	1.84	10.000	5.09	16.083	4.24	22.17	1.70
4.000	1.84	10.083	5.09	16.167	4.24	22.25	1.70
4.083	1.84	10.167	5.09	16.250	4.24	22.33	1.70
4.167	1.84	10.250	5.09	16.333	2.55	22.42	1.70
4.250	1.84	10.333	6.51	16.417	2.55	22.50	1.70
4.333	2.26	10.417	6.51	16.500	2.55	22.58	1.70
4.417	2.26	10.500	6.51	16.583	2.55	22.67	1.70
4.500	2.26	10.583	6.51	16.667	2.55	22.75	1.70
4.583	2.26	10.667	6.51	16.750	2.55	22.83	1.70
4.667	2.26	10.750	6.51	16.833	2.55	22.92	1.70
4.750	2.26	10.833	8.77	16.917	2.55	23.00	1.70
4.833	2.26	10.917	8.77	17.000	2.55	23.08	1.70
4.917	2.26	11.000	8.77	17.083	2.55	23.17	1.70
5.000	2.26	11.083	8.77	17.167	2.55	23.25	1.70
5.083	2.26	11.167	8.77	17.250	2.55	23.33	1.70
5.167	2.26	11.250	8.77	17.333	2.55	23.42	1.70
5.250	2.26	11.333	13.58	17.417	2.55	23.50	1.70
5.333	2.26	11.417	13.58	17.500	2.55	23.58	1.70
5.417	2.26	11.500	13.58	17.583	2.55	23.67	1.70
5.500	2.26	11.583	13.58	17.667	2.55	23.75	1.70
5.583	2.26	11.667	13.58	17.750	2.55	23.83	1.70
5.667	2.26	11.750	13.58	17.833	2.55	23.92	1.70
5.750	2.26	11.833	41.86	17.917	2.55	24.00	1.70
5.833	2.26	11.917	41.86	18.000	2.55	24.08	1.70
5.917	2.26	12.000	41.86	18.083	2.55	24.17	1.70
6.000	2.26	12.083	173.08	18.167	2.55	24.25	1.70

```
            6.083    2.26 |12.167  173.10 |18.250    2.55 |

     Max.Eff.Inten.(mm/hr)=     173.10       104.63
               over (min)=       5.00        15.00
     Storage Coeff.  (min)=       3.37 (ii)   10.31 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.26         0.09
                                                    *TOTALS*
     PEAK FLOW       (cms)=       1.88         0.75          2.529 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.33         12.25
     RUNOFF VOLUME    (mm)=     136.42        71.16        103.79
     TOTAL RAINFALL   (mm)=     141.42       141.42        141.42
     RUNOFF COEFFICIENT   =       0.96         0.50          0.73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.


--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0300)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):    89.62  27.898    12.25   107.37
     + ID2= 2 (  0003):     7.88   2.529    12.25   103.79
       ========================================================
       ID = 3 (  0300):    97.50  30.427    12.25   107.08

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

-------------------
| RESERVOIR(  0030)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   2.7700     2.8400
                         0.8200     1.4400   |   3.2200     3.1300
                         1.3700     1.8900   |   5.2900     4.3700
                         1.7800     2.1800   |   6.1500     5.4900
                         2.3300     2.5500   |   0.0000     0.0000

                                    AREA     QPEAK     TPEAK      R.V.
                                     (ha)     (cms)     (hrs)      (mm)
       INFLOW : ID= 2 (  0300)     97.500    30.427     12.25    107.08
       OUTFLOW: ID= 1 (  0030)     97.500     5.676     12.75    107.07
```

```
                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 18.65
                    TIME SHIFT OF PEAK FLOW         (min)= 30.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  4.8799

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================================================================================
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        V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
        V    V   I    SS     U   U   A A   L
         V  V    I     SS    U   U  AAAAA  L
          V V    I      SS   U   U  A   A  L
           VV    I    SSSSS  UUUUU  A   A  LLLLL


         OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
        O   O    T      T    H   H   Y Y   MM MM  O   O
        O   O    T      T    H   H    Y    M M M  O   O
         OOO     T      T    H   H    Y    M   M   OOO
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                    *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\81
a85ee0-3f8e-4865-9c13-77df499ae1c8\sc
  Summary filename:
C:\Users\jfletcher\AppData\Local\Civica\VH5\dcb675f7-6d9b-4a00-863b-293983b0284e\81
a85ee0-3f8e-4865-9c13-77df499ae1c8\sc


DATE: 11-27-2024                          TIME: 08:52:04

USER:


COMMENTS: _____

--------------------------------------------------------------------------------
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  ***********************************************
  ** SIMULATION : 4 - 25 mm Design Storm (4hr 1 **
```

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  ***********************************************


-------------------
|    READ STORM    |    Filename: C:\Users\jfletcher\AppD
|                  |              ata\Local\Temp\
|                  |              f7771102-1e26-4a23-9fad-5d61ceae4d2b\aae2a74b
| Ptotal= 25.00 mm |   Comments: 25 mm Design Storm (4hr 10 min Chicago)
-------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    2.21 |  1.00   10.08 |  2.00    4.31 |  3.00    2.54
                0.17    2.47 |  1.17   54.62 |  2.17    3.82 |  3.17    2.40
                0.33    2.81 |  1.33   12.32 |  2.33    3.44 |  3.33    2.27
                0.50    3.29 |  1.50    7.86 |  2.50    3.15 |  3.50    2.16
                0.67    4.06 |  1.67    6.03 |  2.67    2.91 |  3.67    2.06
                0.83    5.51 |  1.83    4.99 |  2.83    2.71 |  3.83    1.98

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-------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=  30.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=  55.00
-------------------

                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       23.81         6.71
     Dep. Storage     (mm)=        5.00         5.00
     Average Slope     (%)=        1.00         2.00
     Length            (m)=      451.07        40.00
     Mannings n            =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                         ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083   2.21 | 1.083   10.08 | 2.083    4.31 |  3.08    2.54
                0.167   2.21 | 1.167   10.08 | 2.167    4.31 |  3.17    2.54
                0.250   2.47 | 1.250   54.62 | 2.250    3.82 |  3.25    2.40
                0.333   2.47 | 1.333   54.62 | 2.333    3.82 |  3.33    2.40
                0.417   2.81 | 1.417   12.32 | 2.417    3.44 |  3.42    2.27
                0.500   2.81 | 1.500   12.32 | 2.500    3.44 |  3.50    2.27
                0.583   3.29 | 1.583    7.86 | 2.583    3.15 |  3.58    2.16
                0.667   3.29 | 1.667    7.86 | 2.667    3.15 |  3.67    2.16
                0.750   4.06 | 1.750    6.03 | 2.750    2.91 |  3.75    2.06
                0.833   4.06 | 1.833    6.03 | 2.833    2.91 |  3.83    2.06
                0.917   5.51 | 1.917    4.99 | 2.917    2.71 |  3.92    1.98
                1.000   5.51 | 2.000    4.99 | 3.000    2.71 |  4.00    1.98
```

```
     Max.Eff.Inten.(mm/hr)=      54.62        17.13
               over (min)=      10.00        25.00
     Storage Coeff.  (min)=       8.03 (ii)   22.33 (ii)
     Unit Hyd. Tpeak (min)=      10.00        25.00
     Unit Hyd. peak  (cms)=       0.13         0.05
                                                    *TOTALS*
     PEAK FLOW       (cms)=       1.58         0.15          1.650 (iii)
     TIME TO PEAK    (hrs)=       1.42         1.67          1.42
     RUNOFF VOLUME    (mm)=      20.00         6.08         13.73
     TOTAL RAINFALL   (mm)=      25.00        25.00         25.00
     RUNOFF COEFFICIENT   =       0.80         0.24          0.55


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD (  0001)|   Area    (ha)=   4.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
-------------------

                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        2.11         2.11
     Dep. Storage     (mm)=        5.00         5.00
     Average Slope     (%)=        1.00         2.00
     Length            (m)=      167.53        40.00
     Mannings n            =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                         ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083   2.21 | 1.083   10.08 | 2.083    4.31 |  3.08    2.54
                0.167   2.21 | 1.167   10.08 | 2.167    4.31 |  3.17    2.54
                0.250   2.47 | 1.250   54.62 | 2.250    3.82 |  3.25    2.40
                0.333   2.47 | 1.333   54.62 | 2.333    3.82 |  3.33    2.40
                0.417   2.81 | 1.417   12.32 | 2.417    3.44 |  3.42    2.27
                0.500   2.81 | 1.500   12.32 | 2.500    3.44 |  3.50    2.27
                0.583   3.29 | 1.583    7.86 | 2.583    3.15 |  3.58    2.16
                0.667   3.29 | 1.667    7.86 | 2.667    3.15 |  3.67    2.16
                0.750   4.06 | 1.750    6.03 | 2.750    2.91 |  3.75    2.06
                0.833   4.06 | 1.833    6.03 | 2.833    2.91 |  3.83    2.06
                0.917   5.51 | 1.917    4.99 | 2.917    2.71 |  3.92    1.98
                1.000   5.51 | 2.000    4.99 | 3.000    2.71 |  4.00    1.98
```

```
                1.000    5.51 | 2.000    4.99 | 3.000    2.71 |  4.00    1.98

     Max.Eff.Inten.(mm/hr)=      54.62         2.11
               over (min)=       5.00        40.00
     Storage Coeff.  (min)=       4.43 (ii)   37.47 (ii)
     Unit Hyd. Tpeak (min)=       5.00        40.00
     Unit Hyd. peak  (cms)=       0.23         0.03
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.29         0.01          0.287 (iii)
     TIME TO PEAK    (hrs)=       1.33         2.08          1.33
     RUNOFF VOLUME    (mm)=      20.00         2.76         11.37
     TOTAL RAINFALL   (mm)=      25.00        25.00         25.00
     RUNOFF COEFFICIENT   =       0.80         0.11          0.45

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0100)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):     4.21   0.287     1.33    11.37
     + ID2= 2 (  0201):    30.52   1.650     1.42    13.73
       ========================================================
       ID = 3 (  0100):    34.73   1.793     1.42    13.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

-------------------
| RESERVOIR(  0010)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   1.0900     1.0400
                         0.3100     0.5460   |   1.2700     1.1400
                         0.5250     0.7030   |   2.1100     1.5700
                         0.6900     0.8068   |   2.4450     2.0600
                         0.9000     0.9400   |   0.0000     0.0000

                                    AREA     QPEAK     TPEAK      R.V.
                                     (ha)     (cms)     (hrs)      (mm)
       INFLOW : ID= 2 (  0100)     34.730     1.793     1.42     13.45
       OUTFLOW: ID= 1 (  0010)     34.730     0.174     3.50     13.44
```

```
                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  9.72
                    TIME SHIFT OF PEAK FLOW         (min)=125.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.3067

--------------------------------------------------------------------------------

-------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=  28.06
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  57.00
-------------------

                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       19.08         8.98
     Dep. Storage     (mm)=        5.00         5.00
     Average Slope     (%)=        1.00         2.00
     Length            (m)=      432.51        40.00
     Mannings n            =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                         ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083   2.21 | 1.083   10.08 | 2.083    4.31 |  3.08    2.54
                0.167   2.21 | 1.167   10.08 | 2.167    4.31 |  3.17    2.54
                0.250   2.47 | 1.250   54.62 | 2.250    3.82 |  3.25    2.40
                0.333   2.47 | 1.333   54.62 | 2.333    3.82 |  3.33    2.40
                0.417   2.81 | 1.417   12.32 | 2.417    3.44 |  3.42    2.27
                0.500   2.81 | 1.500   12.32 | 2.500    3.44 |  3.50    2.27
                0.583   3.29 | 1.583    7.86 | 2.583    3.15 |  3.58    2.16
                0.667   3.29 | 1.667    7.86 | 2.667    3.15 |  3.67    2.16
                0.750   4.06 | 1.750    6.03 | 2.750    2.91 |  3.75    2.06
                0.833   4.06 | 1.833    6.03 | 2.833    2.91 |  3.83    2.06
                0.917   5.51 | 1.917    4.99 | 2.917    2.71 |  3.92    1.98
                1.000   5.51 | 2.000    4.99 | 3.000    2.71 |  4.00    1.98

     Max.Eff.Inten.(mm/hr)=      54.62         5.20
               over (min)=      10.00        35.00
     Storage Coeff.  (min)=       7.83 (ii)   30.87 (ii)
     Unit Hyd. Tpeak (min)=      10.00        35.00
     Unit Hyd. peak  (cms)=       0.13         0.04
                                                    *TOTALS*
     PEAK FLOW       (cms)=       1.52         0.06          1.540 (iii)
     TIME TO PEAK    (hrs)=       1.42         1.92          1.42
     RUNOFF VOLUME    (mm)=      20.00         3.96         13.10
     TOTAL RAINFALL   (mm)=      25.00        25.00         25.00
     RUNOFF COEFFICIENT   =       0.80         0.16          0.52
```

```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

-------------------
| CALIB            |
| STANDHYD (  0002)|   Area    (ha)=   3.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
-------------------

                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.98         1.98
     Dep. Storage     (mm)=        5.00         5.00
     Average Slope     (%)=        1.00         2.00
     Length            (m)=      162.28        40.00
     Mannings n            =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                         ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083   2.21 | 1.083   10.08 | 2.083    4.31 |  3.08    2.54
                0.167   2.21 | 1.167   10.08 | 2.167    4.31 |  3.17    2.54
                0.250   2.47 | 1.250   54.62 | 2.250    3.82 |  3.25    2.40
                0.333   2.47 | 1.333   54.62 | 2.333    3.82 |  3.33    2.40
                0.417   2.81 | 1.417   12.32 | 2.417    3.44 |  3.42    2.27
                0.500   2.81 | 1.500   12.32 | 2.500    3.44 |  3.50    2.27
                0.583   3.29 | 1.583    7.86 | 2.583    3.15 |  3.58    2.16
                0.667   3.29 | 1.667    7.86 | 2.667    3.15 |  3.67    2.16
                0.750   4.06 | 1.750    6.03 | 2.750    2.91 |  3.75    2.06
                0.833   4.06 | 1.833    6.03 | 2.833    2.91 |  3.83    2.06
                0.917   5.51 | 1.917    4.99 | 2.917    2.71 |  3.92    1.98
                1.000   5.51 | 2.000    4.99 | 3.000    2.71 |  4.00    1.98

     Max.Eff.Inten.(mm/hr)=      54.62         2.11
               over (min)=       5.00        40.00
     Storage Coeff.  (min)=       4.35 (ii)   37.38 (ii)
     Unit Hyd. Tpeak (min)=       5.00        40.00
     Unit Hyd. peak  (cms)=       0.23         0.03
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.27         0.01          0.270 (iii)
     TIME TO PEAK    (hrs)=       1.33         2.08          1.33
     RUNOFF VOLUME    (mm)=      20.00         2.76         11.37
     TOTAL RAINFALL   (mm)=      25.00        25.00         25.00
     RUNOFF COEFFICIENT   =       0.80         0.11          0.45
```

```
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0200)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0002):     3.95   0.270     1.33    11.37
     + ID2= 2 (  0202):    28.06   1.540     1.42    13.10
       ========================================================
       ID = 3 (  0200):    32.01   1.676     1.33    12.89

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

-------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   1.8250     0.6819
                         0.6400     0.7257   |   2.1650     0.7600
                         1.0700     0.4858   |   4.0750     1.0700
                         1.3800     0.5709   |   4.7000     1.7300

                                    AREA     QPEAK     TPEAK      R.V.
                                     (ha)     (cms)     (hrs)      (mm)
       INFLOW : ID= 2 (  0200)     32.010     1.676     1.33     12.89
       OUTFLOW: ID= 1 (  0020)     32.010     0.323     2.08     12.88

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 19.26
                    TIME SHIFT OF PEAK FLOW         (min)= 45.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.1897

--------------------------------------------------------------------------------

-------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=  89.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  61.00   Dir. Conn.(%)=  44.00
-------------------

                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       54.67        34.95
     Dep. Storage     (mm)=        5.00         5.00
     Average Slope     (%)=        2.00         3.00
```

```
     Length            (m)=     772.96        40.00
     Mannings n            =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                         ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083   2.21 | 1.083   10.08 | 2.083    4.31 |  3.08    2.54
                0.167   2.21 | 1.167   10.08 | 2.167    4.31 |  3.17    2.54
                0.250   2.47 | 1.250   54.62 | 2.250    3.82 |  3.25    2.40
                0.333   2.47 | 1.333   54.62 | 2.333    3.82 |  3.33    2.40
                0.417   2.81 | 1.417   12.32 | 2.417    3.44 |  3.42    2.27
                0.500   2.81 | 1.500   12.32 | 2.500    3.44 |  3.50    2.27
                0.583   3.29 | 1.583    7.86 | 2.583    3.15 |  3.58    2.16
                0.667   3.29 | 1.667    7.86 | 2.667    3.15 |  3.67    2.16
                0.750   4.06 | 1.750    6.03 | 2.750    2.91 |  3.75    2.06
                0.833   4.06 | 1.833    6.03 | 2.833    2.91 |  3.83    2.06
                0.917   5.51 | 1.917    4.99 | 2.917    2.71 |  3.92    1.98
                1.000   5.51 | 2.000    4.99 | 3.000    2.71 |  4.00    1.98

     Max.Eff.Inten.(mm/hr)=      54.62         6.88
               over (min)=      10.00        30.00
     Storage Coeff.  (min)=       9.02 (ii)   27.24 (ii)
     Unit Hyd. Tpeak (min)=      10.00        30.00
     Unit Hyd. peak  (cms)=       0.12         0.04
                                                    *TOTALS*
     PEAK FLOW       (cms)=       3.55         0.32          3.652 (iii)
     TIME TO PEAK    (hrs)=       1.42         1.75          1.42
     RUNOFF VOLUME    (mm)=      20.00         4.26         11.19
     TOTAL RAINFALL   (mm)=      25.00        25.00         25.00
     RUNOFF COEFFICIENT   =       0.80         0.17          0.45

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD (  0003)|   Area    (ha)=   7.88
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
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                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        3.94         3.94
     Dep. Storage     (mm)=        5.00         5.00
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Average Slope     (%)=       1.00         2.00
Length            (m)=     229.20        40.00
Mannings n           =      0.013        0.250

    NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                      ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    2.21 | 1.083   10.08 | 2.083    4.31 |  3.08    2.54
 0.167    2.21 | 1.167   10.08 | 2.167    4.31 |  3.17    2.54
 0.250    2.47 | 1.250   54.62 | 2.250    3.82 |  3.25    2.40
 0.333    2.47 | 1.333   54.62 | 2.333    3.82 |  3.33    2.40
 0.417    2.81 | 1.417   12.32 | 2.417    3.44 |  3.42    2.27
 0.500    2.81 | 1.500   12.32 | 2.500    3.44 |  3.50    2.27
 0.583    3.29 | 1.583    7.86 | 2.583    3.15 |  3.58    2.16
 0.667    3.29 | 1.667    7.86 | 2.667    3.15 |  3.67    2.16
 0.750    4.06 | 1.750    6.03 | 2.750    2.91 |  3.75    2.06
 0.833    4.06 | 1.833    6.03 | 2.833    2.91 |  3.83    2.06
 0.917    5.51 | 1.917    4.99 | 2.917    2.71 |  3.92    1.98
 1.000    5.51 | 2.000    4.99 | 3.000    2.71 |  4.00    1.98

Max.Eff.Inten.(mm/hr)=      54.62         2.11
      over (min)            5.00        40.00
Storage Coeff.  (min)=      5.35 (ii)   38.38 (ii)
Unit Hyd. Tpeak (min)=      5.00        40.00
Unit Hyd. peak  (cms)=      0.21         0.03
                                              *TOTALS*
PEAK FLOW       (cms)=      0.51         0.01          0.508 (iii)
TIME TO PEAK    (hrs)=      1.33         2.08          1.33
RUNOFF VOLUME    (mm)=     20.00         2.76         11.38
TOTAL RAINFALL   (mm)=     25.00        25.00         25.00
RUNOFF COEFFICIENT   =      0.80         0.11          0.46


   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  67.0    Ia = Dep. Storage  (Above)
  (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
       THAN THE STORAGE COEFFICIENT.
 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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------------------
| ADD HYD  (  0300)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
------------------          (ha)    (cms)    (hrs)     (mm)
      ID1= 1 (  0203):    89.62   3.652     1.42    11.19
    + ID2= 2 (  0003):     7.88   0.508     1.33    11.38
      ==========================================================
      ID = 3 (  0300):    97.50   3.935     1.42    11.20

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| RESERVOIR(  0030)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
------------------        (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   2.7700     2.8400
                          0.8200     1.4400   |   3.2200     3.1300
                          1.3700     1.8900   |   5.2900     4.3700
                          1.7800     2.1800   |   6.1500     5.4900
                          2.3300     2.5500   |   0.0000     0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0300)     97.500     3.935      1.42      11.20
   OUTFLOW: ID= 1 (  0030)     97.500     0.405      3.67      11.20

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.30
                TIME SHIFT OF PEAK FLOW         (min)=135.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.7120

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