Preliminary Stormwater Management Report

York River 1

Township of Herschel

Engage Project Number 22069

Engage Engineering Ltd.

Issued for Draft Plan of Subdivision

November 2022

Revision Summary

Revision No.	Revision Title	Date	Revision Summary
1	Draft Plan for Subdivision	November 29, 2022	Final

Land Acknowledgement

Engage Engineering would like to acknowledge that our concern is in the traditional territory of the Michi Saagiig Anishinaabe and is part of the land and people encompassed within Treaty #20 and the Williams Treaty. We believe it is important to acknowledge these treaties, as our projects and designs often have a lasting impact on the lands, waters, wildlife, and people of this territory. We thank our local First Nations and communities for their ongoing stewardship of these lands and waters and strive to centre their voices in our work and honor our treaty obligations. May we dedicate ourselves as treaty people to moving forward in the spirit of reconciliation and enduring collaboration.

Accessibility for Ontarians with Disabilities (AODA)

This report was prepared and formatted to comply with AODA guidelines. Engage is committed to taking all reasonable steps to ensure that anyone who accesses our services will be able to do so in a way that respects their needs. As such, if you require any assistance with the access or interpretation of this proposal, please do not hesitate to reach out and we will be pleased to accommodate you.

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1.0 Introduction

1.1 Purpose

Engage Engineering Limited (Engage) has been retained by Ecostructure to prepare a Preliminary Stormwater Management (SWM) Report in support of a draft plan of subdivision application for the York River 1 development located in Hastings Highlands, Country of Hastings. The proposed development will include 20 building lots, open space with walking trails and the construction of a new road within the subject site. The purpose of this report is to quantify the impact that the proposed development will have on runoff rates and to recommend any stormwater management measures required to mitigate negative affects the development may have on downstream receivers.

Recommendations made in this report will be in accordance with the County of Hastings, in addition to current stormwater management best practices and the Credit Valley Conservation Low Impact Development Stormwater Management planning and Design Guide.

1.2 Site Description

The subject site is located within the County of Hastings northwest of Bancroft. It is bounded by Woodcox Road to its west, Glory Road on its south side and the York River to east. There are four (4) rural residential lots to the west of the subject site and a woodlot with a watercourse to the north side of the subject site. The eastern portion of the site is a wetland that is within the floodplain for York River. The site consists mostly of woodlots and forests with a gravel trail that runs through the site. A seep, or intermittent drainage feature, runs from the southwest corner of the site east towards the wetland. The property generally slopes from west to east towards the York River. The location of the subject site is identified on the Location Plan included as **Figure 1**.

2.0 Hydrologic Analysis

2.1 Hydrologic Model

As part of this study, a hydrologic model for the site under both existing and proposed conditions was developed using Visual OTTHYMO (VO) software. The model was used to simulate peak flows from the site under both pre-development and post-development conditions for a variety of storm distributions and durations, as well as to verify stormwater management storage requirements and performance.

Figure 1: Location Plan

The MTO's IDF Curve Finder was utilized to develop the storm distributions used in the VO model. The results for the IDF Curve Finder can be found in **Appendix A**. The Geotechnical Investigation prepared by Cambium (January 2022), field reconnaissance, and aerial imagery were utilized to determine the land use and soil types for the hydrologic model. The Geotechnical Investigation can be found in **Appendix E**. According to the Geotechnical Investigation the soils are generally characterized as sand. Hydrologic Soils Group AB will be used for the purposes of this report. Weighted Curve Numbers (CN) were used for hydrologic calculations.

Groundwater monitoring has been completed on the site to establish the existing groundwater levers for the design of the preliminary stormwater management strategy. Based on observations made in the Geotechnical Investigation, it appears that the groundwater table throughout most of the site is below 2.0 mbgs and likely be below 6.6 mbgs. Based on the geotechnical analysis it appears that shallower groundwater elevations occur in the areas adjacent to the seep in the southern portion of the site.

2.2 Existing Conditions

The subject site is approximately 16.38 ha in size located on the east side of Woodcox Road north of Bancroft. The site is bounded by Glory Road to its south and a wooded lot with a watercourse on its north side. Bishop Geyer Surveying Inc. was retained to perform a topographic survey of the site dated October 21, 2021. The topographic survey plan is included as **Figure 3** and outlines the legal limits of the site. The site consists primarily of forest and woodlots that generally slope from west to east. The eastern portion of the site, next to the York River, consists of a wetland that can act as a floodplain during large storm events. A seep was identified in the Environmental Impact Study completed by Cambium Inc. 2021 under a separate cover. The seep runs from the southwest corner of the site, east towards the wetland. There is a large external area west of the site that drains towards the site. Runoff generated from this area is collected in a roadside swale along Woodcox Road and directed towards the seep area through cross culverts under the road.

The survey was utilized to determine existing elevations, locations of existing features on the site, and to establish proposed grading for the proposed development of the site. Contours for external areas were generated from data collected by the South Central Ontario Orthophotography Project 2013 (SCOOP) and generally confirmed through on site reconnaissance. Three existing drainage areas and three external drainage area have been identified and are shown on the Pre Development Drainage Area Plan included as **Figure 4**. The drainage areas can be identified by the following features:

- EX1: Existing catchment area **EX1** is 11.72 ha and includes drainage for the central portion of the site. Runoff from this area drains southeast towards the wetland and eventually enters the York River. EX1 includes the drainage area identified as the seep in the southern portion of the site. The land cover is

comprised of mixed forest and a small gravel path. The floodplain limit extends slightly into the northeastern section of this catchment.

- EX2: Existing catchment area **EX2** is 1.71ha and includes drainage for the northern portion of the site. Runoff from this area drains northeast towards the watercourse north of the site. The watercourse eventually discharges into the York River. The land cover is comprised of forest and a small gravel path.
- EX3: Existing catchment area **EX3** is 2.96 ha and includes drainage for the eastern portion of the site. This catchment is comprised of wetlands and surrounding forest. Runoff from this catchment area flows south into the York River. The York River floodplain limit extends into the majority of this catchment area. This catchment is unchanged in proposed conditions.
- EXT4: Existing catchment area **EXT4** is a 6.86 ha external contributing area that includes land west of Woodcox road, east of the site. Runoff from this area is collected in the existing ditch along Woodcox Road and enters the site via a cross culvert. The runoff generated from this area will flow into the seep area within EX1. The land cover within this catchment is comprised of forest and the paved section of Woodcox Road.
- EXT5: Existing catchment area **EXT5** is a 1.43 ha external contributing area that includes a single rural residence and woodlands. This area is east of Woodcox Road sloping form west to east towards the northern portion of EX1.
- EXT6: Existing external catchment area **EXT6** a 1.03 ha external contributing area that includes a single rural residence and woodlands. This area is east of Woodcox Road sloping form west to east towards the southern portion of EX1.

The existing characteristics of the drainage areas are summarized in **Table 1** below.

Table 1 - Existing Catchment Area Characteristics

Catchment	Area (ha)	TP (hr)	IA	CN*	VO Command
EX1	11.72	0.23	5.0	51	NASHYD
EX2	1.71	0.23	5.0	51	NASHYD
EX3	2.96	0.25	5.0	47	NASHYD
EXT4	6.86	0.26	5.0	52	NASHYD
EXT5	1.43	0.13	5.0	52	NASHYD
EXT6	1.03	0.13	5.0	62	NASHYD

2.3 Proposed Conditions

Under the proposed conditions, the 16.38 ha site will be developed into a rural subdivision with 0.4 ha farmstead properties. The intent of the development is to minimize negative impacts on the environment by maintaining a forested buffer on each lot, minimizing paved surfaces, and constructing relatively small buildings that are incorporated into the landscape. An objective of the proposed subdivision is to promote sustainability using renewable energy and small farm plots throughout. For the purpose of the preliminary stormwater management report, a portion of the landuse for the 20 building lots has been categorized as farmstead. This landuse type considers the buildings, lanes, driveways, and surrounding lots. It is expected that the roadway will be gravel but these areas have been considered impervious for the purpose of this report. The topography will change to accommodate the grading for the proposed development. There are six proposed catchment areas and three external drainage areas identified on the **Proposed Storm Drainage Area Plan** included as **Figure 3.** The respective catchment areas and their characteristics are summarized below.

- PR1: Proposed catchment area **PR1** is 3.50ha and includes seven single detached lots, a roadway with roadside swales, a conveyance swale and Dry Pond A. The landuse for this area is a mix of grass, woodlots, impervious roadway and farmstead. Runoff from this drainage area will sheet flow east into roadside swales or the conveyance swale directed into Dry Pond A. This dry pond will outlet into the adjacent open space and eventually reach the York River.

- PR2: Proposed catchment area **PR2** is 1.75 ha and includes three single detached lots, a tree line buffer and a roadway with roadside ditches. The landuse for this area is a mix of grass, woodlots, impervious roadway, and farmstead. Runoff from this drainage area will flow east into the roadside swales directed to Dry Pond B. This dry pond will provide the storm quantity volume required to control flows entering the wetland that eventually reaches the York River.

- PR3: Proposed catchment area **PR3** is 2.95ha and includes five single detached lots a tree line buffer and area intended for a community garden. The landuse for this area is a mix of grass woodlots and farmstead. Runoff from this area will drain uncontrolled west to east towards the wetland through vegetated buffers.

- PR4: Proposed catchment area **PR4** is 3.00ha and includes the seep area. This catchment includes two of the rural building lots, a section of road crossing the seep and woodland. Runoff from this area will drain uncontrolled west to east towards the wetland through vegetated buffers.

- PR5: Proposed catchment area **PR5** is 2.23ha and includes three of the proposed single detached lots in the southern section of the property. The landuse for this area is a mix of grass, woodlots, and farmstead. Runoff from this area will flow uncontrolled to the east.

- PR6: Proposed catchment area **PR6** is 2.96ha and includes the wetland on the east side of the property. This catchment is comprised of the wetlands, environmental setbacks and surrounding forest. Runoff from this catchment area flows south into the York River. The York River floodplain limit extends into the majority of this catchment area.

- PXT7: Proposed catchment area **PXT7** is 1.43ha external contributing area that includes a single rural residence and woodlands. This area is east of Woodcox Road sloping form west to east towards the northern portion of PR1.

- PXT8: Proposed catchment area **PXT8** is 1.03ha ha external contributing area that includes a single rural residence and woodlands. This area is east of Woodcox Road sloping form west to east towards PR2.

- PXT9: Proposed catchment area **PXT9** is a 6.86 ha external contributing area that includes land west of Woodcox road, east of the site. Runoff from this area is collected in the existing ditch along Woodcox Road and enters the site via a cross culvert. The runoff generated from this area will flow into the seep area within EX1. The land cover within this catchment is comprised of forest and the paved section of Woodcox Road.

The characteristics of the proposed catchment areas are summarized in **Table 2** below. A complete list of the VO input data is included in **Appendix A.**

Table 2 - Proposed Catchment Area Characteristics

Catchment	Area (ha)	TP (hr)	IA	CN*	VO Command
PR1	3.50	0.18	5.0	61	NASHYD
PR2	1.75	0.11	5.0	62	NASHYD
PR3	2.95	0.12	5.0	56	NASHYD
PR4	3.00	0.24	5.0	54	NASHYD
PR5	2.23	0.23	5.0	58	NASHYD
PR6	2.96	0.25	5.0	47	NASHYD
PXT7	1.43	0.13	5.0	52	NASHYD
PXT8	1.03	0.13	5.0	52	NASHYD
PXT9	6.86	0.26	5.0	52	NASHYD

The 6-hour SCS storm distribution was utilized for the modeling of on-site hydrology. The hydrologic model was used to simulate existing and proposed peak flows for the 2 through 100-year storm events. The existing conditions results are summarized in **Table 3** below. The VO model results are included in **Appendix C.**

Table 3 - Existing Uncontrolled Peak Flows (m^3/s)

Catchment	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
EX1	0.09	0.163	0.216	0.300	0.344	0.438
EX2	0.013	0.024	0.032	0.044	0.05	0.064
EX3	0.019	0.034	0.045	0.062	0.071	0.09
EXT3	0.051	0.092	0.121	0.167	0.191	0.243
EXT4	0.017	0.030	0.039	0.054	0.062	0.079
EXT5	0.012	0.021	0.028	0.039	0.045	0.057
Total	**0.194**	**0.353**	**0.467**	**0.648**	**0.743**	**0.946**

Results from the proposed conditions model are summarized in **Table 4** below.

Table 4 – Proposed Uncontrolled Peak Flows (m³/s)

Catchment	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
PR1	0.046	0.082	0.107	0.147	0.167	0.211
PR2	0.032	0.057	0.074	0.101	0.115	0.145
PR3	0.042	0.074	0.097	0.134	0.153	0.193
PR4	0.025	0.045	0.059	0.082	0.094	0.120
PR5	0.022	0.040	0.053	0.073	0.083	0.105
PR6	0.019	0.034	0.045	0.062	0.071	0.090
PXT7	0.017	0.030	0.039	0.054	0.062	0.079
PXT8	0.012	0.021	0.028	0.039	0.045	0.057
PXT9	0.051	0.092	0.121	0.167	0.191	0.243
Total	**0.244**	**0.436**	**0.573**	**0.789**	**0.901**	**1.141**

The results indicate that in the absence of any quantity controls, the uncontrolled peak flows leaving the site will increase when compared to existing conditions. Therefore, some form of quantity control is required.

3.0 Stormwater Management

3.1 Quantity Control

To address quantity control for the site two stormwater facilities have been proposed to restrict post development flows to pre-development levels. The northern dry pond (Pond A) and southern dry pond (Pond B) can be identified on the **Grading Plan** included as **Figure 3.**

Northern Dry Pond A

Runoff for minor and major storm events from drainage areas PR1 and PXT7 will be collected in various swales and directed to Pond A. The proposed pond is designed with a multi-stage outlet that will control the peak flows. The first stage consists of a 150mm orifice tube connected to a perforated hickenbottom riser pipe. The second stage consists of a 0.4m deep trapezoidal overflow weir with a side slope of 3:1 and a bottom

width of 0.6m. The controlled flows will outlet to an area with additional erosion control and sheetflow to the wetland southeast of the pond, ultimately reaching the York River. The control weir will only be utilized during the 25 to 100 year storm events. The weir is designed to convey the peak 100 year uncontrolled flows from the contributing area (PR1 + PXT7) in the event that the orifice tube becomes blocked or clogged. Weir sizing calculations are included in **Appendix D**.

The proposed dry pond is approximately 50m long with a bottom width of 4.0m, depth of 1.0m and 3:1 side slopes. The proposed stormwater management facility was modeled to determine the functionality and to confirm that it has the capacity to accommodate the flows from the site. A surface with the proposed dry pond was developed using the AutoCAD Civil 3D software. This surface was analyzed, and it was determined the constructed stormwater facility provides a total storage volume of approximately 375m^3, which includes the volume available within the adjacent swale. The surface was used to develop a stage storage relationship in 0.05m increments. An abbreviated stage storage discharge SSD relationship for the pond is shown in **Table 5** below and the complete SSD table and calculations are included in **Appendix B.**

Table 5 –Dry Pond A Abbreviated Stage Storage Discharge

Description	Stage (m)	Discharge (m³/s)	Minimum Storage Required (from VO) (m³)	Actual Storage Provided (m³)
Bottom of Pond	334.50	0.00	-	0
2 Year	334.75	0.026	58	60
5 Year	334.95	0.038	114	123
10 Year	335.08	0.044	160	170
25 Year	335.20	0.083	204	223
50 Year	335.23	0.098	228	235
100 Year	335.30	0.152	266	270
Top of Pond	335.50	0.357	-	376

As illustrated in **Table 5** above there is 0.20m of freeboard between the top of the pond and the 100 year ponding elevation. The amount of freeboard will be investigated further during the detailed design process.

Southern Dry Pond B

Runoff for minor and major storm events from drainage areas PR2 and PXT8 will be collected in various swales and directed to Pond B. The proposed pond is designed with a multi-stage outlet that will control the peak flows. The first stage consists of a 100mm orifice tube connected to a perforated hickenbottom riser pipe. The second stage consists of a 0.35m deep trapezoidal overflow weir with a side slope of 3:1 and a bottom width of 0.6m. The controlled flows will outlet to an area with additional erosion control and sheetflow to the seep south of the pond, ultimately reaching the York River. The control weir will only be active during the 25 to 100 year storm events and is designed to convey the peak 100 year uncontrolled flows from the contributing area in the event that the orifice tube becomes blocked or clogged. Weir sizing calculations are included in **Appendix D**.

The proposed dry pond is approximately 15m long with a width of 7m, depth of 0.80m and 3:1 side slopes. The proposed stormwater management facility was modeled to determine the functionality and to confirm that it has the capacity to accommodate the flows from the site. A surface with the proposed dry pond was developed using the AutoCAD Civil 3D software. This surface was analyzed, and it was determined the constructed stormwater facility provides a total storage volume of approximately 252m^3, which includes the volume available within the adjacent swale. The surface was used to develop a stage storage relationship in 0.05m increments. An abbreviated stage storage discharge SSD relationship for the pond is shown in **Table 6** below and the complete SSD table and calculations are included in **Appendix B**.

Table 6 – Pond B Abbreviated Stage Storage Discharge

Description	Stage (m)	Discharge (m³/s)	Minimum Storage Required (from VO) (m³)	Actual Storage Provided (m³)
Bottom of Pond	340.20	0.000	-	0
2 Year	340.45	0.012	38	43
5 Year	340.65	0.018	73	95
10 Year	340.70	0.030	92	112
25 Year	340.75	0.052	119	130
50 Year	340.80	0.081	128	151
100 Year	340.83	0.101	151	162
Top of Pond	341.00	0.231	-	252

As illustrated in **Table 6** above there is 0.17m of freeboard between the top of the pond and the 100 year ponding elevation. The amount of freeboard will be investigated further during the detailed design process.

Table 7 below demonstrates the total proposed controlled discharge rates leaving the site, including the controlled runoff from the two proposed dry ponds and the uncontrolled runoff from the catchment areas not directed to the ponds, are at or below pre-development release rates. The overall discharge rates were determined using the VO software and detailed outputs can be found in **Appendix C.**

Table 7 - Allowable vs. Proposed Release Rates

Design Storm	Allowable Discharge (m^3/s)	Proposed Discharge (m^3/s)
2 Year	0.194	0.174
5 Year	0.353	0.311
10 Year	0.467	0.405
25 Year	0.648	0.567
50 Year	0.743	0.674
100 Year	0.946	0.883

3.2 Stormwater Conveyance

Runoff from the site will be conveyed to the dry ponds through a surface drainage system that includes various culverts and swales.

A proposed conveyance swale is provided along the northern tree line to intercept runoff generated from PR1 flowing north. This swale has been designed to convey 50% of the 100 year peak flows produced from PR1. Swales have been designed on both sides of the road through PR1. These swales have been designed to convey 50% of the 100 year peak flows produced from PR1 and PXT7. The conveyance swale and the roadside swales within PR1 are directed to Dry Pond A.

The roadside swales within PR3 will collect runoff generated from the catchment areas PR3 and PXT8 and direct flows to Dry Pond B. The swales are designed to convey the 100 year peak flows generated from PR3 and PXT8. A critical slope along the swale has been identified at 5.3%. Calculations demonstrating the sizing and capacity of the swales and are included in **Appendix D** and are summarized in **Table 8** below.

Table 8 – Swale Capacity

Description	Characteristics	Cross Sectional Area (m^2)	Maximum Flow Rate (m^3/s)	Percent Capacity	Velocity (m/s)
PR1 Conveyance Swale	Triangular; 3:1 side slope; 6.3% long slope; 0.5m deep	0.750	0.106	4%	0.28
PR1 Roadside Swale	Trapezoidal; 3:1 side slope; 0.75m width; 14.0% long slope; 0.5m deep	1.127	0.146	3%	0.47
PR2 Conveyance Swale	Trapezoidal; 3:1 side slope; 0.75m width; 5.3% long slope; 0.5m deep	1.127	0.202	5%	0.48

Various culverts have been proposed to safely convey 100 year peak flows under the proposed roadway. The culvers were assessed using the Hydraflow Express extension for Autodesk Civil 3D. Two 450mm diameter culverts are proposed to convey the anticipated runoff generated by the seep in PR4 and the contributing external area PXT9. A single 450mm diameter culvert will convey 50% of the 100 year uncontrolled flows from PR1 plus the 100 year flows from PXT7 across the road towards Dry Pond A. A 450mm diameter culvert will convey runoff generated from the 100 year storm from PR2 and PXT8 across the road towards Dry Pond B. Calculations demonstrating the sizing of, and capacity of the culvert are included in **Appendix D** and summarized in **Table 9** below.

Table 9 - Culvert Capacity

Culvert	Design Storm	Maximum Flow Rate (m^3/s)	High Water Elev. (m)	Outlet Velocity (m/s)
Seep Culverts	100 Year Uncontrolled (PR4+PXT9)	0.361	346.60	1.3
PR1 Road Crossing	100 Year Uncontrolled (PR1(50%)+PXT7)	0.185	340.55	1.3
PR2 Road Crossing	100 Year Uncontrolled (PR2 + PXT8)	0.201	340.85	1.0

3.3 Quality Control

Quality control will be required for the site as the proposed roadway will contain suspended solids and other contaminates that may cause water quality degradation in downstream receivers. The proposed farmstead landuse inherently includes beneficial features such as woodchipped paths and garden beds that will promote infiltration and evapotranspiration. This landuse type will qualitatively reduce the negative water quality impacts of the development. The proposed water quality strategy implements the treatment train approach by including lot level, conveyance and end of pipe practices in series that will provide the required quality control.

Roof leaders from the various buildings throughout the proposed development will be directed to surrounding gardens and landscaped areas. This strategy will promote infiltration trapping and treating water at the lot level.

The proposed catchment areas are directed to roadside grassed swales which direct runoff to the Dry Ponds. As per the CVC LID SWM Planning and Design Guide, the velocity in the enhanced grassed swale should be 0.5m/s or less to meet the stormwater management water quality objectives for a 25mm design storm. The proposed swales will limit velocities to 0.48 m/s for the 100 year design storm flows therefore it is expected the velocities in the 25mm storm will be significantly less than 0.5 m/s. The design guide also requires a bottom width of at least 0.75m. Calculations demonstrating the sizing and capacity of the swales and are included in **Appendix D** and are summarized in **Table 8** above. The enhanced grass swales will provide pre-treatment for the runoff prior to entering the Dry Ponds. The enhanced grass swale is

proposed to be open an open bottom system that will allow for the opportunity to infiltrate.

The two Dry Ponds identified on the **Grading Plan** included in **Appendix F** will promote infiltration and sedimentation, removing potential pollutants from the contributing water. Due to the minimal orifice sizing in the design, it is not possible to achieve the 24 hour drawdown time, however it is still expected that the ponds will provide some sedimentation and water quality benefits. The proposed Dry Ponds are designed to outlet to a vegetated buffer prior to entering the wetland.

Overall, the treatment train approach of lot level controls, grassed swales, dry ponds and the natural vegetated buffer it is expected that an enhanced level (80% TSS removal) will be provided.

4.0 Operation and Maintenance

Proper operation and maintenance have an important impact on the long-term performance of all SWM features and facilities. The following list identifies the required inspection and maintenance activities that should be undertaken for the bioretention cell, to ensure effective operation:

1. Facility Inspection
2. Trash/Debris Removal
3. Removal of Accumulated Sediment

Facility Inspection

Inspections of the dry ponds are conducted to confirm the performance as well as to identify the type and frequency of additional maintenance activities. During the first two years of operation, inspections should be made after each significant rainfall event to ensure proper functioning of the system; this will likely average between 3 to 6 inspections per year. After this initial period, inspection frequency can be reduced to a single annual inspection.

Below is a checklist of items that should be inspected/reviewed during the facility inspection:

1. Observe water level – standing water deeper than 15cm could indicate blockage of outlet. If excessive standing water is observed, inspect the outlet for sediment or debris.

2. Observe and measure sediment levels in the bottom of the facility. If significant sediment is observed (greater than 5cm depth) it should be removed.

Sediment Removal

Sediment will need to be removed periodically from the facility to maintain performance. The rate of accumulation of sediment is dependent on several factors including:

- Characteristics of upstream areas (level of imperviousness)
- Upstream land use and activities, especially during the construction phase of the development prior to sodding.
- Winter ice control practices (e.g., level of sand used)

In general, sediment should be removed from the system when the accumulated depth reaches 5 cm. Semi-annual inspections during the first two years and annual inspections thereafter should be used to confirm the rate of accumulation of sediment and when it will need to be removed. The most effective means of removing sediment is with a vacuum excavation truck.

Trash/Debris Removal

Trash/debris removal will be required for the grassed swales and dry ponds in the spring of each year, to remove debris that has accumulated over the winter season. Apart from “spring cleaning”, trash removal should be completed on a periodic basis throughout the year, in conjunction with other routine maintenance activities such as grass cutting.

5.0 Erosion and Sediment Control Plan

The development of the site will result in area of exposed native soils which have the potential to erode and contribute sediment to downstream receivers. To mitigate these effects during the construction period, a detailed erosion and sediment control plan will be developed during the detailed design phase. The plan will incorporate best practices as described in the Erosion and Sediment Control Guidelines for Urban Construction, GGHCA.

6.0 Summary

The proposed York River development includes twenty rural single detached lots, a and a connecting road which will increase site imperviousness and increase post-development runoff rates. To mitigate these effects, a stormwater management strategy is proposed that incorporates roadside and conveyance swales, various culverts and two dry ponds.

Quantity control is proposed to be provided by the two dry ponds. A conveyance system has been designed to direct runoff to the SWM facilities. The dry ponds will over control flows from the contributing drainage areas by providing sufficient storage volume to allow attenuation for the runoff for all storm events up to and including the 100-year storm.

The proposed water quality strategy implements the treatment train approach by including lot level, conveyance and end of pipe practices in series that will provide the required quality control. The use of the above noted facilities will not only provide the required quantity and quality control but given the opportunity for runoff to infiltrate, the site may see a reduced runoff.

Prepared by:	Reviewed by:
	
Logan Mattern, Engineering Intern	Lucas Parsons. P. Eng. Water Resources Engineer

Figure 2: Site Plan

LOT 7
CON 2
HERSCHEL

York River

RURAL RESIDENTIAL

WATERFRONT RESIDENTIAL

RURAL RESIDENTIAL

MARGINAL AGRICULTURE

LOT 9
CON 2
HERSCHEL

RURAL RESIDENTIAL

RIVERSIDE COURT

GLORY ROAD

WOODCOX ROAD

BLOCK A
41296.33m²

BLOCK A
41296.33m²

BLOCK A
41296.33m²

BLOCK B
1602.53m²

BLOCK C
13507.80m²

ROAD "A"

BLOCK D
649.67m²

LOT 1
4160.81m²

LOT 2
4178.07m²

LOT 3
4067.13m²

LOT 4
4067.81m²

LOT 5
4029.26m²

LOT 6
4043.51m²

LOT 7
4027.45m²

LOT 8
4032.33m²

LOT 9
3544.72m²

LOT 10
6636.83m²

LOT 11
7067.81m²

LOT 12
8526.05m²

LOT 13
4287.46m²

LOT 14
4144.02m²

LOT 15
4068.06m²

LOT 16
4093.75m²

LOT 17
4093.85m²

LOT 18
4093.79m²

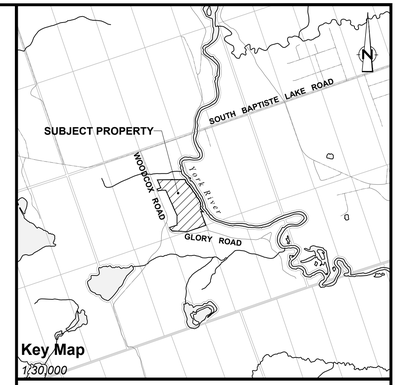
LOT 19
4093.71m²

LOT 20
5134.88m²

CULVERT TO BE INSTALLED AS PER OPSD STANDARDS FOR SEEP TRAVELING UNDER ROADWAY

NORMAL WATER'S EDGE TIES FROM "POINT A"	
BEARING	DISTANCE
N38°59'W	219.3
N37°57'W	212.9
N39°15'W	187.6
N40°17'W	174.8
N40°17'W	163.7
N38°34'W	130.4
N35°05'W	101.5
N31°40'W	71.0
N55°42'W	52.3
N36°48'W	31.7
N32°04'W	11.8
N50°27'E	3.3
S42°42'E	15.1
S47°15'E	28.6
S41°01'E	40.2
S40°41'E	50.3
S38°14'E	65.7
S38°23'E	80.7
S34°29'E	100.1
S35°41'E	117.8
S31°05'E	127.2
S30°58'E	135.7
S28°49'E	147.3
S28°52'E	164.7
S28°54'E	178.8
S30°05'E	213.3
S30°45'E	219.5
S31°34'E	229.4

UTILITY POLES TIES FROM "POINT B"	
BEARING	DISTANCE
N61°50'W	223.1
N75°21'W	174.2
S81°51'W	151.0
S81°27'W	84.7
S79°18'W	22.8
S86°04'E	42.7
S87°37'E	106.0
N70°43'E	246.4
N68°55'E	263.0
N53°20'E	263.4



LEGEND

- DENOTES SURVEY MONUMENT FOUND
- DENOTES SURVEY MONUMENT PLANTED
- DENOTES WOOD STAKES
- SIB DENOTES STANDARD IRON BAR
- SSIB DENOTES SHORT STANDARD IRON BAR
- IB DENOTES IRON BAR
- RP DENOTES ROCK POST
- IBIO DENOTES 3/4" DIA. ROUND IRON BAR
- WIT DENOTES WITNESS
- (934) DENOTES GREG BISHOP SURVEYING and CONSULTING LTD.
- (934) DENOTES H.C. BISHOP O.L.S.
- (934) DENOTES BISHOP GEYER SURVEYING INC.
- (776) DENOTES M.J. McALPINE O.L.S.
- (M) DENOTES MEASURED
- (P) DENOTES PLAN 21R–13699
- (P1) DENOTES PLAN 21R–14629
- EG DENOTES EDGE OF GRAVEL
- EA DENOTES EDGE OF ASPHALT
- CLR DENOTES CENTERLINE OF ROAD
- UP DENOTES UTILITY POLE
- OH DENOTES OVERHEAD WIRES
- GW DENOTES GUY WIRE
- CLD DENOTES CENTERLINE OF DITCH
- TS DENOTES TOP OF SLOPE
- BS DENOTES BOTTOM OF SLOPE
- CV DENOTES CULVERT
- CSP DENOTES CORRUGATED STEEL PIPE
- PWF DENOTES POST AND WIRE FENCE
- 330 DENOTES 0.50 METRE CONTOURS
- BP DENOTES BELL (TELECOM) PEDESTAL

SUBJECT BOUNDARY

EXISTING WETLAND *(RETRIEVED FROM CAMBIUM EIS)*

EXISTING WETLAND BUFFER, 30m *(RETRIEVED FROM CAMBIUM EIS)*

EXISTING SEEP, W/ DIRECTION OF FLOW *(RETRIEVED FROM CAMBIUM EIS)*

EXISTING SEEP BUFFER, 15m *(RETRIEVED FROM CAMBIUM EIS)*

PROPOSED PEDESTRIAN TRAILS

Submission Requirements

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51-17 (a-l) THE PLANNING ACT

a) As shown on this Draft Plan and Survey by Bishop Geyer Surveying Inc.
b) As shown on this Draft Plan
c) As shown on this Draft Plan
d) Residential Subdivision
e) As shown on this Draft Plan
f) As shown on this Draft Plan
f.1) N/A
g) As shown on this Draft Plan
h) Refer to report from Cambium Inc.
i) Refer to report by Cambium Inc.
j) As shown on this Draft Plan
k) None
l) As shown on this Draft Plan

Site Statistics

BLOCK / LOT #	AREA (ha)	DESCRIPTION
LOTS 1 - 20	9.23	20 Single Detached Residential Units
BLOCK A	4.13	Open Space / Recreational Amenities / Storm Water Management
BLOCK B	1.60	Open Space / Recreational Amenities
BLOCK C	1.36 *(length = 613.97m, min. CL turning radius = R20.0m)*	Proposed Right-of-Way *(Width = 20.0m)*
BLOCK D	0.06	Storm Water Management
Total:	16.38	

OWNER'S CERTIFICATE
I hereby authorize EcoVue Consulting Services Inc.
to prepare and submit this plan to the County of Hastings

FRASER YOUNG Date

SURVEYOR'S CERTIFICATE
This Draft Plan accurately shows the boundaries of all lands
proposed to be subdivided.
Certified by:

Rodney Geyer Date
Ontario Land Surveyor

DRAFT PLAN OF SUBDIVISION

Subject to the conditions, if any, set forth in our letter dated _____, 20__ this draft plan is approved under Section 51 of the Planning Act.
This _____ day of _____, 20__.

_____
Authorized Signature
THE CORPORATION OF THE COUNTY OF HASTINGS

REVISIONS

DATE	DESCRIPTION
2022-02-09	ISSUED FOR REVIEW
2022-03-24	MINOR REVISION
2022-11-16	MINOR REVISION

EcoVue Consulting Services Inc.
311 George St. N., Suite 200
Peterborough ON K9J 3H3
Tel: 705-876-8340 Fax: 705-742-8343
www.ecovueconsulting.com

DRAWN BY: MC	PROJECT No.: 20-2032
APPROVED BY:	HORIZ. SCALE: 1:1250
REVISION DATE: NOVEMBER 16, 2022	PLOT DATE: NOVEMBER 16, 2022

ECOSTRUCTURE SUBDIVISION
FRASER YOUNG
PART OF LOTS 7 & 8, CONCESSION 2
GEOG. TWP. OF HERSCHEL
MUNICIPALITY OF HASTINGS HIGHLANDS
COUNTY OF HASTINGS

DRAFT PLAN OF SUBDIVISON | DP1

Figure 3: Topographic Survey

PLAN OF SURVEY OF
PART OF LOT 7 & LOT 8, CONCESSION 2
GEOGRAPHIC TOWNSHIP OF HERSCHEL
MUNICIPALITY OF HASTINGS HIGHLANDS
COUNTY OF HASTINGS

SCALE 1 : 750 METRIC

20 10 0 20 40 60 METRES

RODNEY GEYER O.L.S.

METRIC: DISTANCES AND COORDINATES ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

LEGEND

- ■ DENOTES SURVEY MONUMENT FOUND
- □ DENOTES SURVEY MONUMENT PLANTED
- ⧗ DENOTES WOOD STAKES
- SIB DENOTES STANDARD IRON BAR
- SSIB DENOTES SHORT STANDARD IRON BAR
- IB DENOTES IRON BAR
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- IBØ DENOTES 3/4" DIA. ROUND IRON BAR
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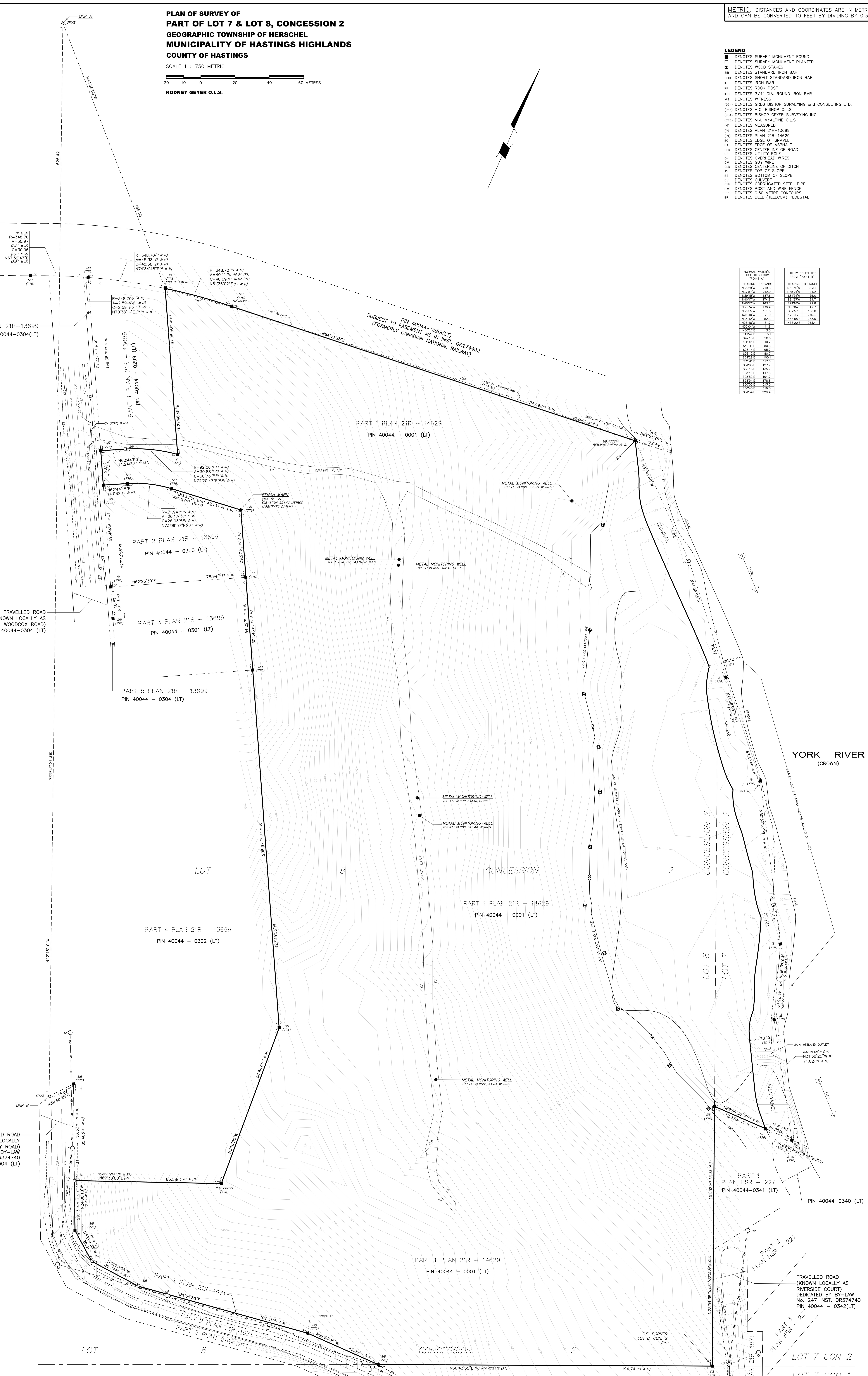
- CSP DENOTES CORRUGATED STEEL PIPE
- PWF DENOTES POST AND WIRE FENCE
- 330 DENOTES 0.50 METRE CONTOURS
- BP DENOTES BELL (TELECOM) PEDESTAL

NORMAL WATER'S EDGE TIES FROM "POINT A"

BEARING	DISTANCE
N38°29'W	219.3
N37°57'W	212.9
N39°15'W	187.6
N40°17'W	174.8
N40°17'W	163.7
N38°34'W	130.4
N35°55'W	101.5
N31°40'W	71.0
N35°42'W	52.3
N36°48'W	31.7
N32°04'W	11.8
N50°27'E	3.3
S42°42'E	15.1
S42°15'E	28.6
S41°01'E	40.2
S40°41'E	50.3
S38°14'E	65.7
S38°12'E	80.7
S34°29'E	100.1
S31°41'E	117.8
S31°05'E	127.2
S30°18'E	135.7
S28°49'E	147.3
S28°52'E	164.7
S28°54'E	178.8
S30°55'E	213.3
S30°45'E	219.5
S31°34'E	229.4

UTILITY POLES TIES FROM "POINT B"

BEARING	DISTANCE
N61°50'W	223.1
N75°21'W	174.2
S81°51'W	151.0
S81°27'W	84.7
S79°18'W	22.8
S86°04'E	42.7
S87°57'E	106.0
N70°43'E	246.4
N68°55'E	263.0
N53°20'E	263.4



INTEGRATION DATA

UTM GRID BEARINGS ARE DERIVED FROM OBSERVED REFERENCE ORP POINTS A AND B, USING THE SMARTNET NETWORK. HAVING A GRID BEARING OF N22°48'10"W REFERRED TO THE CENTRAL MERIDIAN UTM ZONE 17, NAD 83 (CSRS) (2011) (81°WEST LONGITUDE).

FOR BEARING COMPARISONS, A ROTATION OF 2°15'35" (COUNTER CLOCKWISE) WAS APPLIED TO BEARINGS ON PLAN 21R–13699 AND PLAN 21R–14629.

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 1.00022385.

OBSERVED REFERENCE POINTS (ORPs) : UTM ZONE 17, NAD83 (CSRS) (2011). COORDINATES TO RURAL ACCURACY PER SECTION 14 (2) OF O.REG. 216/10.

POINT ID	NORTHING	EASTING	
ORP A	4998297.10	742528.15	
ORP B	4997720.43	742770.60	

CAUTION:
COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE–ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

NOTE:
THE NORMAL WATER'S EDGE OF YORK RIVER SHOWN HEREON IS THE BEST AVAILABLE EVIDENCE OF THE WATER'S EDGE EXISTING AT THE TIME OF THE ORIGINAL SURVEY OF THE TOWNSHIP OF HERSCHEL.

NOTE:
THE POSITION OF SERVICES AND UTILITIES SUCH AS POLE LINE CONDUITS, WATER MAINS, SEWERS, AND OTHER SERVICES UNDERGROUND OR OVERHEAD, ARE NOT NECESSARILY SHOWN ON THIS PLAN.

THE ACCURACY OF THE POSITION OF NOTED UTILITIES AND STRUCTURES ARE NOT VERIFIED BY THIS PLAN.

BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM THEMSELVES OF THE EXACT LOCATION OF NOTED UTILITIES AND STRUCTURES, ASSUMING ALL LIABILITY FOR DAMAGING THEM.

BURIED SERVICES AND UTILITIES ARE NOT SHOWN AND LOCATES ARE REQUIRED PRIOR TO ANY EXCAVATION WORK.

ELEVATIONS AND CONTOURS:
1. ELEVATIONS AND CONTOURS ARE GEODETIC DERIVED USING NETWORK RTK AND BASED ON CGVD28 (HTv2.0) DATUM.
2. CONTOUR INTERVALS ARE 0.50 METRES.
3. A VERTICAL BENCHMARK HAS BEEN SET ON THE TOP OF SIB WITH ELEVATION 354.42. LOCATED AT THE NORTH EAST CORNER OF PART 2, PLAN 21R–13699

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V–17504
THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR In accordance with Regulation 1026, Section 29(3)

SURVEYOR'S CERTIFICATE
I CERTIFY THAT:
1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THIS SURVEY WAS COMPLETED AUGUST 30, 2021.

OCTOBER 21, 2021
HALIBURTON, ONTARIO.

RODNEY GEYER
ONTARIO LAND SURVEYOR

BISHOP GEYER SURVEYING INC.
ONTARIO LAND SURVEYOR
BOX 309, HALIBURTON, ONTARIO, K0M1S0
PHONE (705) 457 – 2811

CHECKED BY:	DRAWN BY:	REV. DATE	W.O.	REV.
CSR	AW/AG	OCTOBER 21, 2021	2021–177	A

Figure 4: Existing Catchment Area Plan

DEVELOPMENT BOUNDARY

WOODCOX ROAD

EX2
0.19 | 1.71

EXT5
0.22 | 1.43

EX1
0.19 | 11.72

DEVELOPMENT BOUNDARY

DEVELOPMENT BOUNDARY

EX3
0.07 | 2.96

EXT6
0.21 | 1.03

EXT4
0.22 | 6.86

GLORY ROAD

DEVELOPMENT BOUNDARY

RIVERSIDE COURT

N

LEGEND

- FLOODPLAIN LIMIT
- WATERCOURSE
- WETLAND BOUNDARY
- PRE-DEVELOPMENT STORM DRAINAGE AREA
- EXTERNAL DRAINAGE AREA
- OVERLAND FLOW DIRECTION
- PR1 — CATCHMENT NAME
- RUNOFF COEFFICIENT — 0.79 | 0.231 — AREA (ha)

ENGAGE ENGINEERING
www.engageeng.ca ◆ 371 King Street, Suite 170, Peterborough, ON ◆ Phone: (705) 750-4077

YORK RIVER DEVELOPMENT

FIGURE 4 PRE-DEVELOPMENT DRAINAGE AREA PLAN

DRAWN:	APPROVED:	SCALE:	DATE:	PROJECT No.:
L. MATTERN	L.PARSONS	1:2500	2022-11-01	22069

Figure 5: Proposed Catchment Area Plan

DEVELOPMENT BOUNDARY

CONVEYANCE SWALE

DRY POND A

ROADSIDE SWALE

WOODCOX ROAD

PR1
0.26 | 3.50

PXT7
0.22 | 1.43

PR3
0.20 | 2.95

PR6
0.07 | 2.96

DEVELOPMENT BOUNDARY

DEVELOPMENT BOUNDARY

PR2
0.27 | 1.75

PXT8
0.21 | 1.03

DRY POND B

PXT9
0.22 | 6.86

PR4
0.20 | 3.00

PR5
0.22 | 2.23

RIVERSIDE COURT

DEVELOPMENT BOUNDARY

GLORY ROAD

N

LEGEND

- FLOODPLAIN LIMIT
- WATERCOURSE
- WETLAND BOUNDARY
- PRE-DEVELOPMENT STORM DRAINAGE AREA
- EXTERNAL DRAINAGE AREA
- OVERLAND FLOW DIRECTION
- PR1 — CATCHMENT NAME
- RUNOFF COEFFICIENT 0.79 | 0.231 — AREA (ha)

ENGAGE ENGINEERING
www.engageeng.ca | 171 King Street, Suite 17E, Peterborough, ON | Phone: (705) 750-0477

YORK RIVER DEVELOPMENT

FIGURE 5 PRE-DEVELOPMENT DRAINAGE AREA PLAN

DRAWN:	APPROVED:	SCALE:	DATE:	PROJECT No.:
L.MATTERN	L.PARSONS	1:2500	2022-11-01	22069

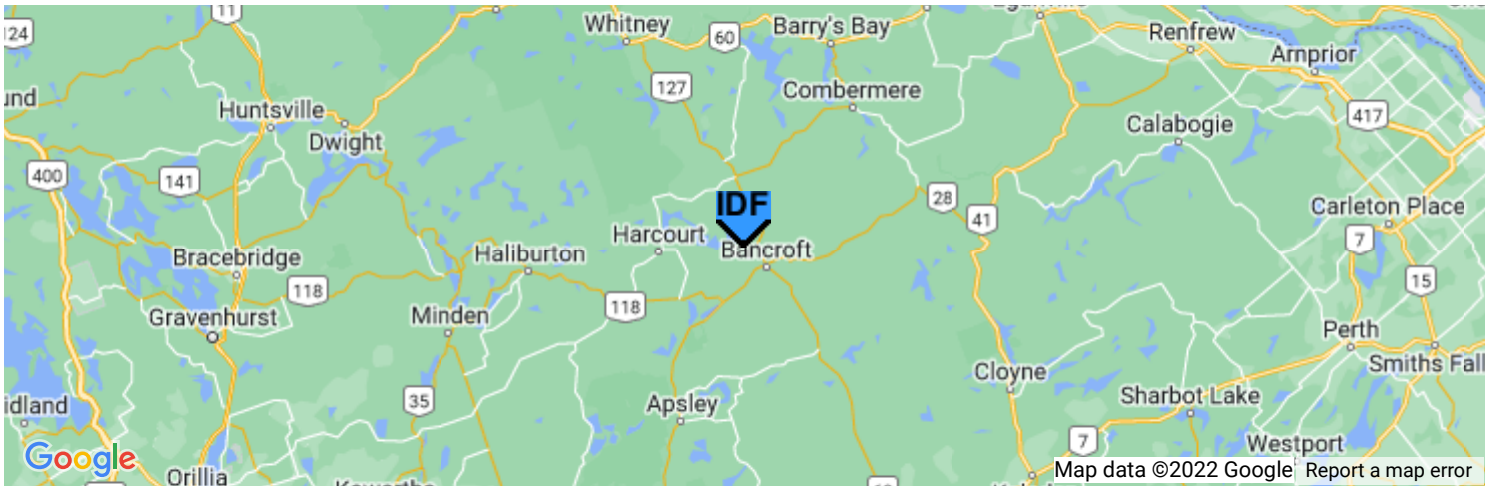
Appendix A: Hydrologic Parameters

Ontario IDF CURVE LOOKUP

Active coordinate

45° 5' 45" N, 77° 54' 45" W (45.095833,-77.912500)

Retrieved: Mon, 07 Nov 2022 15:17:28 GMT



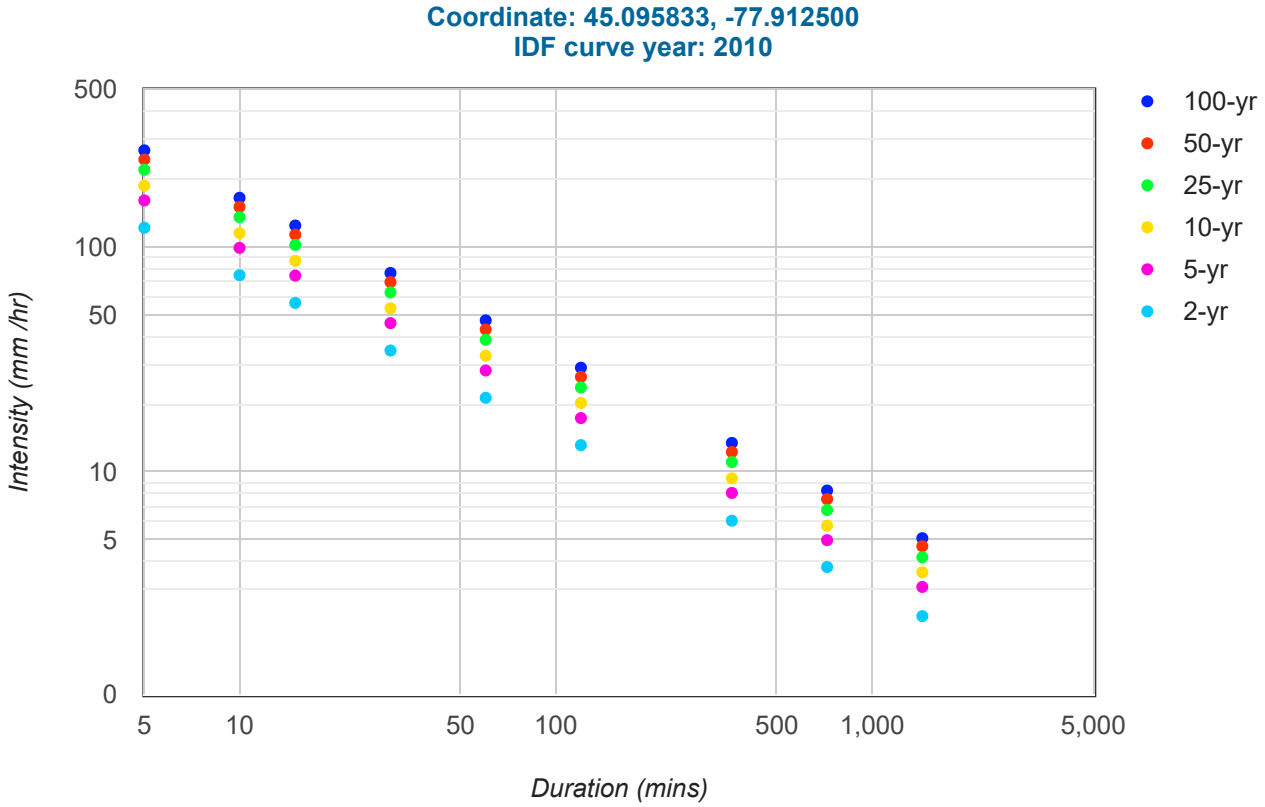
Location summary

These are the locations in the selection.

IDF Curve: 45° 5' 45" N, 77° 54' 45" W (45.095833,-77.912500)

Results

An IDF curve was found.



Coefficient summary

IDF Curve: 45° 5' 45" N, 77° 54' 45" W (45.095833,-77.912500)

Retrieved: Mon, 07 Nov 2022 15:17:28 GMT

Data year: 2010
IDF curve year: 2010

Return period	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
A	21.4	28.3	32.9	38.7	43.0	47.2
B	-0.699	-0.699	-0.699	-0.699	-0.699	-0.699

Statistics

Rainfall intensity (mm hr^{-1})

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	121.6	74.9	56.4	34.7	21.4	13.2	6.1	3.8	2.3
5-yr	160.7	99.0	74.6	45.9	28.3	17.4	8.1	5.0	3.1
10-yr	186.9	115.1	86.7	53.4	32.9	20.3	9.4	5.8	3.6
25-yr	219.8	135.4	102.0	62.8	38.7	23.8	11.1	6.8	4.2
50-yr	244.2	150.5	113.3	69.8	43.0	26.5	12.3	7.6	4.7
100-yr	268.1	165.1	124.4	76.6	47.2	29.1	13.5	8.3	5.1

Rainfall depth (mm)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	10.1	12.5	14.1	17.4	21.4	26.4	36.7	45.2	55.7
5-yr	13.4	16.5	18.6	23.0	28.3	34.9	48.5	59.8	73.7
10-yr	15.6	19.2	21.7	26.7	32.9	40.5	56.4	69.5	85.6
25-yr	18.3	22.6	25.5	31.4	38.7	47.7	66.4	81.8	100.7
50-yr	20.4	25.1	28.3	34.9	43.0	53.0	73.7	90.8	111.9
100-yr	22.3	27.5	31.1	38.3	47.2	58.2	80.9	99.7	122.9

Terms of Use

Rational Method Calculations

Project Name: York River 1
Project No: 22069
Rain Gauge: Bancroft

Designed By: LM
Date: 2022-11-24

Catchment Name and Description		Land Use and Areas (Ha)								Catchment Characteristics									
Name	Description	CN = 50 Wetland	CN = 50 Grass	CN = 81 Gravel	CN = 70 Crop & other improved land	CN = 66 Farmsteads	CN = 54 Woodlots and forests	CN = 98 Impervious	**Total**	CN Weighted	% Impervious	Soils Group	Length (m)	Average Slope (%)	Calculated Time of Concentration (min)	Minimum Time of Concentration (min)	Time to Peak (min)	Time to Peak (hr)	Composite Runnoff Coefficient
EX1	Woods South	0.000	0.000	0.242	0.000	0.000	11.473	0.000	**11.72**	54.56	0.00%	AB	250.0	12.0	20.7	10.0	13.8	0.23	0.19
EX2	Woods North	0.000	0.000	0.060	0.000	0.000	1.651	0.000	**1.71**	54.95	0.00%	AB	250.0	12.0	20.6	10.0	13.7	0.23	0.19
EX3	Wetland	1.310	0.000	0.000	0.000	0.000	1.650	0.000	**2.96**	52.23	0.00%	AB	115.0	4.0	22.9	10.0	15.2	0.25	0.07
EXT4	External Area to Seep	0.000	0.000	0.000	0.000	0.000	6.494	0.366	**6.86**	56.35	5.34%	AB	400.0	15.0	23.5	10.0	15.7	0.26	0.22
EXT5	North External	0.000	0.000	0.000	0.000	0.000	1.363	0.071	**1.43**	56.18	4.95%	AB	80.0	10.0	12.1	10.0	8.0	0.13	0.22
EXT6	South External	0.000	0.000	0.000	0.000	0.000	0.985	0.045	**1.03**	55.92	4.37%	AB	80.0	10.0	12.1	10.0	8.1	0.13	0.21
PR1	Northwest To SWM A	0.000	0.518	0.000	0.000	2.540	0.247	0.190	**3.50**	64.52	5.44%	AB	175.0	12.0	16.1	10.0	10.8	0.18	0.25
PR2	Mid West To SWM B	0.000	0.275	0.000	0.000	0.975	0.350	0.151	**1.75**	63.85	8.62%	AB	70.0	13.0	9.7	10.0	6.7	0.11	0.27
PR3	Northeast (Uncontrolled)	0.000	0.444	0.000	0.000	1.501	1.000	0.000	**2.95**	59.51	0.00%	AB	70.0	13.0	10.5	10.0	7.0	0.12	0.20
PR4	Seep	0.000	0.154	0.000	0.000	0.550	2.255	0.040	**3.00**	56.58	1.33%	AB	250.0	10.0	21.7	10.0	14.5	0.24	0.20
PR5	South	0.000	0.334	0.000	0.000	1.194	0.700	0.000	**2.23**	59.83	0.00%	AB	200.0	10.0	19.3	10.0	12.9	0.21	0.20
PR6	Wetland	1.310	0.000	0.000	0.000	0.000	1.650	0.000	**2.96**	52.23	0.00%	AB	115.0	4.0	22.9	10.0	15.2	0.25	0.07
PXT7	N External Area	0.000	0.000	0.000	0.000	0.000	1.363	0.071	**1.43**	56.18	4.95%	AB	80.0	10.0	12.1	10.0	8.0	0.13	0.22
PXT8	S External Area	0.000	0.000	0.000	0.000	0.000	0.985	0.045	**1.03**	55.92	4.37%	AB	80.0	10.0	12.1	10.0	8.1	0.13	0.21
PXT9	Seep External	0.000	0.000	0.000	0.000	0.000	6.494	0.366	**6.86**	56.35	5.34%	AB	400.0	15.0	23.5	10.0	15.7	0.26	0.22

Notes:

Runoff Coefficients

1. Runoff coefficients for Land Uses taken from MTO Drainage Manual Design Chart 1.07.

2. Runoff coefficients have been adjusted for storms exceeding the 10-year return period as follows: 25 Year - 1.10; 50-Year: 1.20; 100-Year: 1.25

Time of Concentration

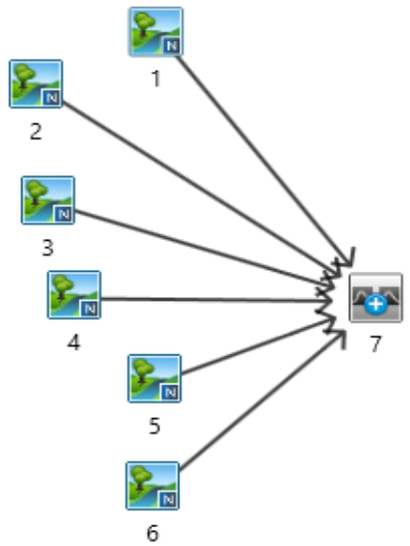
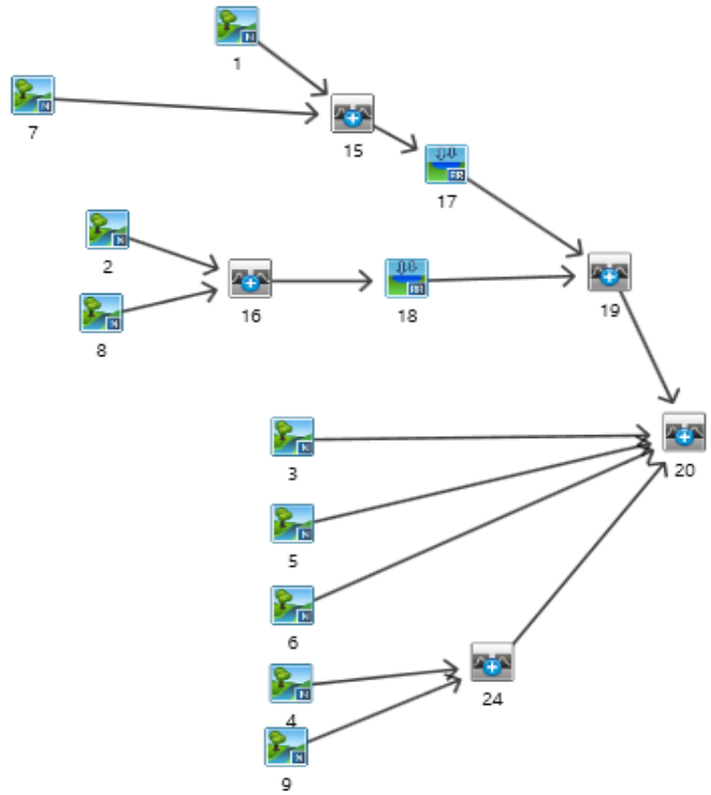
1.Tc calculcated using Airport equ

2. Tp calculated as 0.67Tc.

Visual OTTHYMO Model

Project Name: York River
Project No: 22069

Designed By: LM
Date: 2022-11-11

PRE-DEVELOPMENT MODEL	POST-DEVELOPMENT MODEL
	

Visual OTTHYMO Input Parameters
NASHYD Command

Project Name: York River
Project No: 22069
Designed By: LM
Date: 2022-11-11

Parameter	Description	EX1	EX2	EX3	EXT4	EXT5	EXT6
Area	Watershed Area (m)	11.72	1.71	2.96	6.86	1.43	1.03
DT	Time Step Increment (min)	5					
DWF	Dry Weather Flow (Base Flow)	0					
CN[1,2]	Modified SCS Number	51	51	47	52	52	52
IA[3]	Initial Abstraction	5					
TP [4,5]	Unit Hydrograph Time to Peak	0.23	0.23	0.25	0.26	0.13	0.13
N	Number of Linear Reservior	3					
Rain	Optional Rainfall Intensity (mm/hr)	0 - None					

Notes:

1. CN values based on Design Chart 1.09 in MTO Drainage Manual based on Soil Type BC.
2. CN derived using the Modify CN function in VO5. The modification was completed in accordance with the procedure decribed in the VO5 reference Manual.
3. Initial abstraction values derived from UNESCO Manual on Drainage in Urban Areas, 1987.
4. Time of Concentration calculated using Airport Equation for C<0.4 and Bransby Williams for C>0.4.
5. Time to Peak estimated at 0.67Tc.

Visual OTTHYMO Input Parameters
NASHYD Command

Project Name: York River
Project No: 22069

Designed By: LM
Date: 2022-11-11

Parameter	Description	PR1	PR2	PR3	PR4	PR5	PR6	PXT7	PXT8	PXT9
Area	Watershed Area (m)	3.50	1.75	2.95	3.00	2.23	2.96	1.43	1.03	6.86
DT	Time Step Increment (min)	5								
DWF	Dry Weather Flow (Base Flow)	0								
CN[1,2]	Modified SCS Number	61	62	56	54	58	47	52	52	52
IA[3]	Initial Abstraction	5								
TP [4,5]	Unit Hydrograph Time to Peak	0.18	0.11	0.12	0.24	0.23	0.25	0.13	0.13	0.26
N	Number of Linear Reservior	3								
Rain	Optional Rainfall Intensity (mm/hr)	0 - None								

Notes:

1. CN values based on Design Chart 1.09 in MTO Drainage Manual based on Soil Type BC.
2. CN derived using the Modify CN function in VO5. The modification was completed in accordance with the procedure decribed in the VO5 reference Manual.
3. Initial abstraction values derived from UNESCO Manual on Drainage in Urban Areas, 1987.
4. Time of Concentration calculated using Airport Equation for C<0.4 and Bransby Williams for C>0.4.
5. Time to Peak estimated at 0.67Tc.

Appendix B: Stage Storage

Stormwater Management Facility Outlet Sizing Pond A

Project Name: York River 1 **Designed By:** LM
Project Number: 22069 **Date:** 2022-11-24

Number of Stages (Max 5): 5

Outlet Configuration					
		Stage Number:	**Stage 1**	**Stage 2**	**Total**
		Control Type:	Orifice Tube	Trapezoidal Weir	
		Orifice Diameter / Weir Width (m):	0.150	0.600	
		Invert Elevations (m):	334.50	335.10	
		Top of Catch Basin (m):	0.00	0.00	
Discharge Table:	**Elevation**	**Storage**	**Controlled Discharge Rate**		
Bottom of Pond	**334.50**	**0**	**0.000**	**0.000**	**0.000**
	334.55	10	0.002	0.000	0.002
	334.60	21	0.010	0.000	0.010
	334.65	33	0.017	0.000	0.017
	334.70	46	0.022	0.000	0.022
2 Year	**334.75**	**60**	**0.026**	**0.000**	**0.026**
	334.80	74	0.030	0.000	0.030
	334.85	90	0.033	0.000	0.033
	334.90	106	0.036	0.000	**0.036**
5 year	**334.95**	**123**	**0.038**	**0.000**	0.038
	335.00	141	0.041	0.000	0.041
	335.05	160	0.043	0.000	0.043
10 Year	**335.08**	**170**	**0.044**	**0.000**	0.044
	335.10	180	0.045	0.000	0.045
	335.15	201	0.047	0.012	**0.059**
25 Year	**335.20**	**223**	**0.049**	**0.034**	0.083
50 Year	**335.23**	**235**	**0.050**	**0.047**	**0.098**
	335.25	246	0.051	0.063	**0.114**
100 Year	**335.30**	**270**	**0.053**	**0.098**	0.152
	335.35	295	0.055	0.140	0.195
	335.40	321	0.057	0.187	0.244
	335.45	348	0.059	0.239	**0.298**
Top of Pond	**335.50**	**376**	**0.060**	**0.297**	0.357

Stormwater Management Facility Outlet Sizing Pond B

Project Name: York River 1 **Designed By:** LM
Project Number: 22069 **Date:** 2022-11-24

Number of Stages (Max 5): 5

Outlet Configuration					
		Stage Number:	**Stage 1**	**Stage 2**	**Total**
		Control Type:	Orifice Tube	Trapezoidal Weir	
		Orifice Diameter / Weir Width (m):	0.100	0.600	
		Invert Elevations (m):	340.20	340.65	
		Top of Catch Basin (m):	0.00	0.00	
Discharge Table:	**Elevation**	**Storage**	**Controlled Discharge Rate**		
Bottom of Pond	**340.20**	**0**	**0.000**	**0.000**	**0.000**
	340.25	8	0.002	0.000	0.002
	340.30	16	0.006	0.000	0.006
	340.35	24	0.009	0.000	0.009
	340.40	33	0.011	0.000	**0.011**
2 Year	**340.45**	**43**	**0.012**	**0.000**	0.012
	340.50	54	0.014	0.000	0.014
	340.55	66	0.015	0.000	0.015
	340.60	80	0.016	0.000	**0.016**
5 Year	**340.65**	**95**	**0.018**	**0.000**	**0.018**
10 Year	**340.70**	**112**	**0.019**	**0.012**	**0.030**
25 Year	**340.75**	**130**	**0.020**	**0.034**	**0.053**
50 Year	**340.80**	**151**	**0.021**	**0.063**	0.083
100 Year	**340.83**	**162**	**0.021**	**0.080**	0.101
	340.85	173	0.022	0.098	0.120
	340.90	197	0.022	0.140	0.162
	340.95	224	0.023	0.187	**0.210**
Top of Storage	**341.00**	**252**	**0.024**	**0.239**	0.263
			0.000	0.000	0.000

Appendix C: VO Model Results

```
****************************************
** SIMULATION:01 2yr 6hr Bancroft SCS **
****************************************

--------------------
|    READ STORM    |    Filename: C:\Users\lmattern\AppD
|                  |              ata\Local\Temp\
|                  |              65ed09be-7371-4b49-b0fa-f3b3f9511ea9\4636da1a
| Ptotal= 32.05 mm |    Comments: 2yr 6hr 15min SCS Type II
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	1.75	3.20	3.50	7.05	5.25	1.28
0.25	1.28	2.00	3.20	3.75	3.20	5.50	1.28
0.50	1.28	2.25	3.85	4.00	3.20	5.75	1.28
0.75	1.92	2.50	3.85	4.25	2.56	6.00	1.28
1.00	1.92	2.75	19.23	4.50	2.56		
1.25	1.92	3.00	50.00	4.75	1.92		
1.50	1.92	3.25	7.05	5.00	1.92		

```
--------------------
| CALIB            |
| NASHYD   (  0001)|   Area    (ha)=  11.72   Curve Number   (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.23

        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	1.667	1.92	3.250	50.00	4.83	1.92
0.167	0.00	1.750	1.92	3.333	7.05	4.92	1.92
0.250	0.00	1.833	3.20	3.417	7.05	5.00	1.92
0.333	1.28	1.917	3.20	3.500	7.05	5.08	1.92
0.417	1.28	2.000	3.21	3.583	7.05	5.17	1.92
0.500	1.28	2.083	3.20	3.667	7.05	5.25	1.92
0.583	1.28	2.167	3.20	3.750	7.05	5.33	1.28
0.667	1.28	2.250	3.20	3.833	3.21	5.42	1.28
0.750	1.28	2.333	3.85	3.917	3.20	5.50	1.28
0.833	1.92	2.417	3.85	4.000	3.20	5.58	1.28
0.917	1.92	2.500	3.85	4.083	3.20	5.67	1.28
1.000	1.92	2.583	3.85	4.167	3.20	5.75	1.28
1.083	1.92	2.667	3.85	4.250	3.20	5.83	1.28
1.167	1.92	2.750	3.85	4.333	2.56	5.92	1.28
1.250	1.92	2.833	19.23	4.417	2.56	6.00	1.28
1.333	1.92	2.917	19.23	4.500	2.56	6.08	1.28
1.417	1.92	3.000	19.23	4.583	2.56	6.17	1.28
1.500	1.92	3.083	50.00	4.667	2.56	6.25	1.28
1.583	1.92	3.167	50.00	4.750	2.56		

```
    Unit Hyd Qpeak  (cms)=   1.946

    PEAK FLOW       (cms)=   0.090 (i)
    TIME TO PEAK    (hrs)=   3.333
    RUNOFF VOLUME    (mm)=   2.696
    TOTAL RAINFALL   (mm)=  32.050
    RUNOFF COEFFICIENT   =   0.084

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0003)|   Area    (ha)=   2.96   Curve Number   (CN)= 47.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.25

        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	1.667	1.92	3.250	50.00	4.83	1.92
0.167	0.00	1.750	1.92	3.333	7.05	4.92	1.92
0.250	0.00	1.833	3.20	3.417	7.05	5.00	1.92
0.333	1.28	1.917	3.20	3.500	7.05	5.08	1.92
0.417	1.28	2.000	3.21	3.583	7.05	5.17	1.92
0.500	1.28	2.083	3.20	3.667	7.05	5.25	1.92
0.583	1.28	2.167	3.20	3.750	7.05	5.33	1.28
0.667	1.28	2.250	3.20	3.833	3.21	5.42	1.28
0.750	1.28	2.333	3.85	3.917	3.20	5.50	1.28
0.833	1.92	2.417	3.85	4.000	3.20	5.58	1.28
0.917	1.92	2.500	3.85	4.083	3.20	5.67	1.28
1.000	1.92	2.583	3.85	4.167	3.20	5.75	1.28
1.083	1.92	2.667	3.85	4.250	3.20	5.83	1.28
1.167	1.92	2.750	3.85	4.333	2.56	5.92	1.28
1.250	1.92	2.833	19.23	4.417	2.56	6.00	1.28
1.333	1.92	2.917	19.23	4.500	2.56	6.08	1.28
1.417	1.92	3.000	19.23	4.583	2.56	6.17	1.28
1.500	1.92	3.083	50.00	4.667	2.56	6.25	1.28
1.583	1.92	3.167	50.00	4.750	2.56		

```
    Unit Hyd Qpeak  (cms)=   0.452

    PEAK FLOW       (cms)=   0.019 (i)
    TIME TO PEAK    (hrs)=   3.417
    RUNOFF VOLUME    (mm)=   2.332
    TOTAL RAINFALL   (mm)=  32.050
    RUNOFF COEFFICIENT   =   0.073

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0004)|   Area    (ha)=   6.86   Curve Number   (CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.26

        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	1.667	1.92	3.250	50.00	4.83	1.92
0.167	0.00	1.750	1.92	3.333	7.05	4.92	1.92
0.250	0.00	1.833	3.20	3.417	7.05	5.00	1.92
0.333	1.28	1.917	3.20	3.500	7.05	5.08	1.92
0.417	1.28	2.000	3.21	3.583	7.05	5.17	1.92
0.500	1.28	2.083	3.20	3.667	7.05	5.25	1.92
0.583	1.28	2.167	3.20	3.750	7.05	5.33	1.28
0.667	1.28	2.250	3.20	3.833	3.21	5.42	1.28
0.750	1.28	2.333	3.85	3.917	3.20	5.50	1.28
0.833	1.92	2.417	3.85	4.000	3.20	5.58	1.28

0.917	1.92	2.500	3.85	4.083	3.20	5.67	1.28
1.000	1.92	2.583	3.85	4.167	3.20	5.75	1.28
1.083	1.92	2.667	3.85	4.250	3.20	5.83	1.28
1.167	1.92	2.750	3.85	4.333	2.56	5.92	1.28
1.250	1.92	2.833	19.23	4.417	2.56	6.00	1.28
1.333	1.92	2.917	19.23	4.500	2.56	6.08	1.28
1.417	1.92	3.000	19.23	4.583	2.56	6.17	1.28
1.500	1.92	3.083	50.00	4.667	2.56	6.25	1.28
1.583	1.92	3.167	50.00	4.750	2.56		

Unit Hyd Qpeak (cms)= 1.008

PEAK FLOW (cms)= 0.051 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 2.796
TOTAL RAINFALL (mm)= 32.050
RUNOFF COEFFICIENT = 0.087

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

CALIB					
NASHYD (0005)	Area (ha)=	1.43	Curve Number (CN)=	52.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.13			

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	1.667	1.92	3.250	50.00	4.83	1.92
0.167	0.00	1.750	1.92	3.333	7.05	4.92	1.92
0.250	0.00	1.833	3.20	3.417	7.05	5.00	1.92
0.333	1.28	1.917	3.20	3.500	7.05	5.08	1.92
0.417	1.28	2.000	3.21	3.583	7.05	5.17	1.92
0.500	1.28	2.083	3.20	3.667	7.05	5.25	1.92
0.583	1.28	2.167	3.20	3.750	7.05	5.33	1.28
0.667	1.28	2.250	3.20	3.833	3.21	5.42	1.28
0.750	1.28	2.333	3.85	3.917	3.20	5.50	1.28
0.833	1.92	2.417	3.85	4.000	3.20	5.58	1.28
0.917	1.92	2.500	3.85	4.083	3.20	5.67	1.28
1.000	1.92	2.583	3.85	4.167	3.20	5.75	1.28
1.083	1.92	2.667	3.85	4.250	3.20	5.83	1.28
1.167	1.92	2.750	3.85	4.333	2.56	5.92	1.28
1.250	1.92	2.833	19.23	4.417	2.56	6.00	1.28
1.333	1.92	2.917	19.23	4.500	2.56	6.08	1.28
1.417	1.92	3.000	19.23	4.583	2.56	6.17	1.28
1.500	1.92	3.083	50.00	4.667	2.56	6.25	1.28
1.583	1.92	3.167	50.00	4.750	2.56		

Unit Hyd Qpeak (cms)= 0.420

PEAK FLOW (cms)= 0.017 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 2.770
TOTAL RAINFALL (mm)= 32.050
RUNOFF COEFFICIENT = 0.086

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

CALIB					
NASHYD (0006)	Area (ha)=	1.03	Curve Number (CN)=	52.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.13			

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	1.667	1.92	3.250	50.00	4.83	1.92
0.167	0.00	1.750	1.92	3.333	7.05	4.92	1.92
0.250	0.00	1.833	3.20	3.417	7.05	5.00	1.92
0.333	1.28	1.917	3.20	3.500	7.05	5.08	1.92
0.417	1.28	2.000	3.21	3.583	7.05	5.17	1.92
0.500	1.28	2.083	3.20	3.667	7.05	5.25	1.92
0.583	1.28	2.167	3.20	3.750	7.05	5.33	1.28
0.667	1.28	2.250	3.20	3.833	3.21	5.42	1.28
0.750	1.28	2.333	3.85	3.917	3.20	5.50	1.28
0.833	1.92	2.417	3.85	4.000	3.20	5.58	1.28
0.917	1.92	2.500	3.85	4.083	3.20	5.67	1.28
1.000	1.92	2.583	3.85	4.167	3.20	5.75	1.28
1.083	1.92	2.667	3.85	4.250	3.20	5.83	1.28
1.167	1.92	2.750	3.85	4.333	2.56	5.92	1.28
1.250	1.92	2.833	19.23	4.417	2.56	6.00	1.28
1.333	1.92	2.917	19.23	4.500	2.56	6.08	1.28
1.417	1.92	3.000	19.23	4.583	2.56	6.17	1.28
1.500	1.92	3.083	50.00	4.667	2.56	6.25	1.28
1.583	1.92	3.167	50.00	4.750	2.56		

Unit Hyd Qpeak (cms)= 0.303

PEAK FLOW (cms)= 0.012 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 2.770
TOTAL RAINFALL (mm)= 32.050
RUNOFF COEFFICIENT = 0.086

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

CALIB					
NASHYD (0002)	Area (ha)=	1.71	Curve Number (CN)=	51.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.23			

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	1.667	1.92	3.250	50.00	4.83	1.92
0.167	0.00	1.750	1.92	3.333	7.05	4.92	1.92
0.250	0.00	1.833	3.20	3.417	7.05	5.00	1.92
0.333	1.28	1.917	3.20	3.500	7.05	5.08	1.92
0.417	1.28	2.000	3.21	3.583	7.05	5.17	1.92
0.500	1.28	2.083	3.20	3.667	7.05	5.25	1.92
0.583	1.28	2.167	3.20	3.750	7.05	5.33	1.28
0.667	1.28	2.250	3.20	3.833	3.21	5.42	1.28
0.750	1.28	2.333	3.85	3.917	3.20	5.50	1.28
0.833	1.92	2.417	3.85	4.000	3.20	5.58	1.28
0.917	1.92	2.500	3.85	4.083	3.20	5.67	1.28

1.000	1.92	2.583	3.85	4.167	3.20	5.75	1.28
1.083	1.92	2.667	3.85	4.250	3.20	5.83	1.28
1.167	1.92	2.750	3.85	4.333	2.56	5.92	1.28
1.250	1.92	2.833	19.23	4.417	2.56	6.00	1.28
1.333	1.92	2.917	19.23	4.500	2.56	6.08	1.28
1.417	1.92	3.000	19.23	4.583	2.56	6.17	1.28
1.500	1.92	3.083	50.00	4.667	2.56	6.25	1.28
1.583	1.92	3.167	50.00	4.750	2.56		

Unit Hyd Qpeak (cms)= 0.284

PEAK FLOW (cms)= 0.013 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 2.696
TOTAL RAINFALL (mm)= 32.050
RUNOFF COEFFICIENT = 0.084

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

ADD HYD (0007) | 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	11.72	0.090	3.33	2.70
+ ID2= 2 (0002):	1.71	0.013	3.33	2.70
ID = 3 (0007):	13.43	0.103	3.33	2.70

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0007) | 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0007):	13.43	0.103	3.33	2.70
+ ID2= 2 (0003):	2.96	0.019	3.42	2.33
ID = 1 (0007):	16.39	0.121	3.33	2.63

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0007) | 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0007):	16.39	0.121	3.33	2.63
+ ID2= 2 (0004):	6.86	0.051	3.42	2.80
ID = 3 (0007):	23.25	0.171	3.42	2.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0007) | 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0007):	23.25	0.171	3.42	2.68
+ ID2= 2 (0005):	1.43	0.017	3.25	2.77
ID = 1 (0007):	24.68	0.184	3.33	2.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0007) | 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0007):	24.68	0.184	3.33	2.68
+ ID2= 2 (0006):	1.03	0.012	3.25	2.77
ID = 3 (0007):	25.71	0.194	3.33	2.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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****************************************
** SIMULATION:02 5Yr 6hr Bancroft SCS **
****************************************
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READ STORM | Ptotal= 41.70 mm	Filename: C:\Users\lmattern\AppData\Local\Temp\65ed09be-7371-4b49-b0fa-f3b3f9511ea9\986e9d77 Comments: 5yr 6hr 15min SCS Type II

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	1.75	4.17	3.50	9.17	5.25	1.67
0.25	1.67	2.00	4.17	3.75	4.17	5.50	1.67
0.50	1.67	2.25	5.00	4.00	4.17	5.75	1.67
0.75	2.50	2.50	5.00	4.25	3.34	6.00	1.67
1.00	2.50	2.75	25.02	4.50	3.34		
1.25	2.50	3.00	65.05	4.75	2.50		
1.50	2.50	3.25	9.17	5.00	2.50		

CALIB | NASHYD (0001) | ID= 1 DT= 5.0 min	Area (ha)= 11.72 Curve Number (CN)= 51.0 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.23

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	1.667	2.50	3.250	65.05	4.83	2.50
0.167	0.00	1.750	2.50	3.333	9.17	4.92	2.50
0.250	0.00	1.833	4.17	3.417	9.17	5.00	2.50
0.333	1.67	1.917	4.17	3.500	9.17	5.08	2.50
0.417	1.67	2.000	4.17	3.583	9.17	5.17	2.50
0.500	1.67	2.083	4.17	3.667	9.17	5.25	2.50
0.583	1.67	2.167	4.17	3.750	9.17	5.33	1.67
0.667	1.67	2.250	4.17	3.833	4.17	5.42	1.67
0.750	1.67	2.333	5.00	3.917	4.17	5.50	1.67
0.833	2.50	2.417	5.00	4.000	4.17	5.58	1.67
0.917	2.50	2.500	5.00	4.083	4.17	5.67	1.67
1.000	2.50	2.583	5.00	4.167	4.17	5.75	1.67
1.083	2.50	2.667	5.00	4.250	4.17	5.83	1.67
1.167	2.50	2.750	5.00	4.333	3.34	5.92	1.67
1.250	2.50	2.833	25.02	4.417	3.34	6.00	1.67
1.333	2.50	2.917	25.02	4.500	3.34	6.08	1.67

1.417	2.50	3.000	25.02	4.583	3.34	6.17	1.67
1.500	2.50	3.083	65.05	4.667	3.34	6.25	1.67
1.583	2.50	3.167	65.05	4.750	3.34		

Unit Hyd Qpeak (cms)= 1.946

PEAK FLOW (cms)= 0.163 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 4.792
TOTAL RAINFALL (mm)= 41.700
RUNOFF COEFFICIENT = 0.115

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

CALIB					
NASHYD (0003)	Area (ha)=	2.96	Curve Number (CN)=	47.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.25			

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	1.667	2.50	3.250	65.05	4.83	2.50
0.167	0.00	1.750	2.50	3.333	9.17	4.92	2.50
0.250	0.00	1.833	4.17	3.417	9.17	5.00	2.50
0.333	1.67	1.917	4.17	3.500	9.17	5.08	2.50
0.417	1.67	2.000	4.17	3.583	9.17	5.17	2.50
0.500	1.67	2.083	4.17	3.667	9.17	5.25	2.50
0.583	1.67	2.167	4.17	3.750	9.17	5.33	1.67
0.667	1.67	2.250	4.17	3.833	4.17	5.42	1.67
0.750	1.67	2.333	5.00	3.917	4.17	5.50	1.67
0.833	2.50	2.417	5.00	4.000	4.17	5.58	1.67
0.917	2.50	2.500	5.00	4.083	4.17	5.67	1.67
1.000	2.50	2.583	5.00	4.167	4.17	5.75	1.67
1.083	2.50	2.667	5.00	4.250	4.17	5.83	1.67
1.167	2.50	2.750	5.00	4.333	3.34	5.92	1.67
1.250	2.50	2.833	25.02	4.417	3.34	6.00	1.67
1.333	2.50	2.917	25.02	4.500	3.34	6.08	1.67
1.417	2.50	3.000	25.02	4.583	3.34	6.17	1.67
1.500	2.50	3.083	65.05	4.667	3.34	6.25	1.67
1.583	2.50	3.167	65.05	4.750	3.34		

Unit Hyd Qpeak (cms)= 0.452

PEAK FLOW (cms)= 0.034 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 4.165
TOTAL RAINFALL (mm)= 41.700
RUNOFF COEFFICIENT = 0.100

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

CALIB					
NASHYD (0004)	Area (ha)=	6.86	Curve Number (CN)=	52.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.26			

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	1.667	2.50	3.250	65.05	4.83	2.50
0.167	0.00	1.750	2.50	3.333	9.17	4.92	2.50
0.250	0.00	1.833	4.17	3.417	9.17	5.00	2.50
0.333	1.67	1.917	4.17	3.500	9.17	5.08	2.50
0.417	1.67	2.000	4.17	3.583	9.17	5.17	2.50
0.500	1.67	2.083	4.17	3.667	9.17	5.25	2.50
0.583	1.67	2.167	4.17	3.750	9.17	5.33	1.67
0.667	1.67	2.250	4.17	3.833	4.17	5.42	1.67
0.750	1.67	2.333	5.00	3.917	4.17	5.50	1.67
0.833	2.50	2.417	5.00	4.000	4.17	5.58	1.67
0.917	2.50	2.500	5.00	4.083	4.17	5.67	1.67
1.000	2.50	2.583	5.00	4.167	4.17	5.75	1.67
1.083	2.50	2.667	5.00	4.250	4.17	5.83	1.67
1.167	2.50	2.750	5.00	4.333	3.34	5.92	1.67
1.250	2.50	2.833	25.02	4.417	3.34	6.00	1.67
1.333	2.50	2.917	25.02	4.500	3.34	6.08	1.67
1.417	2.50	3.000	25.02	4.583	3.34	6.17	1.67
1.500	2.50	3.083	65.05	4.667	3.34	6.25	1.67
1.583	2.50	3.167	65.05	4.750	3.34		

Unit Hyd Qpeak (cms)= 1.008

PEAK FLOW (cms)= 0.092 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 4.964
TOTAL RAINFALL (mm)= 41.700
RUNOFF COEFFICIENT = 0.119

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

CALIB					
NASHYD (0005)	Area (ha)=	1.43	Curve Number (CN)=	52.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.13			

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	1.667	2.50	3.250	65.05	4.83	2.50
0.167	0.00	1.750	2.50	3.333	9.17	4.92	2.50
0.250	0.00	1.833	4.17	3.417	9.17	5.00	2.50
0.333	1.67	1.917	4.17	3.500	9.17	5.08	2.50
0.417	1.67	2.000	4.17	3.583	9.17	5.17	2.50
0.500	1.67	2.083	4.17	3.667	9.17	5.25	2.50
0.583	1.67	2.167	4.17	3.750	9.17	5.33	1.67
0.667	1.67	2.250	4.17	3.833	4.17	5.42	1.67
0.750	1.67	2.333	5.00	3.917	4.17	5.50	1.67
0.833	2.50	2.417	5.00	4.000	4.17	5.58	1.67
0.917	2.50	2.500	5.00	4.083	4.17	5.67	1.67
1.000	2.50	2.583	5.00	4.167	4.17	5.75	1.67
1.083	2.50	2.667	5.00	4.250	4.17	5.83	1.67
1.167	2.50	2.750	5.00	4.333	3.34	5.92	1.67
1.250	2.50	2.833	25.02	4.417	3.34	6.00	1.67
1.333	2.50	2.917	25.02	4.500	3.34	6.08	1.67
1.417	2.50	3.000	25.02	4.583	3.34	6.17	1.67

1.500	2.50	3.083	65.05	4.667	3.34	6.25	1.67
1.583	2.50	3.167	65.05	4.750	3.34		

Unit Hyd Qpeak (cms)= 0.420

PEAK FLOW (cms)= 0.030 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 4.918
TOTAL RAINFALL (mm)= 41.700
RUNOFF COEFFICIENT = 0.118

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

CALIB					
NASHYD (0006)	Area (ha)=	1.03	Curve Number (CN)=	52.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.13			

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	1.667	2.50	3.250	65.05	4.83	2.50
0.167	0.00	1.750	2.50	3.333	9.17	4.92	2.50
0.250	0.00	1.833	4.17	3.417	9.17	5.00	2.50
0.333	1.67	1.917	4.17	3.500	9.17	5.08	2.50
0.417	1.67	2.000	4.17	3.583	9.17	5.17	2.50
0.500	1.67	2.083	4.17	3.667	9.17	5.25	2.50
0.583	1.67	2.167	4.17	3.750	9.17	5.33	1.67
0.667	1.67	2.250	4.17	3.833	4.17	5.42	1.67
0.750	1.67	2.333	5.00	3.917	4.17	5.50	1.67
0.833	2.50	2.417	5.00	4.000	4.17	5.58	1.67
0.917	2.50	2.500	5.00	4.083	4.17	5.67	1.67
1.000	2.50	2.583	5.00	4.167	4.17	5.75	1.67
1.083	2.50	2.667	5.00	4.250	4.17	5.83	1.67
1.167	2.50	2.750	5.00	4.333	3.34	5.92	1.67
1.250	2.50	2.833	25.02	4.417	3.34	6.00	1.67
1.333	2.50	2.917	25.02	4.500	3.34	6.08	1.67
1.417	2.50	3.000	25.02	4.583	3.34	6.17	1.67
1.500	2.50	3.083	65.05	4.667	3.34	6.25	1.67
1.583	2.50	3.167	65.05	4.750	3.34		

Unit Hyd Qpeak (cms)= 0.303

PEAK FLOW (cms)= 0.021 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 4.918
TOTAL RAINFALL (mm)= 41.700
RUNOFF COEFFICIENT = 0.118

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

CALIB					
NASHYD (0002)	Area (ha)=	1.71	Curve Number (CN)=	51.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.23			

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	1.667	2.50	3.250	65.05	4.83	2.50
0.167	0.00	1.750	2.50	3.333	9.17	4.92	2.50
0.250	0.00	1.833	4.17	3.417	9.17	5.00	2.50
0.333	1.67	1.917	4.17	3.500	9.17	5.08	2.50
0.417	1.67	2.000	4.17	3.583	9.17	5.17	2.50
0.500	1.67	2.083	4.17	3.667	9.17	5.25	2.50
0.583	1.67	2.167	4.17	3.750	9.17	5.33	1.67
0.667	1.67	2.250	4.17	3.833	4.17	5.42	1.67
0.750	1.67	2.333	5.00	3.917	4.17	5.50	1.67
0.833	2.50	2.417	5.00	4.000	4.17	5.58	1.67
0.917	2.50	2.500	5.00	4.083	4.17	5.67	1.67
1.000	2.50	2.583	5.00	4.167	4.17	5.75	1.67
1.083	2.50	2.667	5.00	4.250	4.17	5.83	1.67
1.167	2.50	2.750	5.00	4.333	3.34	5.92	1.67
1.250	2.50	2.833	25.02	4.417	3.34	6.00	1.67
1.333	2.50	2.917	25.02	4.500	3.34	6.08	1.67
1.417	2.50	3.000	25.02	4.583	3.34	6.17	1.67
1.500	2.50	3.083	65.05	4.667	3.34	6.25	1.67
1.583	2.50	3.167	65.05	4.750	3.34		

Unit Hyd Qpeak (cms)= 0.284

PEAK FLOW (cms)= 0.024 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 4.792
TOTAL RAINFALL (mm)= 41.700
RUNOFF COEFFICIENT = 0.115

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

ADD HYD (0007)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0001):	11.72	0.163	3.33	4.79
	+ ID2= 2 (0002):	1.71	0.024	3.33	4.79
	ID = 3 (0007):	13.43	0.187	3.33	4.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0007)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0007):	13.43	0.187	3.33	4.79
	+ ID2= 2 (0003):	2.96	0.034	3.42	4.16
	ID = 1 (0007):	16.39	0.220	3.33	4.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0007)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0007):	16.39	0.220	3.33	4.68

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      + ID2= 2 (  0004):     6.86   0.092     3.42     4.96
        ================================================
        ID = 3 (  0007):    23.25   0.309     3.33     4.76

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0007)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0007):    23.25   0.309     3.33     4.76
      + ID2= 2 (  0005):     1.43   0.030     3.25     4.92
        ================================================
        ID = 1 (  0007):    24.68   0.335     3.33     4.77

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0007):    24.68   0.335     3.33     4.77
      + ID2= 2 (  0006):     1.03   0.021     3.25     4.92
        ================================================
        ID = 3 (  0007):    25.71   0.353     3.33     4.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
**********************************************
** SIMULATION:03 10yr 6hr 15min SCS Type II **
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|    READ STORM    |    Filename: C:\Users\lmattern\AppD
|                  |              ata\Local\Temp\
|                  |              65ed09be-7371-4b49-b0fa-f3b3f9511ea9\d233ebf2
| Ptotal= 47.44 mm |    Comments: 10yr 6hr 15min SCS Type II
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.00    0.00 |  1.75    4.74 |  3.50   10.44 |  5.25    1.90
               0.25    1.90 |  2.00    4.74 |  3.75    4.74 |  5.50    1.90
               0.50    1.90 |  2.25    5.69 |  4.00    4.74 |  5.75    1.90
               0.75    2.85 |  2.50    5.69 |  4.25    3.80 |  6.00    1.90
               1.00    2.85 |  2.75   28.46 |  4.50    3.80 |
               1.25    2.85 |  3.00   74.01 |  4.75    2.85 |
               1.50    2.85 |  3.25   10.44 |  5.00    2.85 |

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| CALIB            |
| NASHYD   (  0001)|   Area    (ha)=  11.72   Curve Number   (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.23

         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 | 1.667    2.85 | 3.250   74.01 |  4.83    2.85
               0.167    0.00 | 1.750    2.85 | 3.333   10.44 |  4.92    2.85
               0.250    0.00 | 1.833    4.74 | 3.417   10.44 |  5.00    2.85
               0.333    1.90 | 1.917    4.74 | 3.500   10.44 |  5.08    2.85
               0.417    1.90 | 2.000    4.74 | 3.583   10.44 |  5.17    2.85
               0.500    1.90 | 2.083    4.74 | 3.667   10.44 |  5.25    2.85
               0.583    1.90 | 2.167    4.74 | 3.750   10.44 |  5.33    1.90
               0.667    1.90 | 2.250    4.74 | 3.833    4.74 |  5.42    1.90
               0.750    1.90 | 2.333    5.69 | 3.917    4.74 |  5.50    1.90
               0.833    2.85 | 2.417    5.69 | 4.000    4.74 |  5.58    1.90
               0.917    2.85 | 2.500    5.69 | 4.083    4.74 |  5.67    1.90
               1.000    2.85 | 2.583    5.69 | 4.167    4.74 |  5.75    1.90
               1.083    2.85 | 2.667    5.69 | 4.250    4.74 |  5.83    1.90
               1.167    2.85 | 2.750    5.69 | 4.333    3.80 |  5.92    1.90
               1.250    2.85 | 2.833   28.46 | 4.417    3.80 |  6.00    1.90
               1.333    2.85 | 2.917   28.46 | 4.500    3.80 |  6.08    1.90
               1.417    2.85 | 3.000   28.46 | 4.583    3.80 |  6.17    1.90
               1.500    2.85 | 3.083   74.01 | 4.667    3.80 |  6.25    1.90
               1.583    2.85 | 3.167   74.01 | 4.750    3.80 |

     Unit Hyd Qpeak  (cms)=   1.946

     PEAK FLOW       (cms)=   0.216 (i)
     TIME TO PEAK    (hrs)=   3.333
     RUNOFF VOLUME    (mm)=   6.280
     TOTAL RAINFALL   (mm)=  47.440
     RUNOFF COEFFICIENT   =   0.132

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0003)|   Area    (ha)=   2.96   Curve Number   (CN)= 47.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.25

         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 | 1.667    2.85 | 3.250   74.01 |  4.83    2.85
               0.167    0.00 | 1.750    2.85 | 3.333   10.44 |  4.92    2.85
               0.250    0.00 | 1.833    4.74 | 3.417   10.44 |  5.00    2.85
               0.333    1.90 | 1.917    4.74 | 3.500   10.44 |  5.08    2.85
               0.417    1.90 | 2.000    4.74 | 3.583   10.44 |  5.17    2.85
               0.500    1.90 | 2.083    4.74 | 3.667   10.44 |  5.25    2.85
               0.583    1.90 | 2.167    4.74 | 3.750   10.44 |  5.33    1.90
               0.667    1.90 | 2.250    4.74 | 3.833    4.74 |  5.42    1.90
               0.750    1.90 | 2.333    5.69 | 3.917    4.74 |  5.50    1.90
               0.833    2.85 | 2.417    5.69 | 4.000    4.74 |  5.58    1.90
               0.917    2.85 | 2.500    5.69 | 4.083    4.74 |  5.67    1.90
               1.000    2.85 | 2.583    5.69 | 4.167    4.74 |  5.75    1.90
               1.083    2.85 | 2.667    5.69 | 4.250    4.74 |  5.83    1.90
               1.167    2.85 | 2.750    5.69 | 4.333    3.80 |  5.92    1.90
               1.250    2.85 | 2.833   28.46 | 4.417    3.80 |  6.00    1.90
               1.333    2.85 | 2.917   28.46 | 4.500    3.80 |  6.08    1.90
               1.417    2.85 | 3.000   28.46 | 4.583    3.80 |  6.17    1.90
               1.500    2.85 | 3.083   74.01 | 4.667    3.80 |  6.25    1.90
               1.583    2.85 | 3.167   74.01 | 4.750    3.80 |

     Unit Hyd Qpeak  (cms)=   0.452

     PEAK FLOW       (cms)=   0.045 (i)
```

TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 5.472
TOTAL RAINFALL (mm)= 47.440
RUNOFF COEFFICIENT = 0.115

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

CALIB		
NASHYD (0004)	Area (ha)= 6.86	Curve Number (CN)= 52.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.26	

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	1.667	2.85	3.250	74.01	4.83	2.85
0.167	0.00	1.750	2.85	3.333	10.44	4.92	2.85
0.250	0.00	1.833	4.74	3.417	10.44	5.00	2.85
0.333	1.90	1.917	4.74	3.500	10.44	5.08	2.85
0.417	1.90	2.000	4.74	3.583	10.44	5.17	2.85
0.500	1.90	2.083	4.74	3.667	10.44	5.25	2.85
0.583	1.90	2.167	4.74	3.750	10.44	5.33	1.90
0.667	1.90	2.250	4.74	3.833	4.74	5.42	1.90
0.750	1.90	2.333	5.69	3.917	4.74	5.50	1.90
0.833	2.85	2.417	5.69	4.000	4.74	5.58	1.90
0.917	2.85	2.500	5.69	4.083	4.74	5.67	1.90
1.000	2.85	2.583	5.69	4.167	4.74	5.75	1.90
1.083	2.85	2.667	5.69	4.250	4.74	5.83	1.90
1.167	2.85	2.750	5.69	4.333	3.80	5.92	1.90
1.250	2.85	2.833	28.46	4.417	3.80	6.00	1.90
1.333	2.85	2.917	28.46	4.500	3.80	6.08	1.90
1.417	2.85	3.000	28.46	4.583	3.80	6.17	1.90
1.500	2.85	3.083	74.01	4.667	3.80	6.25	1.90
1.583	2.85	3.167	74.01	4.750	3.80		

Unit Hyd Qpeak (cms)= 1.008

PEAK FLOW (cms)= 0.121 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 6.500
TOTAL RAINFALL (mm)= 47.440
RUNOFF COEFFICIENT = 0.137

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

CALIB		
NASHYD (0005)	Area (ha)= 1.43	Curve Number (CN)= 52.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.13	

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	1.667	2.85	3.250	74.01	4.83	2.85
0.167	0.00	1.750	2.85	3.333	10.44	4.92	2.85
0.250	0.00	1.833	4.74	3.417	10.44	5.00	2.85
0.333	1.90	1.917	4.74	3.500	10.44	5.08	2.85
0.417	1.90	2.000	4.74	3.583	10.44	5.17	2.85
0.500	1.90	2.083	4.74	3.667	10.44	5.25	2.85
0.583	1.90	2.167	4.74	3.750	10.44	5.33	1.90
0.667	1.90	2.250	4.74	3.833	4.74	5.42	1.90
0.750	1.90	2.333	5.69	3.917	4.74	5.50	1.90
0.833	2.85	2.417	5.69	4.000	4.74	5.58	1.90
0.917	2.85	2.500	5.69	4.083	4.74	5.67	1.90
1.000	2.85	2.583	5.69	4.167	4.74	5.75	1.90
1.083	2.85	2.667	5.69	4.250	4.74	5.83	1.90
1.167	2.85	2.750	5.69	4.333	3.80	5.92	1.90
1.250	2.85	2.833	28.46	4.417	3.80	6.00	1.90
1.333	2.85	2.917	28.46	4.500	3.80	6.08	1.90
1.417	2.85	3.000	28.46	4.583	3.80	6.17	1.90
1.500	2.85	3.083	74.01	4.667	3.80	6.25	1.90
1.583	2.85	3.167	74.01	4.750	3.80		

Unit Hyd Qpeak (cms)= 0.420

PEAK FLOW (cms)= 0.039 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 6.440
TOTAL RAINFALL (mm)= 47.440
RUNOFF COEFFICIENT = 0.136

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

CALIB		
NASHYD (0006)	Area (ha)= 1.03	Curve Number (CN)= 52.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.13	

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	1.667	2.85	3.250	74.01	4.83	2.85
0.167	0.00	1.750	2.85	3.333	10.44	4.92	2.85
0.250	0.00	1.833	4.74	3.417	10.44	5.00	2.85
0.333	1.90	1.917	4.74	3.500	10.44	5.08	2.85
0.417	1.90	2.000	4.74	3.583	10.44	5.17	2.85
0.500	1.90	2.083	4.74	3.667	10.44	5.25	2.85
0.583	1.90	2.167	4.74	3.750	10.44	5.33	1.90
0.667	1.90	2.250	4.74	3.833	4.74	5.42	1.90
0.750	1.90	2.333	5.69	3.917	4.74	5.50	1.90
0.833	2.85	2.417	5.69	4.000	4.74	5.58	1.90
0.917	2.85	2.500	5.69	4.083	4.74	5.67	1.90
1.000	2.85	2.583	5.69	4.167	4.74	5.75	1.90
1.083	2.85	2.667	5.69	4.250	4.74	5.83	1.90
1.167	2.85	2.750	5.69	4.333	3.80	5.92	1.90
1.250	2.85	2.833	28.46	4.417	3.80	6.00	1.90
1.333	2.85	2.917	28.46	4.500	3.80	6.08	1.90
1.417	2.85	3.000	28.46	4.583	3.80	6.17	1.90
1.500	2.85	3.083	74.01	4.667	3.80	6.25	1.90
1.583	2.85	3.167	74.01	4.750	3.80		

Unit Hyd Qpeak (cms)= 0.303

PEAK FLOW (cms)= 0.028 (i)
TIME TO PEAK (hrs)= 3.250

```
     RUNOFF VOLUME    (mm)=   6.440
     TOTAL RAINFALL   (mm)=  47.440
     RUNOFF COEFFICIENT   =   0.136

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0002)|   Area    (ha)=   1.71   Curve Number   (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.23

         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 | 1.667    2.85 | 3.250   74.01 |  4.83    2.85
              0.167    0.00 | 1.750    2.85 | 3.333   10.44 |  4.92    2.85
              0.250    0.00 | 1.833    4.74 | 3.417   10.44 |  5.00    2.85
              0.333    1.90 | 1.917    4.74 | 3.500   10.44 |  5.08    2.85
              0.417    1.90 | 2.000    4.74 | 3.583   10.44 |  5.17    2.85
              0.500    1.90 | 2.083    4.74 | 3.667   10.44 |  5.25    2.85
              0.583    1.90 | 2.167    4.74 | 3.750   10.44 |  5.33    1.90
              0.667    1.90 | 2.250    4.74 | 3.833    4.74 |  5.42    1.90
              0.750    1.90 | 2.333    5.69 | 3.917    4.74 |  5.50    1.90
              0.833    2.85 | 2.417    5.69 | 4.000    4.74 |  5.58    1.90
              0.917    2.85 | 2.500    5.69 | 4.083    4.74 |  5.67    1.90
              1.000    2.85 | 2.583    5.69 | 4.167    4.74 |  5.75    1.90
              1.083    2.85 | 2.667    5.69 | 4.250    4.74 |  5.83    1.90
              1.167    2.85 | 2.750    5.69 | 4.333    3.80 |  5.92    1.90
              1.250    2.85 | 2.833   28.46 | 4.417    3.80 |  6.00    1.90
              1.333    2.85 | 2.917   28.46 | 4.500    3.80 |  6.08    1.90
              1.417    2.85 | 3.000   28.46 | 4.583    3.80 |  6.17    1.90
              1.500    2.85 | 3.083   74.01 | 4.667    3.80 |  6.25    1.90
              1.583    2.85 | 3.167   74.01 | 4.750    3.80 |

     Unit Hyd Qpeak  (cms)=   0.284

     PEAK FLOW       (cms)=   0.032 (i)
     TIME TO PEAK    (hrs)=   3.333
     RUNOFF VOLUME    (mm)=   6.280
     TOTAL RAINFALL   (mm)=  47.440
     RUNOFF COEFFICIENT   =   0.132

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

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

--------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):    11.72   0.216     3.33     6.28
      + ID2= 2 (  0002):     1.71   0.032     3.33     6.28
        ==================================================
        ID = 3 (  0007):    13.43   0.248     3.33     6.28

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

--------------------
| ADD HYD  (  0007)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0007):    13.43   0.248     3.33     6.28
      + ID2= 2 (  0003):     2.96   0.045     3.42     5.47
        ==================================================
        ID = 1 (  0007):    16.39   0.291     3.33     6.13

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

--------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0007):    16.39   0.291     3.33     6.13
      + ID2= 2 (  0004):     6.86   0.121     3.42     6.50
        ==================================================
        ID = 3 (  0007):    23.25   0.408     3.33     6.24

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

--------------------
| ADD HYD  (  0007)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0007):    23.25   0.408     3.33     6.24
      + ID2= 2 (  0005):     1.43   0.039     3.25     6.44
        ==================================================
        ID = 1 (  0007):    24.68   0.442     3.33     6.25

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

--------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0007):    24.68   0.442     3.33     6.25
      + ID2= 2 (  0006):     1.03   0.028     3.25     6.44
        ==================================================
        ID = 3 (  0007):    25.71   0.467     3.33     6.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
**********************************************
** SIMULATION:04 25yr 6hr 15min SCS Type II **
**********************************************

--------------------
|    READ STORM    |    Filename: C:\Users\lmattern\AppD
|                  |              ata\Local\Temp\
|                  |              65ed09be-7371-4b49-b0fa-f3b3f9511ea9\9a0c158c
| Ptotal= 55.51 mm |    Comments: 25yr 6hr 15min SCS Type II
--------------------
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.00    0.00 |  1.75    5.55 |  3.50   12.21 |  5.25    2.22
              0.25    2.22 |  2.00    5.55 |  3.75    5.55 |  5.50    2.22
              0.50    2.22 |  2.25    6.66 |  4.00    5.55 |  5.75    2.22
              0.75    3.33 |  2.50    6.66 |  4.25    4.44 |  6.00    2.22
              1.00    3.33 |  2.75   33.31 |  4.50    4.44 |
              1.25    3.33 |  3.00   86.60 |  4.75    3.33 |
              1.50    3.33 |  3.25   12.21 |  5.00    3.33 |
```

CALIB											
NASHYD (0001)	Area (ha)= 11.72	Curve Number (CN)= 51.0									
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00									
	U.H. Tp(hrs)= 0.23										

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	1.667	3.33	3.250	86.60	4.83	3.33
0.167	0.00	1.750	3.33	3.333	12.21	4.92	3.33
0.250	0.00	1.833	5.55	3.417	12.21	5.00	3.33
0.333	2.22	1.917	5.55	3.500	12.21	5.08	3.33
0.417	2.22	2.000	5.55	3.583	12.21	5.17	3.33
0.500	2.22	2.083	5.55	3.667	12.21	5.25	3.33
0.583	2.22	2.167	5.55	3.750	12.21	5.33	2.22
0.667	2.22	2.250	5.55	3.833	5.55	5.42	2.22
0.750	2.22	2.333	6.66	3.917	5.55	5.50	2.22
0.833	3.33	2.417	6.66	4.000	5.55	5.58	2.22
0.917	3.33	2.500	6.66	4.083	5.55	5.67	2.22
1.000	3.33	2.583	6.66	4.167	5.55	5.75	2.22
1.083	3.33	2.667	6.66	4.250	5.55	5.83	2.22
1.167	3.33	2.750	6.66	4.333	4.44	5.92	2.22
1.250	3.33	2.833	33.31	4.417	4.44	6.00	2.22
1.333	3.33	2.917	33.31	4.500	4.44	6.08	2.22
1.417	3.33	3.000	33.31	4.583	4.44	6.17	2.22
1.500	3.33	3.083	86.60	4.667	4.44	6.25	2.22
1.583	3.33	3.167	86.60	4.750	4.44		

Unit Hyd Qpeak (cms)= 1.946

PEAK FLOW (cms)= 0.300 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 8.652
TOTAL RAINFALL (mm)= 55.510
RUNOFF COEFFICIENT = 0.156

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

CALIB											
NASHYD (0003)	Area (ha)= 2.96	Curve Number (CN)= 47.0									
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00									
	U.H. Tp(hrs)= 0.25										

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	1.667	3.33	3.250	86.60	4.83	3.33
0.167	0.00	1.750	3.33	3.333	12.21	4.92	3.33
0.250	0.00	1.833	5.55	3.417	12.21	5.00	3.33
0.333	2.22	1.917	5.55	3.500	12.21	5.08	3.33
0.417	2.22	2.000	5.55	3.583	12.21	5.17	3.33
0.500	2.22	2.083	5.55	3.667	12.21	5.25	3.33
0.583	2.22	2.167	5.55	3.750	12.21	5.33	2.22
0.667	2.22	2.250	5.55	3.833	5.55	5.42	2.22
0.750	2.22	2.333	6.66	3.917	5.55	5.50	2.22
0.833	3.33	2.417	6.66	4.000	5.55	5.58	2.22
0.917	3.33	2.500	6.66	4.083	5.55	5.67	2.22
1.000	3.33	2.583	6.66	4.167	5.55	5.75	2.22
1.083	3.33	2.667	6.66	4.250	5.55	5.83	2.22
1.167	3.33	2.750	6.66	4.333	4.44	5.92	2.22
1.250	3.33	2.833	33.31	4.417	4.44	6.00	2.22
1.333	3.33	2.917	33.31	4.500	4.44	6.08	2.22
1.417	3.33	3.000	33.31	4.583	4.44	6.17	2.22
1.500	3.33	3.083	86.60	4.667	4.44	6.25	2.22
1.583	3.33	3.167	86.60	4.750	4.44		

Unit Hyd Qpeak (cms)= 0.452

PEAK FLOW (cms)= 0.062 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 7.566
TOTAL RAINFALL (mm)= 55.510
RUNOFF COEFFICIENT = 0.136

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

CALIB											
NASHYD (0004)	Area (ha)= 6.86	Curve Number (CN)= 52.0									
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00									
	U.H. Tp(hrs)= 0.26										

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	1.667	3.33	3.250	86.60	4.83	3.33
0.167	0.00	1.750	3.33	3.333	12.21	4.92	3.33
0.250	0.00	1.833	5.55	3.417	12.21	5.00	3.33
0.333	2.22	1.917	5.55	3.500	12.21	5.08	3.33
0.417	2.22	2.000	5.55	3.583	12.21	5.17	3.33
0.500	2.22	2.083	5.55	3.667	12.21	5.25	3.33
0.583	2.22	2.167	5.55	3.750	12.21	5.33	2.22
0.667	2.22	2.250	5.55	3.833	5.55	5.42	2.22
0.750	2.22	2.333	6.66	3.917	5.55	5.50	2.22
0.833	3.33	2.417	6.66	4.000	5.55	5.58	2.22
0.917	3.33	2.500	6.66	4.083	5.55	5.67	2.22
1.000	3.33	2.583	6.66	4.167	5.55	5.75	2.22
1.083	3.33	2.667	6.66	4.250	5.55	5.83	2.22
1.167	3.33	2.750	6.66	4.333	4.44	5.92	2.22
1.250	3.33	2.833	33.31	4.417	4.44	6.00	2.22
1.333	3.33	2.917	33.31	4.500	4.44	6.08	2.22
1.417	3.33	3.000	33.31	4.583	4.44	6.17	2.22
1.500	3.33	3.083	86.60	4.667	4.44	6.25	2.22
1.583	3.33	3.167	86.60	4.750	4.44		

Unit Hyd Qpeak (cms)= 1.008

PEAK FLOW (cms)= 0.167 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 8.947
TOTAL RAINFALL (mm)= 55.510
RUNOFF COEFFICIENT = 0.161

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

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--------------------
| CALIB            |
| NASHYD   (  0005)|   Area    (ha)=   1.43   Curve Number   (CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.13

        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 | 1.667    3.33 | 3.250   86.60 |  4.83    3.33
   0.167    0.00 | 1.750    3.33 | 3.333   12.21 |  4.92    3.33
   0.250    0.00 | 1.833    5.55 | 3.417   12.21 |  5.00    3.33
   0.333    2.22 | 1.917    5.55 | 3.500   12.21 |  5.08    3.33
   0.417    2.22 | 2.000    5.55 | 3.583   12.21 |  5.17    3.33
   0.500    2.22 | 2.083    5.55 | 3.667   12.21 |  5.25    3.33
   0.583    2.22 | 2.167    5.55 | 3.750   12.21 |  5.33    2.22
   0.667    2.22 | 2.250    5.55 | 3.833    5.55 |  5.42    2.22
   0.750    2.22 | 2.333    6.66 | 3.917    5.55 |  5.50    2.22
   0.833    3.33 | 2.417    6.66 | 4.000    5.55 |  5.58    2.22
   0.917    3.33 | 2.500    6.66 | 4.083    5.55 |  5.67    2.22
   1.000    3.33 | 2.583    6.66 | 4.167    5.55 |  5.75    2.22
   1.083    3.33 | 2.667    6.66 | 4.250    5.55 |  5.83    2.22
   1.167    3.33 | 2.750    6.66 | 4.333    4.44 |  5.92    2.22
   1.250    3.33 | 2.833   33.31 | 4.417    4.44 |  6.00    2.22
   1.333    3.33 | 2.917   33.31 | 4.500    4.44 |  6.08    2.22
   1.417    3.33 | 3.000   33.31 | 4.583    4.44 |  6.17    2.22
   1.500    3.33 | 3.083   86.60 | 4.667    4.44 |  6.25    2.22
   1.583    3.33 | 3.167   86.60 | 4.750    4.44 |

     Unit Hyd Qpeak  (cms)=   0.420

     PEAK FLOW       (cms)=   0.054 (i)
     TIME TO PEAK    (hrs)=   3.250
     RUNOFF VOLUME    (mm)=   8.864
     TOTAL RAINFALL   (mm)=  55.510
     RUNOFF COEFFICIENT   =   0.160

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

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--------------------
| CALIB            |
| NASHYD   (  0006)|   Area    (ha)=   1.03   Curve Number   (CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.13

        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 | 1.667    3.33 | 3.250   86.60 |  4.83    3.33
   0.167    0.00 | 1.750    3.33 | 3.333   12.21 |  4.92    3.33
   0.250    0.00 | 1.833    5.55 | 3.417   12.21 |  5.00    3.33
   0.333    2.22 | 1.917    5.55 | 3.500   12.21 |  5.08    3.33
   0.417    2.22 | 2.000    5.55 | 3.583   12.21 |  5.17    3.33
   0.500    2.22 | 2.083    5.55 | 3.667   12.21 |  5.25    3.33
   0.583    2.22 | 2.167    5.55 | 3.750   12.21 |  5.33    2.22
   0.667    2.22 | 2.250    5.55 | 3.833    5.55 |  5.42    2.22
   0.750    2.22 | 2.333    6.66 | 3.917    5.55 |  5.50    2.22
   0.833    3.33 | 2.417    6.66 | 4.000    5.55 |  5.58    2.22
   0.917    3.33 | 2.500    6.66 | 4.083    5.55 |  5.67    2.22
   1.000    3.33 | 2.583    6.66 | 4.167    5.55 |  5.75    2.22
   1.083    3.33 | 2.667    6.66 | 4.250    5.55 |  5.83    2.22
   1.167    3.33 | 2.750    6.66 | 4.333    4.44 |  5.92    2.22
   1.250    3.33 | 2.833   33.31 | 4.417    4.44 |  6.00    2.22
   1.333    3.33 | 2.917   33.31 | 4.500    4.44 |  6.08    2.22
   1.417    3.33 | 3.000   33.31 | 4.583    4.44 |  6.17    2.22
   1.500    3.33 | 3.083   86.60 | 4.667    4.44 |  6.25    2.22
   1.583    3.33 | 3.167   86.60 | 4.750    4.44 |

     Unit Hyd Qpeak  (cms)=   0.303

     PEAK FLOW       (cms)=   0.039 (i)
     TIME TO PEAK    (hrs)=   3.250
     RUNOFF VOLUME    (mm)=   8.864
     TOTAL RAINFALL   (mm)=  55.510
     RUNOFF COEFFICIENT   =   0.160

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

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--------------------
| CALIB            |
| NASHYD   (  0002)|   Area    (ha)=   1.71   Curve Number   (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.23

        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 | 1.667    3.33 | 3.250   86.60 |  4.83    3.33
   0.167    0.00 | 1.750    3.33 | 3.333   12.21 |  4.92    3.33
   0.250    0.00 | 1.833    5.55 | 3.417   12.21 |  5.00    3.33
   0.333    2.22 | 1.917    5.55 | 3.500   12.21 |  5.08    3.33
   0.417    2.22 | 2.000    5.55 | 3.583   12.21 |  5.17    3.33
   0.500    2.22 | 2.083    5.55 | 3.667   12.21 |  5.25    3.33
   0.583    2.22 | 2.167    5.55 | 3.750   12.21 |  5.33    2.22
   0.667    2.22 | 2.250    5.55 | 3.833    5.55 |  5.42    2.22
   0.750    2.22 | 2.333    6.66 | 3.917    5.55 |  5.50    2.22
   0.833    3.33 | 2.417    6.66 | 4.000    5.55 |  5.58    2.22
   0.917    3.33 | 2.500    6.66 | 4.083    5.55 |  5.67    2.22
   1.000    3.33 | 2.583    6.66 | 4.167    5.55 |  5.75    2.22
   1.083    3.33 | 2.667    6.66 | 4.250    5.55 |  5.83    2.22
   1.167    3.33 | 2.750    6.66 | 4.333    4.44 |  5.92    2.22
   1.250    3.33 | 2.833   33.31 | 4.417    4.44 |  6.00    2.22
   1.333    3.33 | 2.917   33.31 | 4.500    4.44 |  6.08    2.22
   1.417    3.33 | 3.000   33.31 | 4.583    4.44 |  6.17    2.22
   1.500    3.33 | 3.083   86.60 | 4.667    4.44 |  6.25    2.22
   1.583    3.33 | 3.167   86.60 | 4.750    4.44 |

     Unit Hyd Qpeak  (cms)=   0.284

     PEAK FLOW       (cms)=   0.044 (i)
     TIME TO PEAK    (hrs)=   3.333
     RUNOFF VOLUME    (mm)=   8.652
     TOTAL RAINFALL   (mm)=  55.510
     RUNOFF COEFFICIENT   =   0.156

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

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--------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    11.72   0.300     3.33     8.65
     + ID2= 2 (  0002):     1.71   0.044     3.33     8.65
       ================================================
       ID = 3 (  0007):    13.43   0.344     3.33     8.65

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

--------------------
| ADD HYD  (  0007)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0007):    13.43   0.344     3.33     8.65
     + ID2= 2 (  0003):     2.96   0.062     3.42     7.57
       ================================================
       ID = 1 (  0007):    16.39   0.405     3.33     8.46

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

--------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0007):    16.39   0.405     3.33     8.46
     + ID2= 2 (  0004):     6.86   0.167     3.42     8.95
       ================================================
       ID = 3 (  0007):    23.25   0.568     3.33     8.60

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

--------------------
| ADD HYD  (  0007)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0007):    23.25   0.568     3.33     8.60
     + ID2= 2 (  0005):     1.43   0.054     3.25     8.86
       ================================================
       ID = 1 (  0007):    24.68   0.614     3.33     8.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0007):    24.68   0.614     3.33     8.62
     + ID2= 2 (  0006):     1.03   0.039     3.25     8.86
       ================================================
       ID = 3 (  0007):    25.71   0.648     3.33     8.63

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
*********************************************
** SIMULATION:05 50yr 6hr 15min SCS Type II **
*********************************************

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```
|    READ STORM    |    Filename: C:\Users\lmattern\AppD
|                  |              ata\Local\Temp\
|                  |              65ed09be-7371-4b49-b0fa-f3b3f9511ea9\84e9097e
| Ptotal= 59.33 mm |    Comments: 50yr 6hr 15min SCS Type II
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  1.75    5.93 |  3.50   13.05 |  5.25    2.37
                0.25    2.37 |  2.00    5.93 |  3.75    5.93 |  5.50    2.37
                0.50    2.37 |  2.25    7.12 |  4.00    5.93 |  5.75    2.37
                0.75    3.56 |  2.50    7.12 |  4.25    4.75 |  6.00    2.37
                1.00    3.56 |  2.75   35.60 |  4.50    4.75 |
                1.25    3.56 |  3.00   92.55 |  4.75    3.56 |
                1.50    3.56 |  3.25   13.05 |  5.00    3.56 |

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--------------------
| CALIB            |
| NASHYD   (  0001)|   Area     (ha)=  11.72   Curve Number    (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.23

        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 | 1.667    3.56 | 3.250   92.55 |  4.83    3.56
               0.167    0.00 | 1.750    3.56 | 3.333   13.05 |  4.92    3.56
               0.250    0.00 | 1.833    5.93 | 3.417   13.05 |  5.00    3.56
               0.333    2.37 | 1.917    5.93 | 3.500   13.05 |  5.08    3.56
               0.417    2.37 | 2.000    5.93 | 3.583   13.05 |  5.17    3.56
               0.500    2.37 | 2.083    5.93 | 3.667   13.05 |  5.25    3.56
               0.583    2.37 | 2.167    5.93 | 3.750   13.05 |  5.33    2.37
               0.667    2.37 | 2.250    5.93 | 3.833    5.93 |  5.42    2.37
               0.750    2.37 | 2.333    7.12 | 3.917    5.93 |  5.50    2.37
               0.833    3.56 | 2.417    7.12 | 4.000    5.93 |  5.58    2.37
               0.917    3.56 | 2.500    7.12 | 4.083    5.93 |  5.67    2.37
               1.000    3.56 | 2.583    7.12 | 4.167    5.93 |  5.75    2.37
               1.083    3.56 | 2.667    7.12 | 4.250    5.93 |  5.83    2.37
               1.167    3.56 | 2.750    7.12 | 4.333    4.75 |  5.92    2.37
               1.250    3.56 | 2.833   35.60 | 4.417    4.75 |  6.00    2.37
               1.333    3.56 | 2.917   35.60 | 4.500    4.75 |  6.08    2.37
               1.417    3.56 | 3.000   35.60 | 4.583    4.75 |  6.17    2.37
               1.500    3.56 | 3.083   92.55 | 4.667    4.75 |  6.25    2.37
               1.583    3.56 | 3.167   92.55 | 4.750    4.75 |

    Unit Hyd Qpeak  (cms)=   1.946

    PEAK FLOW       (cms)=   0.344 (i)
    TIME TO PEAK    (hrs)=   3.333
    RUNOFF VOLUME    (mm)=   9.882
    TOTAL RAINFALL   (mm)=  59.330
    RUNOFF COEFFICIENT   =   0.167

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

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--------------------
| CALIB            |
| NASHYD   (  0003)|   Area     (ha)=   2.96   Curve Number    (CN)= 47.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.25
```

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	1.667	3.56	3.250	92.55	4.83	3.56
0.167	0.00	1.750	3.56	3.333	13.05	4.92	3.56
0.250	0.00	1.833	5.93	3.417	13.05	5.00	3.56
0.333	2.37	1.917	5.93	3.500	13.05	5.08	3.56
0.417	2.37	2.000	5.93	3.583	13.05	5.17	3.56
0.500	2.37	2.083	5.93	3.667	13.05	5.25	3.56
0.583	2.37	2.167	5.93	3.750	13.05	5.33	2.37
0.667	2.37	2.250	5.93	3.833	5.93	5.42	2.37
0.750	2.37	2.333	7.12	3.917	5.93	5.50	2.37
0.833	3.56	2.417	7.12	4.000	5.93	5.58	2.37
0.917	3.56	2.500	7.12	4.083	5.93	5.67	2.37
1.000	3.56	2.583	7.12	4.167	5.93	5.75	2.37
1.083	3.56	2.667	7.12	4.250	5.93	5.83	2.37
1.167	3.56	2.750	7.12	4.333	4.75	5.92	2.37
1.250	3.56	2.833	35.60	4.417	4.75	6.00	2.37
1.333	3.56	2.917	35.60	4.500	4.75	6.08	2.37
1.417	3.56	3.000	35.60	4.583	4.75	6.17	2.37
1.500	3.56	3.083	92.55	4.667	4.75	6.25	2.37
1.583	3.56	3.167	92.55	4.750	4.75		

Unit Hyd Qpeak (cms)= 0.452

PEAK FLOW (cms)= 0.071 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 8.655
TOTAL RAINFALL (mm)= 59.330
RUNOFF COEFFICIENT = 0.146

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

CALIB					
NASHYD (0004)	Area	(ha)=	6.86	Curve Number	(CN)= 52.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.26		

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	1.667	3.56	3.250	92.55	4.83	3.56
0.167	0.00	1.750	3.56	3.333	13.05	4.92	3.56
0.250	0.00	1.833	5.93	3.417	13.05	5.00	3.56
0.333	2.37	1.917	5.93	3.500	13.05	5.08	3.56
0.417	2.37	2.000	5.93	3.583	13.05	5.17	3.56
0.500	2.37	2.083	5.93	3.667	13.05	5.25	3.56
0.583	2.37	2.167	5.93	3.750	13.05	5.33	2.37
0.667	2.37	2.250	5.93	3.833	5.93	5.42	2.37
0.750	2.37	2.333	7.12	3.917	5.93	5.50	2.37
0.833	3.56	2.417	7.12	4.000	5.93	5.58	2.37
0.917	3.56	2.500	7.12	4.083	5.93	5.67	2.37
1.000	3.56	2.583	7.12	4.167	5.93	5.75	2.37
1.083	3.56	2.667	7.12	4.250	5.93	5.83	2.37
1.167	3.56	2.750	7.12	4.333	4.75	5.92	2.37
1.250	3.56	2.833	35.60	4.417	4.75	6.00	2.37
1.333	3.56	2.917	35.60	4.500	4.75	6.08	2.37
1.417	3.56	3.000	35.60	4.583	4.75	6.17	2.37
1.500	3.56	3.083	92.55	4.667	4.75	6.25	2.37
1.583	3.56	3.167	92.55	4.750	4.75		

Unit Hyd Qpeak (cms)= 1.008

PEAK FLOW (cms)= 0.191 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 10.214
TOTAL RAINFALL (mm)= 59.330
RUNOFF COEFFICIENT = 0.172

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

CALIB					
NASHYD (0005)	Area	(ha)=	1.43	Curve Number	(CN)= 52.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.13		

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	1.667	3.56	3.250	92.55	4.83	3.56
0.167	0.00	1.750	3.56	3.333	13.05	4.92	3.56
0.250	0.00	1.833	5.93	3.417	13.05	5.00	3.56
0.333	2.37	1.917	5.93	3.500	13.05	5.08	3.56
0.417	2.37	2.000	5.93	3.583	13.05	5.17	3.56
0.500	2.37	2.083	5.93	3.667	13.05	5.25	3.56
0.583	2.37	2.167	5.93	3.750	13.05	5.33	2.37
0.667	2.37	2.250	5.93	3.833	5.93	5.42	2.37
0.750	2.37	2.333	7.12	3.917	5.93	5.50	2.37
0.833	3.56	2.417	7.12	4.000	5.93	5.58	2.37
0.917	3.56	2.500	7.12	4.083	5.93	5.67	2.37
1.000	3.56	2.583	7.12	4.167	5.93	5.75	2.37
1.083	3.56	2.667	7.12	4.250	5.93	5.83	2.37
1.167	3.56	2.750	7.12	4.333	4.75	5.92	2.37
1.250	3.56	2.833	35.60	4.417	4.75	6.00	2.37
1.333	3.56	2.917	35.60	4.500	4.75	6.08	2.37
1.417	3.56	3.000	35.60	4.583	4.75	6.17	2.37
1.500	3.56	3.083	92.55	4.667	4.75	6.25	2.37
1.583	3.56	3.167	92.55	4.750	4.75		

Unit Hyd Qpeak (cms)= 0.420

PEAK FLOW (cms)= 0.062 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 10.120
TOTAL RAINFALL (mm)= 59.330
RUNOFF COEFFICIENT = 0.171

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

CALIB					
NASHYD (0006)	Area	(ha)=	1.03	Curve Number	(CN)= 52.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.13		

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	1.667	3.56	3.250	92.55	4.83	3.56
0.167	0.00	1.750	3.56	3.333	13.05	4.92	3.56
0.250	0.00	1.833	5.93	3.417	13.05	5.00	3.56
0.333	2.37	1.917	5.93	3.500	13.05	5.08	3.56
0.417	2.37	2.000	5.93	3.583	13.05	5.17	3.56
0.500	2.37	2.083	5.93	3.667	13.05	5.25	3.56
0.583	2.37	2.167	5.93	3.750	13.05	5.33	2.37
0.667	2.37	2.250	5.93	3.833	5.93	5.42	2.37
0.750	2.37	2.333	7.12	3.917	5.93	5.50	2.37
0.833	3.56	2.417	7.12	4.000	5.93	5.58	2.37
0.917	3.56	2.500	7.12	4.083	5.93	5.67	2.37
1.000	3.56	2.583	7.12	4.167	5.93	5.75	2.37
1.083	3.56	2.667	7.12	4.250	5.93	5.83	2.37
1.167	3.56	2.750	7.12	4.333	4.75	5.92	2.37
1.250	3.56	2.833	35.60	4.417	4.75	6.00	2.37
1.333	3.56	2.917	35.60	4.500	4.75	6.08	2.37
1.417	3.56	3.000	35.60	4.583	4.75	6.17	2.37
1.500	3.56	3.083	92.55	4.667	4.75	6.25	2.37
1.583	3.56	3.167	92.55	4.750	4.75		

Unit Hyd Qpeak (cms)= 0.303

PEAK FLOW (cms)= 0.045 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 10.119
TOTAL RAINFALL (mm)= 59.330
RUNOFF COEFFICIENT = 0.171

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

CALIB NASHYD (0002) ID= 1 DT= 5.0 min	Area (ha)= 1.71 Curve Number (CN)= 51.0 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.23

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	1.667	3.56	3.250	92.55	4.83	3.56
0.167	0.00	1.750	3.56	3.333	13.05	4.92	3.56
0.250	0.00	1.833	5.93	3.417	13.05	5.00	3.56
0.333	2.37	1.917	5.93	3.500	13.05	5.08	3.56
0.417	2.37	2.000	5.93	3.583	13.05	5.17	3.56
0.500	2.37	2.083	5.93	3.667	13.05	5.25	3.56
0.583	2.37	2.167	5.93	3.750	13.05	5.33	2.37
0.667	2.37	2.250	5.93	3.833	5.93	5.42	2.37
0.750	2.37	2.333	7.12	3.917	5.93	5.50	2.37
0.833	3.56	2.417	7.12	4.000	5.93	5.58	2.37
0.917	3.56	2.500	7.12	4.083	5.93	5.67	2.37
1.000	3.56	2.583	7.12	4.167	5.93	5.75	2.37
1.083	3.56	2.667	7.12	4.250	5.93	5.83	2.37
1.167	3.56	2.750	7.12	4.333	4.75	5.92	2.37
1.250	3.56	2.833	35.60	4.417	4.75	6.00	2.37
1.333	3.56	2.917	35.60	4.500	4.75	6.08	2.37
1.417	3.56	3.000	35.60	4.583	4.75	6.17	2.37
1.500	3.56	3.083	92.55	4.667	4.75	6.25	2.37
1.583	3.56	3.167	92.55	4.750	4.75		

Unit Hyd Qpeak (cms)= 0.284

PEAK FLOW (cms)= 0.050 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 9.882
TOTAL RAINFALL (mm)= 59.330
RUNOFF COEFFICIENT = 0.167

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

ADD HYD (0007) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	11.72	0.344	3.33	9.88
+ ID2= 2 (0002):	1.71	0.050	3.33	9.88
ID = 3 (0007):	13.43	0.394	3.33	9.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0007) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0007):	13.43	0.394	3.33	9.88
+ ID2= 2 (0003):	2.96	0.071	3.42	8.66
ID = 1 (0007):	16.39	0.464	3.33	9.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0007) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0007):	16.39	0.464	3.33	9.66
+ ID2= 2 (0004):	6.86	0.191	3.42	10.21
ID = 3 (0007):	23.25	0.651	3.33	9.82

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0007) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0007):	23.25	0.651	3.33	9.82
+ ID2= 2 (0005):	1.43	0.062	3.25	10.12
ID = 1 (0007):	24.68	0.704	3.33	9.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0007):    24.68   0.704     3.33     9.84
     + ID2= 2 (  0006):     1.03   0.045     3.25    10.12
       ================================================
       ID = 3 (  0007):    25.71   0.743     3.33     9.85

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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**********************************************
** SIMULATION:06 100yr 6hr 15min SCS Type II **
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|    READ STORM    |    Filename: C:\Users\lmattern\AppD
|                  |              ata\Local\Temp\
|                  |              65ed09be-7371-4b49-b0fa-f3b3f9511ea9\fc31aea5
| Ptotal= 66.92 mm |    Comments: 100yr 6hr 15min SCS Type II
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.00    0.00 |  1.75    6.69 |  3.50   14.72 |  5.25    2.68
               0.25    2.68 |  2.00    6.69 |  3.75    6.69 |  5.50    2.68
               0.50    2.68 |  2.25    8.03 |  4.00    6.69 |  5.75    2.68
               0.75    4.02 |  2.50    8.03 |  4.25    5.35 |  6.00    2.68
               1.00    4.02 |  2.75   40.15 |  4.50    5.35 |
               1.25    4.02 |  3.00  104.40 |  4.75    4.02 |
               1.50    4.02 |  3.25   14.72 |  5.00    4.02 |

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| CALIB            |
| NASHYD   (  0001)|   Area     (ha)=  11.72   Curve Number    (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.23

        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 | 1.667    4.02 | 3.250  104.40 |  4.83    4.02
              0.167    0.00 | 1.750    4.02 | 3.333   14.72 |  4.92    4.02
              0.250    0.00 | 1.833    6.69 | 3.417   14.72 |  5.00    4.02
              0.333    2.68 | 1.917    6.69 | 3.500   14.72 |  5.08    4.02
              0.417    2.68 | 2.000    6.69 | 3.583   14.72 |  5.17    4.02
              0.500    2.68 | 2.083    6.69 | 3.667   14.72 |  5.25    4.02
              0.583    2.68 | 2.167    6.69 | 3.750   14.72 |  5.33    2.68
              0.667    2.68 | 2.250    6.69 | 3.833    6.69 |  5.42    2.68
              0.750    2.68 | 2.333    8.03 | 3.917    6.69 |  5.50    2.68
              0.833    4.02 | 2.417    8.03 | 4.000    6.69 |  5.58    2.68
              0.917    4.02 | 2.500    8.03 | 4.083    6.69 |  5.67    2.68
              1.000    4.02 | 2.583    8.03 | 4.167    6.69 |  5.75    2.68
              1.083    4.02 | 2.667    8.03 | 4.250    6.69 |  5.83    2.68
              1.167    4.02 | 2.750    8.03 | 4.333    5.35 |  5.92    2.68
              1.250    4.02 | 2.833   40.15 | 4.417    5.35 |  6.00    2.68
              1.333    4.02 | 2.917   40.15 | 4.500    5.35 |  6.08    2.68
              1.417    4.02 | 3.000   40.15 | 4.583    5.35 |  6.17    2.68
              1.500    4.02 | 3.083  104.39 | 4.667    5.35 |  6.25    2.68
              1.583    4.02 | 3.167  104.40 | 4.750    5.35 |

     Unit Hyd Qpeak  (cms)=   1.946

     PEAK FLOW       (cms)=   0.438 (i)
     TIME TO PEAK    (hrs)=   3.333
     RUNOFF VOLUME    (mm)=  12.518
     TOTAL RAINFALL   (mm)=  66.920
     RUNOFF COEFFICIENT   =   0.187

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

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--------------------
| CALIB            |
| NASHYD   (  0003)|   Area     (ha)=   2.96   Curve Number    (CN)= 47.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.25

        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 | 1.667    4.02 | 3.250  104.40 |  4.83    4.02
              0.167    0.00 | 1.750    4.02 | 3.333   14.72 |  4.92    4.02
              0.250    0.00 | 1.833    6.69 | 3.417   14.72 |  5.00    4.02
              0.333    2.68 | 1.917    6.69 | 3.500   14.72 |  5.08    4.02
              0.417    2.68 | 2.000    6.69 | 3.583   14.72 |  5.17    4.02
              0.500    2.68 | 2.083    6.69 | 3.667   14.72 |  5.25    4.02
              0.583    2.68 | 2.167    6.69 | 3.750   14.72 |  5.33    2.68
              0.667    2.68 | 2.250    6.69 | 3.833    6.69 |  5.42    2.68
              0.750    2.68 | 2.333    8.03 | 3.917    6.69 |  5.50    2.68
              0.833    4.02 | 2.417    8.03 | 4.000    6.69 |  5.58    2.68
              0.917    4.02 | 2.500    8.03 | 4.083    6.69 |  5.67    2.68
              1.000    4.02 | 2.583    8.03 | 4.167    6.69 |  5.75    2.68
              1.083    4.02 | 2.667    8.03 | 4.250    6.69 |  5.83    2.68
              1.167    4.02 | 2.750    8.03 | 4.333    5.35 |  5.92    2.68
              1.250    4.02 | 2.833   40.15 | 4.417    5.35 |  6.00    2.68
              1.333    4.02 | 2.917   40.15 | 4.500    5.35 |  6.08    2.68
              1.417    4.02 | 3.000   40.15 | 4.583    5.35 |  6.17    2.68
              1.500    4.02 | 3.083  104.39 | 4.667    5.35 |  6.25    2.68
              1.583    4.02 | 3.167  104.40 | 4.750    5.35 |

     Unit Hyd Qpeak  (cms)=   0.452

     PEAK FLOW       (cms)=   0.090 (i)
     TIME TO PEAK    (hrs)=   3.417
     RUNOFF VOLUME    (mm)=  10.998
     TOTAL RAINFALL   (mm)=  66.920
     RUNOFF COEFFICIENT   =   0.164

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

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| CALIB            |
| NASHYD   (  0004)|   Area     (ha)=   6.86   Curve Number    (CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.26

        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	1.667	4.02	3.250	104.40	4.83	4.02
0.167	0.00	1.750	4.02	3.333	14.72	4.92	4.02
0.250	0.00	1.833	6.69	3.417	14.72	5.00	4.02
0.333	2.68	1.917	6.69	3.500	14.72	5.08	4.02
0.417	2.68	2.000	6.69	3.583	14.72	5.17	4.02
0.500	2.68	2.083	6.69	3.667	14.72	5.25	4.02
0.583	2.68	2.167	6.69	3.750	14.72	5.33	2.68
0.667	2.68	2.250	6.69	3.833	6.69	5.42	2.68
0.750	2.68	2.333	8.03	3.917	6.69	5.50	2.68
0.833	4.02	2.417	8.03	4.000	6.69	5.58	2.68
0.917	4.02	2.500	8.03	4.083	6.69	5.67	2.68
1.000	4.02	2.583	8.03	4.167	6.69	5.75	2.68
1.083	4.02	2.667	8.03	4.250	6.69	5.83	2.68
1.167	4.02	2.750	8.03	4.333	5.35	5.92	2.68
1.250	4.02	2.833	40.15	4.417	5.35	6.00	2.68
1.333	4.02	2.917	40.15	4.500	5.35	6.08	2.68
1.417	4.02	3.000	40.15	4.583	5.35	6.17	2.68
1.500	4.02	3.083	104.39	4.667	5.35	6.25	2.68
1.583	4.02	3.167	104.40	4.750	5.35		

Unit Hyd Qpeak (cms)= 1.008

PEAK FLOW (cms)= 0.243 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 12.927
TOTAL RAINFALL (mm)= 66.920
RUNOFF COEFFICIENT = 0.193

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

CALIB					
NASHYD (0005)	Area (ha)=	1.43	Curve Number (CN)=	52.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.13			

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	1.667	4.02	3.250	104.40	4.83	4.02
0.167	0.00	1.750	4.02	3.333	14.72	4.92	4.02
0.250	0.00	1.833	6.69	3.417	14.72	5.00	4.02
0.333	2.68	1.917	6.69	3.500	14.72	5.08	4.02
0.417	2.68	2.000	6.69	3.583	14.72	5.17	4.02
0.500	2.68	2.083	6.69	3.667	14.72	5.25	4.02
0.583	2.68	2.167	6.69	3.750	14.72	5.33	2.68
0.667	2.68	2.250	6.69	3.833	6.69	5.42	2.68
0.750	2.68	2.333	8.03	3.917	6.69	5.50	2.68
0.833	4.02	2.417	8.03	4.000	6.69	5.58	2.68
0.917	4.02	2.500	8.03	4.083	6.69	5.67	2.68
1.000	4.02	2.583	8.03	4.167	6.69	5.75	2.68
1.083	4.02	2.667	8.03	4.250	6.69	5.83	2.68
1.167	4.02	2.750	8.03	4.333	5.35	5.92	2.68
1.250	4.02	2.833	40.15	4.417	5.35	6.00	2.68
1.333	4.02	2.917	40.15	4.500	5.35	6.08	2.68
1.417	4.02	3.000	40.15	4.583	5.35	6.17	2.68
1.500	4.02	3.083	104.39	4.667	5.35	6.25	2.68
1.583	4.02	3.167	104.40	4.750	5.35		

Unit Hyd Qpeak (cms)= 0.420

PEAK FLOW (cms)= 0.079 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 12.808
TOTAL RAINFALL (mm)= 66.920
RUNOFF COEFFICIENT = 0.191

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

CALIB					
NASHYD (0006)	Area (ha)=	1.03	Curve Number (CN)=	52.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.13			

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	1.667	4.02	3.250	104.40	4.83	4.02
0.167	0.00	1.750	4.02	3.333	14.72	4.92	4.02
0.250	0.00	1.833	6.69	3.417	14.72	5.00	4.02
0.333	2.68	1.917	6.69	3.500	14.72	5.08	4.02
0.417	2.68	2.000	6.69	3.583	14.72	5.17	4.02
0.500	2.68	2.083	6.69	3.667	14.72	5.25	4.02
0.583	2.68	2.167	6.69	3.750	14.72	5.33	2.68
0.667	2.68	2.250	6.69	3.833	6.69	5.42	2.68
0.750	2.68	2.333	8.03	3.917	6.69	5.50	2.68
0.833	4.02	2.417	8.03	4.000	6.69	5.58	2.68
0.917	4.02	2.500	8.03	4.083	6.69	5.67	2.68
1.000	4.02	2.583	8.03	4.167	6.69	5.75	2.68
1.083	4.02	2.667	8.03	4.250	6.69	5.83	2.68
1.167	4.02	2.750	8.03	4.333	5.35	5.92	2.68
1.250	4.02	2.833	40.15	4.417	5.35	6.00	2.68
1.333	4.02	2.917	40.15	4.500	5.35	6.08	2.68
1.417	4.02	3.000	40.15	4.583	5.35	6.17	2.68
1.500	4.02	3.083	104.39	4.667	5.35	6.25	2.68
1.583	4.02	3.167	104.40	4.750	5.35		

Unit Hyd Qpeak (cms)= 0.303

PEAK FLOW (cms)= 0.057 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 12.808
TOTAL RAINFALL (mm)= 66.920
RUNOFF COEFFICIENT = 0.191

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

CALIB					
NASHYD (0002)	Area (ha)=	1.71	Curve Number (CN)=	51.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.23			

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	1.667	4.02	3.250	104.40	4.83	4.02

0.167	0.00	1.750	4.02	3.333	14.72	4.92	4.02
0.250	0.00	1.833	6.69	3.417	14.72	5.00	4.02
0.333	2.68	1.917	6.69	3.500	14.72	5.08	4.02
0.417	2.68	2.000	6.69	3.583	14.72	5.17	4.02
0.500	2.68	2.083	6.69	3.667	14.72	5.25	4.02
0.583	2.68	2.167	6.69	3.750	14.72	5.33	2.68
0.667	2.68	2.250	6.69	3.833	6.69	5.42	2.68
0.750	2.68	2.333	8.03	3.917	6.69	5.50	2.68
0.833	4.02	2.417	8.03	4.000	6.69	5.58	2.68
0.917	4.02	2.500	8.03	4.083	6.69	5.67	2.68
1.000	4.02	2.583	8.03	4.167	6.69	5.75	2.68
1.083	4.02	2.667	8.03	4.250	6.69	5.83	2.68
1.167	4.02	2.750	8.03	4.333	5.35	5.92	2.68
1.250	4.02	2.833	40.15	4.417	5.35	6.00	2.68
1.333	4.02	2.917	40.15	4.500	5.35	6.08	2.68
1.417	4.02	3.000	40.15	4.583	5.35	6.17	2.68
1.500	4.02	3.083	104.39	4.667	5.35	6.25	2.68
1.583	4.02	3.167	104.40	4.750	5.35		

Unit Hyd Qpeak (cms)= 0.284

PEAK FLOW (cms)= 0.064 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 12.517
TOTAL RAINFALL (mm)= 66.920
RUNOFF COEFFICIENT = 0.187

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

ADD HYD (0007)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	11.72	0.438	3.33	12.52
+ ID2= 2 (0002):	1.71	0.064	3.33	12.52
ID = 3 (0007):	13.43	0.502	3.33	12.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0007)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0007):	13.43	0.502	3.33	12.52
+ ID2= 2 (0003):	2.96	0.090	3.42	11.00
ID = 1 (0007):	16.39	0.592	3.33	12.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0007)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0007):	16.39	0.592	3.33	12.24
+ ID2= 2 (0004):	6.86	0.243	3.42	12.93
ID = 3 (0007):	23.25	0.830	3.33	12.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0007)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0007):	23.25	0.830	3.33	12.44
+ ID2= 2 (0005):	1.43	0.079	3.25	12.81
ID = 1 (0007):	24.68	0.897	3.33	12.47

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0007)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0007):	24.68	0.897	3.33	12.47
+ ID2= 2 (0006):	1.03	0.057	3.25	12.81
ID = 3 (0007):	25.71	0.946	3.33	12.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
****************************************
** SIMULATION:01 2yr 6hr Bancroft SCS **
****************************************

--------------------
|    READ STORM    |    Filename: C:\Users\lmattern\AppD
|                  |              ata\Local\Temp\
|                  |              91553c60-0c11-464d-8964-39321412d085\4636da1a
| Ptotal= 32.05 mm |    Comments: 2yr 6hr 15min SCS Type II
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	1.75	3.20	3.50	7.05	5.25	1.28
0.25	1.28	2.00	3.20	3.75	3.20	5.50	1.28
0.50	1.28	2.25	3.85	4.00	3.20	5.75	1.28
0.75	1.92	2.50	3.85	4.25	2.56	6.00	1.28
1.00	1.92	2.75	19.23	4.50	2.56		
1.25	1.92	3.00	50.00	4.75	1.92		
1.50	1.92	3.25	7.05	5.00	1.92		

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--------------------
| CALIB            |
| NASHYD   (  0004)|   Area    (ha)=   3.00   Curve Number   (CN)= 54.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.24

        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	1.667	1.92	3.250	50.00	4.83	1.92
0.167	0.00	1.750	1.92	3.333	7.05	4.92	1.92
0.250	0.00	1.833	3.20	3.417	7.05	5.00	1.92
0.333	1.28	1.917	3.20	3.500	7.05	5.08	1.92
0.417	1.28	2.000	3.21	3.583	7.05	5.17	1.92
0.500	1.28	2.083	3.20	3.667	7.05	5.25	1.92
0.583	1.28	2.167	3.20	3.750	7.05	5.33	1.28
0.667	1.28	2.250	3.20	3.833	3.21	5.42	1.28
0.750	1.28	2.333	3.85	3.917	3.20	5.50	1.28
0.833	1.92	2.417	3.85	4.000	3.20	5.58	1.28
0.917	1.92	2.500	3.85	4.083	3.20	5.67	1.28
1.000	1.92	2.583	3.85	4.167	3.20	5.75	1.28
1.083	1.92	2.667	3.85	4.250	3.20	5.83	1.28
1.167	1.92	2.750	3.85	4.333	2.56	5.92	1.28
1.250	1.92	2.833	19.23	4.417	2.56	6.00	1.28
1.333	1.92	2.917	19.23	4.500	2.56	6.08	1.28
1.417	1.92	3.000	19.23	4.583	2.56	6.17	1.28
1.500	1.92	3.083	50.00	4.667	2.56	6.25	1.28
1.583	1.92	3.167	50.00	4.750	2.56		

```
    Unit Hyd Qpeak  (cms)=   0.477

    PEAK FLOW       (cms)=   0.025 (i)
    TIME TO PEAK    (hrs)=   3.417
    RUNOFF VOLUME    (mm)=   3.003
    TOTAL RAINFALL   (mm)=  32.050
    RUNOFF COEFFICIENT   =   0.094

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0009)|   Area    (ha)=   6.86   Curve Number   (CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.26

        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	1.667	1.92	3.250	50.00	4.83	1.92
0.167	0.00	1.750	1.92	3.333	7.05	4.92	1.92
0.250	0.00	1.833	3.20	3.417	7.05	5.00	1.92
0.333	1.28	1.917	3.20	3.500	7.05	5.08	1.92
0.417	1.28	2.000	3.21	3.583	7.05	5.17	1.92
0.500	1.28	2.083	3.20	3.667	7.05	5.25	1.92
0.583	1.28	2.167	3.20	3.750	7.05	5.33	1.28
0.667	1.28	2.250	3.20	3.833	3.21	5.42	1.28
0.750	1.28	2.333	3.85	3.917	3.20	5.50	1.28
0.833	1.92	2.417	3.85	4.000	3.20	5.58	1.28
0.917	1.92	2.500	3.85	4.083	3.20	5.67	1.28
1.000	1.92	2.583	3.85	4.167	3.20	5.75	1.28
1.083	1.92	2.667	3.85	4.250	3.20	5.83	1.28
1.167	1.92	2.750	3.85	4.333	2.56	5.92	1.28
1.250	1.92	2.833	19.23	4.417	2.56	6.00	1.28
1.333	1.92	2.917	19.23	4.500	2.56	6.08	1.28
1.417	1.92	3.000	19.23	4.583	2.56	6.17	1.28
1.500	1.92	3.083	50.00	4.667	2.56	6.25	1.28
1.583	1.92	3.167	50.00	4.750	2.56		

```
    Unit Hyd Qpeak  (cms)=   1.008

    PEAK FLOW       (cms)=   0.051 (i)
    TIME TO PEAK    (hrs)=   3.417
    RUNOFF VOLUME    (mm)=   2.796
    TOTAL RAINFALL   (mm)=  32.050
    RUNOFF COEFFICIENT   =   0.087

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

--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0024)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0004):      3.00   0.025     3.42     3.00
     + ID2= 2 (  0009):      6.86   0.051     3.42     2.80
       ================================================
       ID = 3 (  0024):      9.86   0.076     3.42     2.86

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0002)|   Area    (ha)=   1.75   Curve Number   (CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.11

        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	1.667	1.92	3.250	50.00	4.83	1.92
0.167	0.00	1.750	1.92	3.333	7.05	4.92	1.92
0.250	0.00	1.833	3.20	3.417	7.05	5.00	1.92
0.333	1.28	1.917	3.20	3.500	7.05	5.08	1.92
0.417	1.28	2.000	3.21	3.583	7.05	5.17	1.92
0.500	1.28	2.083	3.20	3.667	7.05	5.25	1.92
0.583	1.28	2.167	3.20	3.750	7.05	5.33	1.28
0.667	1.28	2.250	3.20	3.833	3.21	5.42	1.28
0.750	1.28	2.333	3.85	3.917	3.20	5.50	1.28
0.833	1.92	2.417	3.85	4.000	3.20	5.58	1.28
0.917	1.92	2.500	3.85	4.083	3.20	5.67	1.28
1.000	1.92	2.583	3.85	4.167	3.20	5.75	1.28
1.083	1.92	2.667	3.85	4.250	3.20	5.83	1.28
1.167	1.92	2.750	3.85	4.333	2.56	5.92	1.28
1.250	1.92	2.833	19.23	4.417	2.56	6.00	1.28
1.333	1.92	2.917	19.23	4.500	2.56	6.08	1.28
1.417	1.92	3.000	19.23	4.583	2.56	6.17	1.28
1.500	1.92	3.083	50.00	4.667	2.56	6.25	1.28
1.583	1.92	3.167	50.00	4.750	2.56		

Unit Hyd Qpeak (cms)= 0.608

PEAK FLOW (cms)= 0.032 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 3.931
TOTAL RAINFALL (mm)= 32.050
RUNOFF COEFFICIENT = 0.123

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

CALIB	
NASHYD (0008)	Area (ha)= 1.03 Curve Number (CN)= 52.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.13

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	1.667	1.92	3.250	50.00	4.83	1.92
0.167	0.00	1.750	1.92	3.333	7.05	4.92	1.92
0.250	0.00	1.833	3.20	3.417	7.05	5.00	1.92
0.333	1.28	1.917	3.20	3.500	7.05	5.08	1.92
0.417	1.28	2.000	3.21	3.583	7.05	5.17	1.92
0.500	1.28	2.083	3.20	3.667	7.05	5.25	1.92
0.583	1.28	2.167	3.20	3.750	7.05	5.33	1.28
0.667	1.28	2.250	3.20	3.833	3.21	5.42	1.28
0.750	1.28	2.333	3.85	3.917	3.20	5.50	1.28
0.833	1.92	2.417	3.85	4.000	3.20	5.58	1.28
0.917	1.92	2.500	3.85	4.083	3.20	5.67	1.28
1.000	1.92	2.583	3.85	4.167	3.20	5.75	1.28
1.083	1.92	2.667	3.85	4.250	3.20	5.83	1.28
1.167	1.92	2.750	3.85	4.333	2.56	5.92	1.28
1.250	1.92	2.833	19.23	4.417	2.56	6.00	1.28
1.333	1.92	2.917	19.23	4.500	2.56	6.08	1.28
1.417	1.92	3.000	19.23	4.583	2.56	6.17	1.28
1.500	1.92	3.083	50.00	4.667	2.56	6.25	1.28
1.583	1.92	3.167	50.00	4.750	2.56		

Unit Hyd Qpeak (cms)= 0.303

PEAK FLOW (cms)= 0.012 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 2.770
TOTAL RAINFALL (mm)= 32.050
RUNOFF COEFFICIENT = 0.086

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

ADD HYD (0016)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0002):	1.75	0.032	3.25	3.93
	+ ID2= 2 (0008):	1.03	0.012	3.25	2.77
	ID = 3 (0016):	2.78	0.044	3.25	3.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0018)	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	0.0530	0.0119
	0.0120	0.0038	0.0830	0.0128
	0.0180	0.0073	0.1010	0.0151
	0.0300	0.0092	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0016)	2.780	0.044	3.25	3.50
OUTFLOW: ID= 1 (0018)	2.780	0.012	3.58	3.47

PEAK FLOW REDUCTION [Qout/Qin](%)= 27.11
TIME SHIFT OF PEAK FLOW (min)= 20.00
MAXIMUM STORAGE USED (ha.m.)= 0.0038

CALIB	
NASHYD (0007)	Area (ha)= 1.43 Curve Number (CN)= 52.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.13

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	1.667	1.92	3.250	50.00	4.83	1.92
0.167	0.00	1.750	1.92	3.333	7.05	4.92	1.92
0.250	0.00	1.833	3.20	3.417	7.05	5.00	1.92
0.333	1.28	1.917	3.20	3.500	7.05	5.08	1.92
0.417	1.28	2.000	3.21	3.583	7.05	5.17	1.92
0.500	1.28	2.083	3.20	3.667	7.05	5.25	1.92
0.583	1.28	2.167	3.20	3.750	7.05	5.33	1.28
0.667	1.28	2.250	3.20	3.833	3.21	5.42	1.28
0.750	1.28	2.333	3.85	3.917	3.20	5.50	1.28
0.833	1.92	2.417	3.85	4.000	3.20	5.58	1.28

0.917	1.92	2.500	3.85	4.083	3.20	5.67	1.28
1.000	1.92	2.583	3.85	4.167	3.20	5.75	1.28
1.083	1.92	2.667	3.85	4.250	3.20	5.83	1.28
1.167	1.92	2.750	3.85	4.333	2.56	5.92	1.28
1.250	1.92	2.833	19.23	4.417	2.56	6.00	1.28
1.333	1.92	2.917	19.23	4.500	2.56	6.08	1.28
1.417	1.92	3.000	19.23	4.583	2.56	6.17	1.28
1.500	1.92	3.083	50.00	4.667	2.56	6.25	1.28
1.583	1.92	3.167	50.00	4.750	2.56		

Unit Hyd Qpeak (cms)= 0.420

PEAK FLOW (cms)= 0.017 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 2.770
TOTAL RAINFALL (mm)= 32.050
RUNOFF COEFFICIENT = 0.086

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

CALIB					
NASHYD (0001)	Area (ha)=	3.50	Curve Number (CN)=	61.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.18			

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	1.667	1.92	3.250	50.00	4.83	1.92
0.167	0.00	1.750	1.92	3.333	7.05	4.92	1.92
0.250	0.00	1.833	3.20	3.417	7.05	5.00	1.92
0.333	1.28	1.917	3.20	3.500	7.05	5.08	1.92
0.417	1.28	2.000	3.21	3.583	7.05	5.17	1.92
0.500	1.28	2.083	3.20	3.667	7.05	5.25	1.92
0.583	1.28	2.167	3.20	3.750	7.05	5.33	1.28
0.667	1.28	2.250	3.20	3.833	3.21	5.42	1.28
0.750	1.28	2.333	3.85	3.917	3.20	5.50	1.28
0.833	1.92	2.417	3.85	4.000	3.20	5.58	1.28
0.917	1.92	2.500	3.85	4.083	3.20	5.67	1.28
1.000	1.92	2.583	3.85	4.167	3.20	5.75	1.28
1.083	1.92	2.667	3.85	4.250	3.20	5.83	1.28
1.167	1.92	2.750	3.85	4.333	2.56	5.92	1.28
1.250	1.92	2.833	19.23	4.417	2.56	6.00	1.28
1.333	1.92	2.917	19.23	4.500	2.56	6.08	1.28
1.417	1.92	3.000	19.23	4.583	2.56	6.17	1.28
1.500	1.92	3.083	50.00	4.667	2.56	6.25	1.28
1.583	1.92	3.167	50.00	4.750	2.56		

Unit Hyd Qpeak (cms)= 0.743

PEAK FLOW (cms)= 0.046 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 3.851
TOTAL RAINFALL (mm)= 32.050
RUNOFF COEFFICIENT = 0.120

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

ADD HYD (0015)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0001):	3.50	0.046	3.33	3.85
	+ ID2= 2 (0007):	1.43	0.017	3.25	2.77
	ID = 3 (0015):	4.93	0.061	3.33	3.54

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0017)	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	0.0830	0.0204
	0.0260	0.0058	0.0980	0.0228
	0.0380	0.0115	0.1520	0.0264
	0.0440	0.0160	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0015)	4.930	0.061	3.33	3.54
OUTFLOW: ID= 1 (0017)	4.930	0.026	3.67	3.53

PEAK FLOW REDUCTION [Qout/Qin](%)= 42.59
TIME SHIFT OF PEAK FLOW (min)= 20.00
MAXIMUM STORAGE USED (ha.m.)= 0.0058

ADD HYD (0019)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0017):	4.93	0.026	3.67	3.53
	+ ID2= 2 (0018):	2.78	0.012	3.58	3.47
	ID = 3 (0019):	7.71	0.038	3.67	3.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0005)	Area (ha)=	2.23	Curve Number (CN)=	58.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.23			

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	1.667	1.92	3.250	50.00	4.83	1.92
0.167	0.00	1.750	1.92	3.333	7.05	4.92	1.92
0.250	0.00	1.833	3.20	3.417	7.05	5.00	1.92
0.333	1.28	1.917	3.20	3.500	7.05	5.08	1.92
0.417	1.28	2.000	3.21	3.583	7.05	5.17	1.92
0.500	1.28	2.083	3.20	3.667	7.05	5.25	1.92
0.583	1.28	2.167	3.20	3.750	7.05	5.33	1.28
0.667	1.28	2.250	3.20	3.833	3.21	5.42	1.28
0.750	1.28	2.333	3.85	3.917	3.20	5.50	1.28
0.833	1.92	2.417	3.85	4.000	3.20	5.58	1.28

0.917	1.92	2.500	3.85	4.083	3.20	5.67	1.28
1.000	1.92	2.583	3.85	4.167	3.20	5.75	1.28
1.083	1.92	2.667	3.85	4.250	3.20	5.83	1.28
1.167	1.92	2.750	3.85	4.333	2.56	5.92	1.28
1.250	1.92	2.833	19.23	4.417	2.56	6.00	1.28
1.333	1.92	2.917	19.23	4.500	2.56	6.08	1.28
1.417	1.92	3.000	19.23	4.583	2.56	6.17	1.28
1.500	1.92	3.083	50.00	4.667	2.56	6.25	1.28
1.583	1.92	3.167	50.00	4.750	2.56		

Unit Hyd Qpeak (cms)= 0.370

PEAK FLOW (cms)= 0.022 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 3.464
TOTAL RAINFALL (mm)= 32.050
RUNOFF COEFFICIENT = 0.108

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

CALIB					
NASHYD (0003)	Area	(ha)=	2.95	Curve Number	(CN)= 56.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.12		

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	1.667	1.92	3.250	50.00	4.83	1.92
0.167	0.00	1.750	1.92	3.333	7.05	4.92	1.92
0.250	0.00	1.833	3.20	3.417	7.05	5.00	1.92
0.333	1.28	1.917	3.20	3.500	7.05	5.08	1.92
0.417	1.28	2.000	3.21	3.583	7.05	5.17	1.92
0.500	1.28	2.083	3.20	3.667	7.05	5.25	1.92
0.583	1.28	2.167	3.20	3.750	7.05	5.33	1.28
0.667	1.28	2.250	3.20	3.833	3.21	5.42	1.28
0.750	1.28	2.333	3.85	3.917	3.20	5.50	1.28
0.833	1.92	2.417	3.85	4.000	3.20	5.58	1.28
0.917	1.92	2.500	3.85	4.083	3.20	5.67	1.28
1.000	1.92	2.583	3.85	4.167	3.20	5.75	1.28
1.083	1.92	2.667	3.85	4.250	3.20	5.83	1.28
1.167	1.92	2.750	3.85	4.333	2.56	5.92	1.28
1.250	1.92	2.833	19.23	4.417	2.56	6.00	1.28
1.333	1.92	2.917	19.23	4.500	2.56	6.08	1.28
1.417	1.92	3.000	19.23	4.583	2.56	6.17	1.28
1.500	1.92	3.083	50.00	4.667	2.56	6.25	1.28
1.583	1.92	3.167	50.00	4.750	2.56		

Unit Hyd Qpeak (cms)= 0.939

PEAK FLOW (cms)= 0.042 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 3.186
TOTAL RAINFALL (mm)= 32.050
RUNOFF COEFFICIENT = 0.099

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

CALIB					
NASHYD (0006)	Area	(ha)=	2.96	Curve Number	(CN)= 47.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.25		

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	1.667	1.92	3.250	50.00	4.83	1.92
0.167	0.00	1.750	1.92	3.333	7.05	4.92	1.92
0.250	0.00	1.833	3.20	3.417	7.05	5.00	1.92
0.333	1.28	1.917	3.20	3.500	7.05	5.08	1.92
0.417	1.28	2.000	3.21	3.583	7.05	5.17	1.92
0.500	1.28	2.083	3.20	3.667	7.05	5.25	1.92
0.583	1.28	2.167	3.20	3.750	7.05	5.33	1.28
0.667	1.28	2.250	3.20	3.833	3.21	5.42	1.28
0.750	1.28	2.333	3.85	3.917	3.20	5.50	1.28
0.833	1.92	2.417	3.85	4.000	3.20	5.58	1.28
0.917	1.92	2.500	3.85	4.083	3.20	5.67	1.28
1.000	1.92	2.583	3.85	4.167	3.20	5.75	1.28
1.083	1.92	2.667	3.85	4.250	3.20	5.83	1.28
1.167	1.92	2.750	3.85	4.333	2.56	5.92	1.28
1.250	1.92	2.833	19.23	4.417	2.56	6.00	1.28
1.333	1.92	2.917	19.23	4.500	2.56	6.08	1.28
1.417	1.92	3.000	19.23	4.583	2.56	6.17	1.28
1.500	1.92	3.083	50.00	4.667	2.56	6.25	1.28
1.583	1.92	3.167	50.00	4.750	2.56		

Unit Hyd Qpeak (cms)= 0.452

PEAK FLOW (cms)= 0.019 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 2.332
TOTAL RAINFALL (mm)= 32.050
RUNOFF COEFFICIENT = 0.073

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

ADD HYD (0020)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0019):	7.71	0.038	3.67	3.51
	+ ID2= 2 (0024):	9.86	0.076	3.42	2.86
	ID = 3 (0020):	17.57	0.109	3.42	3.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0020):	17.57	0.109	3.42	3.14
	+ ID2= 2 (0003):	2.95	0.042	3.25	3.19
	ID = 1 (0020):	20.52	0.134	3.33	3.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0020):    20.52   0.134     3.33     3.15
     + ID2= 2 (  0005):     2.23   0.022     3.33     3.46
       ================================================
       ID = 3 (  0020):    22.75   0.156     3.33     3.18

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------
| ADD HYD  (  0020)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0020):    22.75   0.156     3.33     3.18
     + ID2= 2 (  0006):     2.96   0.019     3.42     2.33
       ================================================
       ID = 1 (  0020):    25.71   0.174     3.33     3.08

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
****************************************
** SIMULATION:02 5Yr 6hr Bancroft SCS **
****************************************
--------------------
|    READ STORM    |    Filename: C:\Users\lmattern\AppD
|                  |              ata\Local\Temp\
|                  |              91553c60-0c11-464d-8964-39321412d085\986e9d77
| Ptotal= 41.70 mm |    Comments: 5yr 6hr 15min SCS Type II
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.00    0.00 |  1.75    4.17 |  3.50    9.17 |  5.25    1.67
               0.25    1.67 |  2.00    4.17 |  3.75    4.17 |  5.50    1.67
               0.50    1.67 |  2.25    5.00 |  4.00    4.17 |  5.75    1.67
               0.75    2.50 |  2.50    5.00 |  4.25    3.34 |  6.00    1.67
               1.00    2.50 |  2.75   25.02 |  4.50    3.34 |
               1.25    2.50 |  3.00   65.05 |  4.75    2.50 |
               1.50    2.50 |  3.25    9.17 |  5.00    2.50 |
--------------------
| CALIB            |
| NASHYD   (  0004)|   Area    (ha)=   3.00   Curve Number   (CN)= 54.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.24

        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 | 1.667    2.50 | 3.250   65.05 |  4.83    2.50
               0.167    0.00 | 1.750    2.50 | 3.333    9.17 |  4.92    2.50
               0.250    0.00 | 1.833    4.17 | 3.417    9.17 |  5.00    2.50
               0.333    1.67 | 1.917    4.17 | 3.500    9.17 |  5.08    2.50
               0.417    1.67 | 2.000    4.17 | 3.583    9.17 |  5.17    2.50
               0.500    1.67 | 2.083    4.17 | 3.667    9.17 |  5.25    2.50
               0.583    1.67 | 2.167    4.17 | 3.750    9.17 |  5.33    1.67
               0.667    1.67 | 2.250    4.17 | 3.833    4.17 |  5.42    1.67
               0.750    1.67 | 2.333    5.00 | 3.917    4.17 |  5.50    1.67
               0.833    2.50 | 2.417    5.00 | 4.000    4.17 |  5.58    1.67
               0.917    2.50 | 2.500    5.00 | 4.083    4.17 |  5.67    1.67
               1.000    2.50 | 2.583    5.00 | 4.167    4.17 |  5.75    1.67
               1.083    2.50 | 2.667    5.00 | 4.250    4.17 |  5.83    1.67
               1.167    2.50 | 2.750    5.00 | 4.333    3.34 |  5.92    1.67
               1.250    2.50 | 2.833   25.02 | 4.417    3.34 |  6.00    1.67
               1.333    2.50 | 2.917   25.02 | 4.500    3.34 |  6.08    1.67
               1.417    2.50 | 3.000   25.02 | 4.583    3.34 |  6.17    1.67
               1.500    2.50 | 3.083   65.05 | 4.667    3.34 |  6.25    1.67
               1.583    2.50 | 3.167   65.05 | 4.750    3.34 |

     Unit Hyd Qpeak  (cms)=   0.477

     PEAK FLOW       (cms)=   0.045 (i)
     TIME TO PEAK    (hrs)=   3.333
     RUNOFF VOLUME    (mm)=   5.317
     TOTAL RAINFALL   (mm)=  41.700
     RUNOFF COEFFICIENT   =   0.128

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
--------------------
| CALIB            |
| NASHYD   (  0009)|   Area    (ha)=   6.86   Curve Number   (CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.26

        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 | 1.667    2.50 | 3.250   65.05 |  4.83    2.50
               0.167    0.00 | 1.750    2.50 | 3.333    9.17 |  4.92    2.50
               0.250    0.00 | 1.833    4.17 | 3.417    9.17 |  5.00    2.50
               0.333    1.67 | 1.917    4.17 | 3.500    9.17 |  5.08    2.50
               0.417    1.67 | 2.000    4.17 | 3.583    9.17 |  5.17    2.50
               0.500    1.67 | 2.083    4.17 | 3.667    9.17 |  5.25    2.50
               0.583    1.67 | 2.167    4.17 | 3.750    9.17 |  5.33    1.67
               0.667    1.67 | 2.250    4.17 | 3.833    4.17 |  5.42    1.67
               0.750    1.67 | 2.333    5.00 | 3.917    4.17 |  5.50    1.67
               0.833    2.50 | 2.417    5.00 | 4.000    4.17 |  5.58    1.67
               0.917    2.50 | 2.500    5.00 | 4.083    4.17 |  5.67    1.67
               1.000    2.50 | 2.583    5.00 | 4.167    4.17 |  5.75    1.67
               1.083    2.50 | 2.667    5.00 | 4.250    4.17 |  5.83    1.67
               1.167    2.50 | 2.750    5.00 | 4.333    3.34 |  5.92    1.67
               1.250    2.50 | 2.833   25.02 | 4.417    3.34 |  6.00    1.67
               1.333    2.50 | 2.917   25.02 | 4.500    3.34 |  6.08    1.67
               1.417    2.50 | 3.000   25.02 | 4.583    3.34 |  6.17    1.67
               1.500    2.50 | 3.083   65.05 | 4.667    3.34 |  6.25    1.67
               1.583    2.50 | 3.167   65.05 | 4.750    3.34 |

     Unit Hyd Qpeak  (cms)=   1.008

     PEAK FLOW       (cms)=   0.092 (i)
     TIME TO PEAK    (hrs)=   3.417
     RUNOFF VOLUME    (mm)=   4.964
     TOTAL RAINFALL   (mm)=  41.700
     RUNOFF COEFFICIENT   =   0.119
```

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

ADD HYD (0024)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0004):		3.00	0.045	3.33	5.32
+ ID2= 2 (0009):		6.86	0.092	3.42	4.96
ID = 3 (0024):		9.86	0.136	3.42	5.07

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0002)	Area	(ha)=	1.75	Curve Number (CN)=	62.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.11		

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	1.667	2.50	3.250	65.05	4.83	2.50
0.167	0.00	1.750	2.50	3.333	9.17	4.92	2.50
0.250	0.00	1.833	4.17	3.417	9.17	5.00	2.50
0.333	1.67	1.917	4.17	3.500	9.17	5.08	2.50
0.417	1.67	2.000	4.17	3.583	9.17	5.17	2.50
0.500	1.67	2.083	4.17	3.667	9.17	5.25	2.50
0.583	1.67	2.167	4.17	3.750	9.17	5.33	1.67
0.667	1.67	2.250	4.17	3.833	4.17	5.42	1.67
0.750	1.67	2.333	5.00	3.917	4.17	5.50	1.67
0.833	2.50	2.417	5.00	4.000	4.17	5.58	1.67
0.917	2.50	2.500	5.00	4.083	4.17	5.67	1.67
1.000	2.50	2.583	5.00	4.167	4.17	5.75	1.67
1.083	2.50	2.667	5.00	4.250	4.17	5.83	1.67
1.167	2.50	2.750	5.00	4.333	3.34	5.92	1.67
1.250	2.50	2.833	25.02	4.417	3.34	6.00	1.67
1.333	2.50	2.917	25.02	4.500	3.34	6.08	1.67
1.417	2.50	3.000	25.02	4.583	3.34	6.17	1.67
1.500	2.50	3.083	65.05	4.667	3.34	6.25	1.67
1.583	2.50	3.167	65.05	4.750	3.34		

Unit Hyd Qpeak (cms)= 0.608

PEAK FLOW (cms)= 0.057 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 6.872
TOTAL RAINFALL (mm)= 41.700
RUNOFF COEFFICIENT = 0.165

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

CALIB					
NASHYD (0008)	Area	(ha)=	1.03	Curve Number (CN)=	52.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.13		

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	1.667	2.50	3.250	65.05	4.83	2.50
0.167	0.00	1.750	2.50	3.333	9.17	4.92	2.50
0.250	0.00	1.833	4.17	3.417	9.17	5.00	2.50
0.333	1.67	1.917	4.17	3.500	9.17	5.08	2.50
0.417	1.67	2.000	4.17	3.583	9.17	5.17	2.50
0.500	1.67	2.083	4.17	3.667	9.17	5.25	2.50
0.583	1.67	2.167	4.17	3.750	9.17	5.33	1.67
0.667	1.67	2.250	4.17	3.833	4.17	5.42	1.67
0.750	1.67	2.333	5.00	3.917	4.17	5.50	1.67
0.833	2.50	2.417	5.00	4.000	4.17	5.58	1.67
0.917	2.50	2.500	5.00	4.083	4.17	5.67	1.67
1.000	2.50	2.583	5.00	4.167	4.17	5.75	1.67
1.083	2.50	2.667	5.00	4.250	4.17	5.83	1.67
1.167	2.50	2.750	5.00	4.333	3.34	5.92	1.67
1.250	2.50	2.833	25.02	4.417	3.34	6.00	1.67
1.333	2.50	2.917	25.02	4.500	3.34	6.08	1.67
1.417	2.50	3.000	25.02	4.583	3.34	6.17	1.67
1.500	2.50	3.083	65.05	4.667	3.34	6.25	1.67
1.583	2.50	3.167	65.05	4.750	3.34		

Unit Hyd Qpeak (cms)= 0.303

PEAK FLOW (cms)= 0.021 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 4.918
TOTAL RAINFALL (mm)= 41.700
RUNOFF COEFFICIENT = 0.118

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

ADD HYD (0016)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0002):		1.75	0.057	3.25	6.87
+ ID2= 2 (0008):		1.03	0.021	3.25	4.92
ID = 3 (0016):		2.78	0.079	3.25	6.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0018)	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	0.0530	0.0119
	0.0120	0.0038	0.0830	0.0128
	0.0180	0.0073	0.1010	0.0151
	0.0300	0.0092	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0016)	2.780	0.079	3.25	6.15
OUTFLOW: ID= 1 (0018)	2.780	0.018	3.75	6.12

PEAK FLOW REDUCTION [Qout/Qin](%)= 22.99
TIME SHIFT OF PEAK FLOW (min)= 30.00

MAXIMUM STORAGE USED (ha.m.)= 0.0073

CALIB					
NASHYD (0007)	Area (ha)=	1.43	Curve Number (CN)=	52.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.13			

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	1.667	2.50	3.250	65.05	4.83	2.50
0.167	0.00	1.750	2.50	3.333	9.17	4.92	2.50
0.250	0.00	1.833	4.17	3.417	9.17	5.00	2.50
0.333	1.67	1.917	4.17	3.500	9.17	5.08	2.50
0.417	1.67	2.000	4.17	3.583	9.17	5.17	2.50
0.500	1.67	2.083	4.17	3.667	9.17	5.25	2.50
0.583	1.67	2.167	4.17	3.750	9.17	5.33	1.67
0.667	1.67	2.250	4.17	3.833	4.17	5.42	1.67
0.750	1.67	2.333	5.00	3.917	4.17	5.50	1.67
0.833	2.50	2.417	5.00	4.000	4.17	5.58	1.67
0.917	2.50	2.500	5.00	4.083	4.17	5.67	1.67
1.000	2.50	2.583	5.00	4.167	4.17	5.75	1.67
1.083	2.50	2.667	5.00	4.250	4.17	5.83	1.67
1.167	2.50	2.750	5.00	4.333	3.34	5.92	1.67
1.250	2.50	2.833	25.02	4.417	3.34	6.00	1.67
1.333	2.50	2.917	25.02	4.500	3.34	6.08	1.67
1.417	2.50	3.000	25.02	4.583	3.34	6.17	1.67
1.500	2.50	3.083	65.05	4.667	3.34	6.25	1.67
1.583	2.50	3.167	65.05	4.750	3.34		

Unit Hyd Qpeak (cms)= 0.420

PEAK FLOW (cms)= 0.030 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 4.918
TOTAL RAINFALL (mm)= 41.700
RUNOFF COEFFICIENT = 0.118

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

CALIB					
NASHYD (0001)	Area (ha)=	3.50	Curve Number (CN)=	61.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.18			

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	1.667	2.50	3.250	65.05	4.83	2.50
0.167	0.00	1.750	2.50	3.333	9.17	4.92	2.50
0.250	0.00	1.833	4.17	3.417	9.17	5.00	2.50
0.333	1.67	1.917	4.17	3.500	9.17	5.08	2.50
0.417	1.67	2.000	4.17	3.583	9.17	5.17	2.50
0.500	1.67	2.083	4.17	3.667	9.17	5.25	2.50
0.583	1.67	2.167	4.17	3.750	9.17	5.33	1.67
0.667	1.67	2.250	4.17	3.833	4.17	5.42	1.67
0.750	1.67	2.333	5.00	3.917	4.17	5.50	1.67
0.833	2.50	2.417	5.00	4.000	4.17	5.58	1.67
0.917	2.50	2.500	5.00	4.083	4.17	5.67	1.67
1.000	2.50	2.583	5.00	4.167	4.17	5.75	1.67
1.083	2.50	2.667	5.00	4.250	4.17	5.83	1.67
1.167	2.50	2.750	5.00	4.333	3.34	5.92	1.67
1.250	2.50	2.833	25.02	4.417	3.34	6.00	1.67
1.333	2.50	2.917	25.02	4.500	3.34	6.08	1.67
1.417	2.50	3.000	25.02	4.583	3.34	6.17	1.67
1.500	2.50	3.083	65.05	4.667	3.34	6.25	1.67
1.583	2.50	3.167	65.05	4.750	3.34		

Unit Hyd Qpeak (cms)= 0.743

PEAK FLOW (cms)= 0.082 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 6.746
TOTAL RAINFALL (mm)= 41.700
RUNOFF COEFFICIENT = 0.162

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

ADD HYD (0015)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0001):	3.50	0.082	3.33	6.75
	+ ID2= 2 (0007):	1.43	0.030	3.25	4.92
	ID = 3 (0015):	4.93	0.108	3.33	6.22

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0017)	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	0.0830	0.0204
	0.0260	0.0058	0.0980	0.0228
	0.0380	0.0115	0.1520	0.0264
	0.0440	0.0160	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0015)	4.930	0.108	3.33	6.22
OUTFLOW: ID= 1 (0017)	4.930	0.038	3.75	6.21

PEAK FLOW REDUCTION [Qout/Qin](%)= 35.02
TIME SHIFT OF PEAK FLOW (min)= 25.00
MAXIMUM STORAGE USED (ha.m.)= 0.0114

ADD HYD (0019)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0017):	4.93	0.038	3.75	6.21
	+ ID2= 2 (0018):	2.78	0.018	3.75	6.12
	ID = 3 (0019):	7.71	0.056	3.75	6.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0005)	Area (ha)=	2.23	Curve Number (CN)=	58.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.23			

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	1.667	2.50	3.250	65.05	4.83	2.50
0.167	0.00	1.750	2.50	3.333	9.17	4.92	2.50
0.250	0.00	1.833	4.17	3.417	9.17	5.00	2.50
0.333	1.67	1.917	4.17	3.500	9.17	5.08	2.50
0.417	1.67	2.000	4.17	3.583	9.17	5.17	2.50
0.500	1.67	2.083	4.17	3.667	9.17	5.25	2.50
0.583	1.67	2.167	4.17	3.750	9.17	5.33	1.67
0.667	1.67	2.250	4.17	3.833	4.17	5.42	1.67
0.750	1.67	2.333	5.00	3.917	4.17	5.50	1.67
0.833	2.50	2.417	5.00	4.000	4.17	5.58	1.67
0.917	2.50	2.500	5.00	4.083	4.17	5.67	1.67
1.000	2.50	2.583	5.00	4.167	4.17	5.75	1.67
1.083	2.50	2.667	5.00	4.250	4.17	5.83	1.67
1.167	2.50	2.750	5.00	4.333	3.34	5.92	1.67
1.250	2.50	2.833	25.02	4.417	3.34	6.00	1.67
1.333	2.50	2.917	25.02	4.500	3.34	6.08	1.67
1.417	2.50	3.000	25.02	4.583	3.34	6.17	1.67
1.500	2.50	3.083	65.05	4.667	3.34	6.25	1.67
1.583	2.50	3.167	65.05	4.750	3.34		

Unit Hyd Qpeak (cms)= 0.370

PEAK FLOW (cms)= 0.040 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 6.098
TOTAL RAINFALL (mm)= 41.700
RUNOFF COEFFICIENT = 0.146

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

CALIB					
NASHYD (0003)	Area (ha)=	2.95	Curve Number (CN)=	56.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.12			

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	1.667	2.50	3.250	65.05	4.83	2.50
0.167	0.00	1.750	2.50	3.333	9.17	4.92	2.50
0.250	0.00	1.833	4.17	3.417	9.17	5.00	2.50
0.333	1.67	1.917	4.17	3.500	9.17	5.08	2.50
0.417	1.67	2.000	4.17	3.583	9.17	5.17	2.50
0.500	1.67	2.083	4.17	3.667	9.17	5.25	2.50
0.583	1.67	2.167	4.17	3.750	9.17	5.33	1.67
0.667	1.67	2.250	4.17	3.833	4.17	5.42	1.67
0.750	1.67	2.333	5.00	3.917	4.17	5.50	1.67
0.833	2.50	2.417	5.00	4.000	4.17	5.58	1.67
0.917	2.50	2.500	5.00	4.083	4.17	5.67	1.67
1.000	2.50	2.583	5.00	4.167	4.17	5.75	1.67
1.083	2.50	2.667	5.00	4.250	4.17	5.83	1.67
1.167	2.50	2.750	5.00	4.333	3.34	5.92	1.67
1.250	2.50	2.833	25.02	4.417	3.34	6.00	1.67
1.333	2.50	2.917	25.02	4.500	3.34	6.08	1.67
1.417	2.50	3.000	25.02	4.583	3.34	6.17	1.67
1.500	2.50	3.083	65.05	4.667	3.34	6.25	1.67
1.583	2.50	3.167	65.05	4.750	3.34		

Unit Hyd Qpeak (cms)= 0.939

PEAK FLOW (cms)= 0.074 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 5.624
TOTAL RAINFALL (mm)= 41.700
RUNOFF COEFFICIENT = 0.135

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

CALIB					
NASHYD (0006)	Area (ha)=	2.96	Curve Number (CN)=	47.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.25			

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	1.667	2.50	3.250	65.05	4.83	2.50
0.167	0.00	1.750	2.50	3.333	9.17	4.92	2.50
0.250	0.00	1.833	4.17	3.417	9.17	5.00	2.50
0.333	1.67	1.917	4.17	3.500	9.17	5.08	2.50
0.417	1.67	2.000	4.17	3.583	9.17	5.17	2.50
0.500	1.67	2.083	4.17	3.667	9.17	5.25	2.50
0.583	1.67	2.167	4.17	3.750	9.17	5.33	1.67
0.667	1.67	2.250	4.17	3.833	4.17	5.42	1.67
0.750	1.67	2.333	5.00	3.917	4.17	5.50	1.67
0.833	2.50	2.417	5.00	4.000	4.17	5.58	1.67
0.917	2.50	2.500	5.00	4.083	4.17	5.67	1.67
1.000	2.50	2.583	5.00	4.167	4.17	5.75	1.67
1.083	2.50	2.667	5.00	4.250	4.17	5.83	1.67
1.167	2.50	2.750	5.00	4.333	3.34	5.92	1.67
1.250	2.50	2.833	25.02	4.417	3.34	6.00	1.67
1.333	2.50	2.917	25.02	4.500	3.34	6.08	1.67
1.417	2.50	3.000	25.02	4.583	3.34	6.17	1.67
1.500	2.50	3.083	65.05	4.667	3.34	6.25	1.67
1.583	2.50	3.167	65.05	4.750	3.34		

Unit Hyd Qpeak (cms)= 0.452

PEAK FLOW (cms)= 0.034 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 4.165
TOTAL RAINFALL (mm)= 41.700
RUNOFF COEFFICIENT = 0.100

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

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--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0019):      7.71   0.056     3.75     6.18
     + ID2= 2 (  0024):      9.86   0.136     3.42     5.07
       ================================================
       ID = 3 (  0020):     17.57   0.186     3.42     5.56

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

--------------------
| ADD HYD  (  0020)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0020):     17.57   0.186     3.42     5.56
     + ID2= 2 (  0003):      2.95   0.074     3.25     5.62
       ================================================
       ID = 1 (  0020):     20.52   0.238     3.33     5.57

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0020):     20.52   0.238     3.33     5.57
     + ID2= 2 (  0005):      2.23   0.040     3.33     6.10
       ================================================
       ID = 3 (  0020):     22.75   0.278     3.33     5.62

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

--------------------
| ADD HYD  (  0020)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0020):     22.75   0.278     3.33     5.62
     + ID2= 2 (  0006):      2.96   0.034     3.42     4.16
       ================================================
       ID = 1 (  0020):     25.71   0.311     3.33     5.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
********************************************
** SIMULATION:03 10yr 6hr 15min SCS Type II **
********************************************

--------------------
|    READ STORM    |    Filename: C:\Users\lmattern\AppD
|                  |              ata\Local\Temp\
|                  |              91553c60-0c11-464d-8964-39321412d085\d233ebf2
| Ptotal= 47.44 mm |    Comments: 10yr 6hr 15min SCS Type II
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.00    0.00 |  1.75    4.74 |  3.50   10.44 |  5.25    1.90
               0.25    1.90 |  2.00    4.74 |  3.75    4.74 |  5.50    1.90
               0.50    1.90 |  2.25    5.69 |  4.00    4.74 |  5.75    1.90
               0.75    2.85 |  2.50    5.69 |  4.25    3.80 |  6.00    1.90
               1.00    2.85 |  2.75   28.46 |  4.50    3.80 |
               1.25    2.85 |  3.00   74.01 |  4.75    2.85 |
               1.50    2.85 |  3.25   10.44 |  5.00    2.85 |

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| CALIB            |
| NASHYD   (  0004)|   Area    (ha)=   3.00   Curve Number   (CN)= 54.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.24

         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 | 1.667    2.85 | 3.250   74.01 |  4.83    2.85
               0.167    0.00 | 1.750    2.85 | 3.333   10.44 |  4.92    2.85
               0.250    0.00 | 1.833    4.74 | 3.417   10.44 |  5.00    2.85
               0.333    1.90 | 1.917    4.74 | 3.500   10.44 |  5.08    2.85
               0.417    1.90 | 2.000    4.74 | 3.583   10.44 |  5.17    2.85
               0.500    1.90 | 2.083    4.74 | 3.667   10.44 |  5.25    2.85
               0.583    1.90 | 2.167    4.74 | 3.750   10.44 |  5.33    1.90
               0.667    1.90 | 2.250    4.74 | 3.833    4.74 |  5.42    1.90
               0.750    1.90 | 2.333    5.69 | 3.917    4.74 |  5.50    1.90
               0.833    2.85 | 2.417    5.69 | 4.000    4.74 |  5.58    1.90
               0.917    2.85 | 2.500    5.69 | 4.083    4.74 |  5.67    1.90
               1.000    2.85 | 2.583    5.69 | 4.167    4.74 |  5.75    1.90
               1.083    2.85 | 2.667    5.69 | 4.250    4.74 |  5.83    1.90
               1.167    2.85 | 2.750    5.69 | 4.333    3.80 |  5.92    1.90
               1.250    2.85 | 2.833   28.46 | 4.417    3.80 |  6.00    1.90
               1.333    2.85 | 2.917   28.46 | 4.500    3.80 |  6.08    1.90
               1.417    2.85 | 3.000   28.46 | 4.583    3.80 |  6.17    1.90
               1.500    2.85 | 3.083   74.01 | 4.667    3.80 |  6.25    1.90
               1.583    2.85 | 3.167   74.01 | 4.750    3.80 |

     Unit Hyd Qpeak  (cms)=   0.477

     PEAK FLOW       (cms)=   0.059 (i)
     TIME TO PEAK    (hrs)=   3.333
     RUNOFF VOLUME    (mm)=   6.953
     TOTAL RAINFALL   (mm)=  47.440
     RUNOFF COEFFICIENT   =   0.147

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

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--------------------
| CALIB            |
| NASHYD   (  0009)|   Area    (ha)=   6.86   Curve Number   (CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.26

         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 | 1.667    2.85 | 3.250   74.01 |  4.83    2.85
               0.167    0.00 | 1.750    2.85 | 3.333   10.44 |  4.92    2.85
               0.250    0.00 | 1.833    4.74 | 3.417   10.44 |  5.00    2.85
```

0.333	1.90	1.917	4.74	3.500	10.44	5.08	2.85
0.417	1.90	2.000	4.74	3.583	10.44	5.17	2.85
0.500	1.90	2.083	4.74	3.667	10.44	5.25	2.85
0.583	1.90	2.167	4.74	3.750	10.44	5.33	1.90
0.667	1.90	2.250	4.74	3.833	4.74	5.42	1.90
0.750	1.90	2.333	5.69	3.917	4.74	5.50	1.90
0.833	2.85	2.417	5.69	4.000	4.74	5.58	1.90
0.917	2.85	2.500	5.69	4.083	4.74	5.67	1.90
1.000	2.85	2.583	5.69	4.167	4.74	5.75	1.90
1.083	2.85	2.667	5.69	4.250	4.74	5.83	1.90
1.167	2.85	2.750	5.69	4.333	3.80	5.92	1.90
1.250	2.85	2.833	28.46	4.417	3.80	6.00	1.90
1.333	2.85	2.917	28.46	4.500	3.80	6.08	1.90
1.417	2.85	3.000	28.46	4.583	3.80	6.17	1.90
1.500	2.85	3.083	74.01	4.667	3.80	6.25	1.90
1.583	2.85	3.167	74.01	4.750	3.80		

Unit Hyd Qpeak (cms)= 1.008

PEAK FLOW (cms)= 0.121 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 6.500
TOTAL RAINFALL (mm)= 47.440
RUNOFF COEFFICIENT = 0.137

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

ADD HYD (0024)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0004):		3.00	0.059	3.33	6.95
+ ID2= 2 (0009):		6.86	0.121	3.42	6.50
ID = 3 (0024):		9.86	0.179	3.42	6.64

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0002)	Area	(ha)=	1.75	Curve Number	(CN)= 62.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.11		

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	1.667	2.85	3.250	74.01	4.83	2.85
0.167	0.00	1.750	2.85	3.333	10.44	4.92	2.85
0.250	0.00	1.833	4.74	3.417	10.44	5.00	2.85
0.333	1.90	1.917	4.74	3.500	10.44	5.08	2.85
0.417	1.90	2.000	4.74	3.583	10.44	5.17	2.85
0.500	1.90	2.083	4.74	3.667	10.44	5.25	2.85
0.583	1.90	2.167	4.74	3.750	10.44	5.33	1.90
0.667	1.90	2.250	4.74	3.833	4.74	5.42	1.90
0.750	1.90	2.333	5.69	3.917	4.74	5.50	1.90
0.833	2.85	2.417	5.69	4.000	4.74	5.58	1.90
0.917	2.85	2.500	5.69	4.083	4.74	5.67	1.90
1.000	2.85	2.583	5.69	4.167	4.74	5.75	1.90
1.083	2.85	2.667	5.69	4.250	4.74	5.83	1.90
1.167	2.85	2.750	5.69	4.333	3.80	5.92	1.90
1.250	2.85	2.833	28.46	4.417	3.80	6.00	1.90
1.333	2.85	2.917	28.46	4.500	3.80	6.08	1.90
1.417	2.85	3.000	28.46	4.583	3.80	6.17	1.90
1.500	2.85	3.083	74.01	4.667	3.80	6.25	1.90
1.583	2.85	3.167	74.01	4.750	3.80		

Unit Hyd Qpeak (cms)= 0.608

PEAK FLOW (cms)= 0.074 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 8.924
TOTAL RAINFALL (mm)= 47.440
RUNOFF COEFFICIENT = 0.188

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

CALIB					
NASHYD (0008)	Area	(ha)=	1.03	Curve Number	(CN)= 52.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.13		

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	1.667	2.85	3.250	74.01	4.83	2.85
0.167	0.00	1.750	2.85	3.333	10.44	4.92	2.85
0.250	0.00	1.833	4.74	3.417	10.44	5.00	2.85
0.333	1.90	1.917	4.74	3.500	10.44	5.08	2.85
0.417	1.90	2.000	4.74	3.583	10.44	5.17	2.85
0.500	1.90	2.083	4.74	3.667	10.44	5.25	2.85
0.583	1.90	2.167	4.74	3.750	10.44	5.33	1.90
0.667	1.90	2.250	4.74	3.833	4.74	5.42	1.90
0.750	1.90	2.333	5.69	3.917	4.74	5.50	1.90
0.833	2.85	2.417	5.69	4.000	4.74	5.58	1.90
0.917	2.85	2.500	5.69	4.083	4.74	5.67	1.90
1.000	2.85	2.583	5.69	4.167	4.74	5.75	1.90
1.083	2.85	2.667	5.69	4.250	4.74	5.83	1.90
1.167	2.85	2.750	5.69	4.333	3.80	5.92	1.90
1.250	2.85	2.833	28.46	4.417	3.80	6.00	1.90
1.333	2.85	2.917	28.46	4.500	3.80	6.08	1.90
1.417	2.85	3.000	28.46	4.583	3.80	6.17	1.90
1.500	2.85	3.083	74.01	4.667	3.80	6.25	1.90
1.583	2.85	3.167	74.01	4.750	3.80		

Unit Hyd Qpeak (cms)= 0.303

PEAK FLOW (cms)= 0.028 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 6.440
TOTAL RAINFALL (mm)= 47.440
RUNOFF COEFFICIENT = 0.136

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

ADD HYD (0016)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3					

```
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0002):     1.75   0.074     3.25     8.92
      + ID2= 2 (  0008):     1.03   0.028     3.25     6.44
        ================================================
        ID = 3 (  0016):     2.78   0.103     3.25     8.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0018)|     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   |   0.0530     0.0119
                          0.0120     0.0038   |   0.0830     0.0128
                          0.0180     0.0073   |   0.1010     0.0151
                          0.0300     0.0092   |   0.0000     0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0016)     2.780     0.103      3.25       8.00
   OUTFLOW: ID= 1 (  0018)     2.780     0.030      3.58       7.98

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 29.03
                  TIME SHIFT OF PEAK FLOW          (min)= 20.00
                  MAXIMUM  STORAGE   USED        (ha.m.)=  0.0092

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--------------------
| CALIB            |
| NASHYD   (  0007)|   Area     (ha)=   1.43   Curve Number    (CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.13

         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 | 1.667    2.85 | 3.250   74.01 |  4.83    2.85
    0.167    0.00 | 1.750    2.85 | 3.333   10.44 |  4.92    2.85
    0.250    0.00 | 1.833    4.74 | 3.417   10.44 |  5.00    2.85
    0.333    1.90 | 1.917    4.74 | 3.500   10.44 |  5.08    2.85
    0.417    1.90 | 2.000    4.74 | 3.583   10.44 |  5.17    2.85
    0.500    1.90 | 2.083    4.74 | 3.667   10.44 |  5.25    2.85
    0.583    1.90 | 2.167    4.74 | 3.750   10.44 |  5.33    1.90
    0.667    1.90 | 2.250    4.74 | 3.833    4.74 |  5.42    1.90
    0.750    1.90 | 2.333    5.69 | 3.917    4.74 |  5.50    1.90
    0.833    2.85 | 2.417    5.69 | 4.000    4.74 |  5.58    1.90
    0.917    2.85 | 2.500    5.69 | 4.083    4.74 |  5.67    1.90
    1.000    2.85 | 2.583    5.69 | 4.167    4.74 |  5.75    1.90
    1.083    2.85 | 2.667    5.69 | 4.250    4.74 |  5.83    1.90
    1.167    2.85 | 2.750    5.69 | 4.333    3.80 |  5.92    1.90
    1.250    2.85 | 2.833   28.46 | 4.417    3.80 |  6.00    1.90
    1.333    2.85 | 2.917   28.46 | 4.500    3.80 |  6.08    1.90
    1.417    2.85 | 3.000   28.46 | 4.583    3.80 |  6.17    1.90
    1.500    2.85 | 3.083   74.01 | 4.667    3.80 |  6.25    1.90
    1.583    2.85 | 3.167   74.01 | 4.750    3.80 |

     Unit Hyd Qpeak  (cms)=   0.420

     PEAK FLOW       (cms)=   0.039 (i)
     TIME TO PEAK    (hrs)=   3.250
     RUNOFF VOLUME    (mm)=   6.440
     TOTAL RAINFALL   (mm)=  47.440
     RUNOFF COEFFICIENT   =   0.136

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

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--------------------
| CALIB            |
| NASHYD   (  0001)|   Area     (ha)=   3.50   Curve Number    (CN)= 61.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.18

         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 | 1.667    2.85 | 3.250   74.01 |  4.83    2.85
    0.167    0.00 | 1.750    2.85 | 3.333   10.44 |  4.92    2.85
    0.250    0.00 | 1.833    4.74 | 3.417   10.44 |  5.00    2.85
    0.333    1.90 | 1.917    4.74 | 3.500   10.44 |  5.08    2.85
    0.417    1.90 | 2.000    4.74 | 3.583   10.44 |  5.17    2.85
    0.500    1.90 | 2.083    4.74 | 3.667   10.44 |  5.25    2.85
    0.583    1.90 | 2.167    4.74 | 3.750   10.44 |  5.33    1.90
    0.667    1.90 | 2.250    4.74 | 3.833    4.74 |  5.42    1.90
    0.750    1.90 | 2.333    5.69 | 3.917    4.74 |  5.50    1.90
    0.833    2.85 | 2.417    5.69 | 4.000    4.74 |  5.58    1.90
    0.917    2.85 | 2.500    5.69 | 4.083    4.74 |  5.67    1.90
    1.000    2.85 | 2.583    5.69 | 4.167    4.74 |  5.75    1.90
    1.083    2.85 | 2.667    5.69 | 4.250    4.74 |  5.83    1.90
    1.167    2.85 | 2.750    5.69 | 4.333    3.80 |  5.92    1.90
    1.250    2.85 | 2.833   28.46 | 4.417    3.80 |  6.00    1.90
    1.333    2.85 | 2.917   28.46 | 4.500    3.80 |  6.08    1.90
    1.417    2.85 | 3.000   28.46 | 4.583    3.80 |  6.17    1.90
    1.500    2.85 | 3.083   74.01 | 4.667    3.80 |  6.25    1.90
    1.583    2.85 | 3.167   74.01 | 4.750    3.80 |

     Unit Hyd Qpeak  (cms)=   0.743

     PEAK FLOW       (cms)=   0.107 (i)
     TIME TO PEAK    (hrs)=   3.333
     RUNOFF VOLUME    (mm)=   8.768
     TOTAL RAINFALL   (mm)=  47.440
     RUNOFF COEFFICIENT   =   0.185

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

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--------------------
| ADD HYD  (  0015)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     3.50   0.107     3.33     8.77
      + ID2= 2 (  0007):     1.43   0.039     3.25     6.44
        ================================================
        ID = 3 (  0015):     4.93   0.141     3.33     8.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR(  0017)|     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		0.0830	0.0204
	0.0260	0.0058		0.0980	0.0228
	0.0380	0.0115		0.1520	0.0264
	0.0440	0.0160		0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0015)	4.930	0.141	3.33	8.09
OUTFLOW: ID= 1 (0017)	4.930	0.044	3.83	8.08

PEAK FLOW REDUCTION [Qout/Qin](%)= 31.07
TIME SHIFT OF PEAK FLOW (min)= 30.00
MAXIMUM STORAGE USED (ha.m.)= 0.0160

ADD HYD (0019)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0017):	4.93	0.044	3.83	8.08
	+ ID2= 2 (0018):	2.78	0.030	3.58	7.98
	ID = 3 (0019):	7.71	0.073	3.58	8.04

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0005)	ID= 1 DT= 5.0 min	Area (ha)=	2.23	Curve Number (CN)=	58.0
		Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
		U.H. Tp(hrs)=	0.23		

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	1.667	2.85	3.250	74.01	4.83	2.85
0.167	0.00	1.750	2.85	3.333	10.44	4.92	2.85
0.250	0.00	1.833	4.74	3.417	10.44	5.00	2.85
0.333	1.90	1.917	4.74	3.500	10.44	5.08	2.85
0.417	1.90	2.000	4.74	3.583	10.44	5.17	2.85
0.500	1.90	2.083	4.74	3.667	10.44	5.25	2.85
0.583	1.90	2.167	4.74	3.750	10.44	5.33	1.90
0.667	1.90	2.250	4.74	3.833	4.74	5.42	1.90
0.750	1.90	2.333	5.69	3.917	4.74	5.50	1.90
0.833	2.85	2.417	5.69	4.000	4.74	5.58	1.90
0.917	2.85	2.500	5.69	4.083	4.74	5.67	1.90
1.000	2.85	2.583	5.69	4.167	4.74	5.75	1.90
1.083	2.85	2.667	5.69	4.250	4.74	5.83	1.90
1.167	2.85	2.750	5.69	4.333	3.80	5.92	1.90
1.250	2.85	2.833	28.46	4.417	3.80	6.00	1.90
1.333	2.85	2.917	28.46	4.500	3.80	6.08	1.90
1.417	2.85	3.000	28.46	4.583	3.80	6.17	1.90
1.500	2.85	3.083	74.01	4.667	3.80	6.25	1.90
1.583	2.85	3.167	74.01	4.750	3.80		

Unit Hyd Qpeak (cms)= 0.370

PEAK FLOW (cms)= 0.053 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 7.948
TOTAL RAINFALL (mm)= 47.440
RUNOFF COEFFICIENT = 0.168

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

CALIB					
NASHYD (0003)	ID= 1 DT= 5.0 min	Area (ha)=	2.95	Curve Number (CN)=	56.0
		Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
		U.H. Tp(hrs)=	0.12		

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	1.667	2.85	3.250	74.01	4.83	2.85
0.167	0.00	1.750	2.85	3.333	10.44	4.92	2.85
0.250	0.00	1.833	4.74	3.417	10.44	5.00	2.85
0.333	1.90	1.917	4.74	3.500	10.44	5.08	2.85
0.417	1.90	2.000	4.74	3.583	10.44	5.17	2.85
0.500	1.90	2.083	4.74	3.667	10.44	5.25	2.85
0.583	1.90	2.167	4.74	3.750	10.44	5.33	1.90
0.667	1.90	2.250	4.74	3.833	4.74	5.42	1.90
0.750	1.90	2.333	5.69	3.917	4.74	5.50	1.90
0.833	2.85	2.417	5.69	4.000	4.74	5.58	1.90
0.917	2.85	2.500	5.69	4.083	4.74	5.67	1.90
1.000	2.85	2.583	5.69	4.167	4.74	5.75	1.90
1.083	2.85	2.667	5.69	4.250	4.74	5.83	1.90
1.167	2.85	2.750	5.69	4.333	3.80	5.92	1.90
1.250	2.85	2.833	28.46	4.417	3.80	6.00	1.90
1.333	2.85	2.917	28.46	4.500	3.80	6.08	1.90
1.417	2.85	3.000	28.46	4.583	3.80	6.17	1.90
1.500	2.85	3.083	74.01	4.667	3.80	6.25	1.90
1.583	2.85	3.167	74.01	4.750	3.80		

Unit Hyd Qpeak (cms)= 0.939

PEAK FLOW (cms)= 0.097 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 7.343
TOTAL RAINFALL (mm)= 47.440
RUNOFF COEFFICIENT = 0.155

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

CALIB					
NASHYD (0006)	ID= 1 DT= 5.0 min	Area (ha)=	2.96	Curve Number (CN)=	47.0
		Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
		U.H. Tp(hrs)=	0.25		

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	1.667	2.85	3.250	74.01	4.83	2.85
0.167	0.00	1.750	2.85	3.333	10.44	4.92	2.85
0.250	0.00	1.833	4.74	3.417	10.44	5.00	2.85
0.333	1.90	1.917	4.74	3.500	10.44	5.08	2.85

0.417	1.90	2.000	4.74	3.583	10.44	5.17	2.85
0.500	1.90	2.083	4.74	3.667	10.44	5.25	2.85
0.583	1.90	2.167	4.74	3.750	10.44	5.33	1.90
0.667	1.90	2.250	4.74	3.833	4.74	5.42	1.90
0.750	1.90	2.333	5.69	3.917	4.74	5.50	1.90
0.833	2.85	2.417	5.69	4.000	4.74	5.58	1.90
0.917	2.85	2.500	5.69	4.083	4.74	5.67	1.90
1.000	2.85	2.583	5.69	4.167	4.74	5.75	1.90
1.083	2.85	2.667	5.69	4.250	4.74	5.83	1.90
1.167	2.85	2.750	5.69	4.333	3.80	5.92	1.90
1.250	2.85	2.833	28.46	4.417	3.80	6.00	1.90
1.333	2.85	2.917	28.46	4.500	3.80	6.08	1.90
1.417	2.85	3.000	28.46	4.583	3.80	6.17	1.90
1.500	2.85	3.083	74.01	4.667	3.80	6.25	1.90
1.583	2.85	3.167	74.01	4.750	3.80		

Unit Hyd Qpeak (cms)= 0.452

PEAK FLOW (cms)= 0.045 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 5.472
TOTAL RAINFALL (mm)= 47.440
RUNOFF COEFFICIENT = 0.115

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

ADD HYD (0020) | 1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0019):		7.71	0.073	3.58	8.04
+ ID2= 2 (0024):		9.86	0.179	3.42	6.64
ID = 3 (0020):		17.57	0.246	3.42	7.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020) | 3 + 2 = 1		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0020):		17.57	0.246	3.42	7.26
+ ID2= 2 (0003):		2.95	0.097	3.25	7.34
ID = 1 (0020):		20.52	0.308	3.33	7.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020) | 1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0020):		20.52	0.308	3.33	7.27
+ ID2= 2 (0005):		2.23	0.053	3.33	7.95
ID = 3 (0020):		22.75	0.361	3.33	7.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020) | 3 + 2 = 1		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0020):		22.75	0.361	3.33	7.33
+ ID2= 2 (0006):		2.96	0.045	3.42	5.47
ID = 1 (0020):		25.71	0.405	3.33	7.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:04 25yr 6hr 15min SCS Type II **
****

READ STORM | Filename: C:\Users\lmattern\AppData\Local\Temp\91553c60-0c11-464d-8964-39321412d085\9a0c158c
Ptotal= 55.51 mm | Comments: 25yr 6hr 15min SCS Type II

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	1.75	5.55	3.50	12.21	5.25	2.22
0.25	2.22	2.00	5.55	3.75	5.55	5.50	2.22
0.50	2.22	2.25	6.66	4.00	5.55	5.75	2.22
0.75	3.33	2.50	6.66	4.25	4.44	6.00	2.22
1.00	3.33	2.75	33.31	4.50	4.44		
1.25	3.33	3.00	86.60	4.75	3.33		
1.50	3.33	3.25	12.21	5.00	3.33		

CALIB NASHYD (0004) \| ID= 1 DT= 5.0 min
Area (ha)= 3.00 Curve Number (CN)= 54.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.24

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	1.667	3.33	3.250	86.60	4.83	3.33
0.167	0.00	1.750	3.33	3.333	12.21	4.92	3.33
0.250	0.00	1.833	5.55	3.417	12.21	5.00	3.33
0.333	2.22	1.917	5.55	3.500	12.21	5.08	3.33
0.417	2.22	2.000	5.55	3.583	12.21	5.17	3.33
0.500	2.22	2.083	5.55	3.667	12.21	5.25	3.33
0.583	2.22	2.167	5.55	3.750	12.21	5.33	2.22
0.667	2.22	2.250	5.55	3.833	5.55	5.42	2.22
0.750	2.22	2.333	6.66	3.917	5.55	5.50	2.22
0.833	3.33	2.417	6.66	4.000	5.55	5.58	2.22
0.917	3.33	2.500	6.66	4.083	5.55	5.67	2.22
1.000	3.33	2.583	6.66	4.167	5.55	5.75	2.22
1.083	3.33	2.667	6.66	4.250	5.55	5.83	2.22
1.167	3.33	2.750	6.66	4.333	4.44	5.92	2.22
1.250	3.33	2.833	33.31	4.417	4.44	6.00	2.22
1.333	3.33	2.917	33.31	4.500	4.44	6.08	2.22
1.417	3.33	3.000	33.31	4.583	4.44	6.17	2.22
1.500	3.33	3.083	86.60	4.667	4.44	6.25	2.22
1.583	3.33	3.167	86.60	4.750	4.44		

Unit Hyd Qpeak (cms)= 0.477

```
      PEAK FLOW       (cms)=   0.082 (i)
      TIME TO PEAK    (hrs)=   3.333
      RUNOFF VOLUME    (mm)=   9.550
      TOTAL RAINFALL   (mm)=  55.510
      RUNOFF COEFFICIENT   =   0.172

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0009)|   Area    (ha)=   6.86   Curve Number   (CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.26

         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 | 1.667    3.33 | 3.250   86.60 |  4.83    3.33
    0.167    0.00 | 1.750    3.33 | 3.333   12.21 |  4.92    3.33
    0.250    0.00 | 1.833    5.55 | 3.417   12.21 |  5.00    3.33
    0.333    2.22 | 1.917    5.55 | 3.500   12.21 |  5.08    3.33
    0.417    2.22 | 2.000    5.55 | 3.583   12.21 |  5.17    3.33
    0.500    2.22 | 2.083    5.55 | 3.667   12.21 |  5.25    3.33
    0.583    2.22 | 2.167    5.55 | 3.750   12.21 |  5.33    2.22
    0.667    2.22 | 2.250    5.55 | 3.833    5.55 |  5.42    2.22
    0.750    2.22 | 2.333    6.66 | 3.917    5.55 |  5.50    2.22
    0.833    3.33 | 2.417    6.66 | 4.000    5.55 |  5.58    2.22
    0.917    3.33 | 2.500    6.66 | 4.083    5.55 |  5.67    2.22
    1.000    3.33 | 2.583    6.66 | 4.167    5.55 |  5.75    2.22
    1.083    3.33 | 2.667    6.66 | 4.250    5.55 |  5.83    2.22
    1.167    3.33 | 2.750    6.66 | 4.333    4.44 |  5.92    2.22
    1.250    3.33 | 2.833   33.31 | 4.417    4.44 |  6.00    2.22
    1.333    3.33 | 2.917   33.31 | 4.500    4.44 |  6.08    2.22
    1.417    3.33 | 3.000   33.31 | 4.583    4.44 |  6.17    2.22
    1.500    3.33 | 3.083   86.60 | 4.667    4.44 |  6.25    2.22
    1.583    3.33 | 3.167   86.60 | 4.750    4.44 |

      Unit Hyd Qpeak  (cms)=   1.008

      PEAK FLOW       (cms)=   0.167 (i)
      TIME TO PEAK    (hrs)=   3.417
      RUNOFF VOLUME    (mm)=   8.947
      TOTAL RAINFALL   (mm)=  55.510
      RUNOFF COEFFICIENT   =   0.161

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

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

--------------------
| ADD HYD  (  0024)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0004):     3.00   0.082     3.33     9.55
      + ID2= 2 (  0009):     6.86   0.167     3.42     8.95
        ================================================
        ID = 3 (  0024):     9.86   0.248     3.42     9.13

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

```
--------------------
| CALIB            |
| NASHYD   (  0002)|   Area    (ha)=   1.75   Curve Number   (CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.11

         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 | 1.667    3.33 | 3.250   86.60 |  4.83    3.33
    0.167    0.00 | 1.750    3.33 | 3.333   12.21 |  4.92    3.33
    0.250    0.00 | 1.833    5.55 | 3.417   12.21 |  5.00    3.33
    0.333    2.22 | 1.917    5.55 | 3.500   12.21 |  5.08    3.33
    0.417    2.22 | 2.000    5.55 | 3.583   12.21 |  5.17    3.33
    0.500    2.22 | 2.083    5.55 | 3.667   12.21 |  5.25    3.33
    0.583    2.22 | 2.167    5.55 | 3.750   12.21 |  5.33    2.22
    0.667    2.22 | 2.250    5.55 | 3.833    5.55 |  5.42    2.22
    0.750    2.22 | 2.333    6.66 | 3.917    5.55 |  5.50    2.22
    0.833    3.33 | 2.417    6.66 | 4.000    5.55 |  5.58    2.22
    0.917    3.33 | 2.500    6.66 | 4.083    5.55 |  5.67    2.22
    1.000    3.33 | 2.583    6.66 | 4.167    5.55 |  5.75    2.22
    1.083    3.33 | 2.667    6.66 | 4.250    5.55 |  5.83    2.22
    1.167    3.33 | 2.750    6.66 | 4.333    4.44 |  5.92    2.22
    1.250    3.33 | 2.833   33.31 | 4.417    4.44 |  6.00    2.22
    1.333    3.33 | 2.917   33.31 | 4.500    4.44 |  6.08    2.22
    1.417    3.33 | 3.000   33.31 | 4.583    4.44 |  6.17    2.22
    1.500    3.33 | 3.083   86.60 | 4.667    4.44 |  6.25    2.22
    1.583    3.33 | 3.167   86.60 | 4.750    4.44 |

      Unit Hyd Qpeak  (cms)=   0.608

      PEAK FLOW       (cms)=   0.101 (i)
      TIME TO PEAK    (hrs)=   3.250
      RUNOFF VOLUME    (mm)=  12.146
      TOTAL RAINFALL   (mm)=  55.510
      RUNOFF COEFFICIENT   =   0.219

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0008)|   Area    (ha)=   1.03   Curve Number   (CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.13

         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 | 1.667    3.33 | 3.250   86.60 |  4.83    3.33
    0.167    0.00 | 1.750    3.33 | 3.333   12.21 |  4.92    3.33
    0.250    0.00 | 1.833    5.55 | 3.417   12.21 |  5.00    3.33
    0.333    2.22 | 1.917    5.55 | 3.500   12.21 |  5.08    3.33
    0.417    2.22 | 2.000    5.55 | 3.583   12.21 |  5.17    3.33
    0.500    2.22 | 2.083    5.55 | 3.667   12.21 |  5.25    3.33
    0.583    2.22 | 2.167    5.55 | 3.750   12.21 |  5.33    2.22
    0.667    2.22 | 2.250    5.55 | 3.833    5.55 |  5.42    2.22
    0.750    2.22 | 2.333    6.66 | 3.917    5.55 |  5.50    2.22
    0.833    3.33 | 2.417    6.66 | 4.000    5.55 |  5.58    2.22
```

```
                0.917    3.33 | 2.500    6.66 | 4.083    5.55 |  5.67    2.22
                1.000    3.33 | 2.583    6.66 | 4.167    5.55 |  5.75    2.22
                1.083    3.33 | 2.667    6.66 | 4.250    5.55 |  5.83    2.22
                1.167    3.33 | 2.750    6.66 | 4.333    4.44 |  5.92    2.22
                1.250    3.33 | 2.833   33.31 | 4.417    4.44 |  6.00    2.22
                1.333    3.33 | 2.917   33.31 | 4.500    4.44 |  6.08    2.22
                1.417    3.33 | 3.000   33.31 | 4.583    4.44 |  6.17    2.22
                1.500    3.33 | 3.083   86.60 | 4.667    4.44 |  6.25    2.22
                1.583    3.33 | 3.167   86.60 | 4.750    4.44 |

     Unit Hyd Qpeak  (cms)=   0.303

     PEAK FLOW       (cms)=   0.039 (i)
     TIME TO PEAK    (hrs)=   3.250
     RUNOFF VOLUME    (mm)=   8.864
     TOTAL RAINFALL   (mm)=  55.510
     RUNOFF COEFFICIENT   =   0.160

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

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

--------------------
| ADD HYD  (  0016)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0002):     1.75   0.101     3.25    12.15
      + ID2= 2 (  0008):     1.03   0.039     3.25     8.86
        ================================================
        ID = 3 (  0016):     2.78   0.140     3.25    10.93

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0018)|     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   |   0.0530     0.0119
                          0.0120     0.0038   |   0.0830     0.0128
                          0.0180     0.0073   |   0.1010     0.0151
                          0.0300     0.0092   |   0.0000     0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0016)     2.780     0.140      3.25      10.93
   OUTFLOW: ID= 1 (  0018)     2.780     0.052      3.50      10.90

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 37.10
                  TIME SHIFT OF PEAK FLOW         (min)= 15.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0119

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0007)|   Area    (ha)=   1.43   Curve Number   (CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.13

        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 | 1.667    3.33 | 3.250   86.60 |  4.83    3.33
                0.167    0.00 | 1.750    3.33 | 3.333   12.21 |  4.92    3.33
                0.250    0.00 | 1.833    5.55 | 3.417   12.21 |  5.00    3.33
                0.333    2.22 | 1.917    5.55 | 3.500   12.21 |  5.08    3.33
                0.417    2.22 | 2.000    5.55 | 3.583   12.21 |  5.17    3.33
                0.500    2.22 | 2.083    5.55 | 3.667   12.21 |  5.25    3.33
                0.583    2.22 | 2.167    5.55 | 3.750   12.21 |  5.33    2.22
                0.667    2.22 | 2.250    5.55 | 3.833    5.55 |  5.42    2.22
                0.750    2.22 | 2.333    6.66 | 3.917    5.55 |  5.50    2.22
                0.833    3.33 | 2.417    6.66 | 4.000    5.55 |  5.58    2.22
                0.917    3.33 | 2.500    6.66 | 4.083    5.55 |  5.67    2.22
                1.000    3.33 | 2.583    6.66 | 4.167    5.55 |  5.75    2.22
                1.083    3.33 | 2.667    6.66 | 4.250    5.55 |  5.83    2.22
                1.167    3.33 | 2.750    6.66 | 4.333    4.44 |  5.92    2.22
                1.250    3.33 | 2.833   33.31 | 4.417    4.44 |  6.00    2.22
                1.333    3.33 | 2.917   33.31 | 4.500    4.44 |  6.08    2.22
                1.417    3.33 | 3.000   33.31 | 4.583    4.44 |  6.17    2.22
                1.500    3.33 | 3.083   86.60 | 4.667    4.44 |  6.25    2.22
                1.583    3.33 | 3.167   86.60 | 4.750    4.44 |

     Unit Hyd Qpeak  (cms)=   0.420

     PEAK FLOW       (cms)=   0.054 (i)
     TIME TO PEAK    (hrs)=   3.250
     RUNOFF VOLUME    (mm)=   8.864
     TOTAL RAINFALL   (mm)=  55.510
     RUNOFF COEFFICIENT   =   0.160

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0001)|   Area    (ha)=   3.50   Curve Number   (CN)= 61.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.18

        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 | 1.667    3.33 | 3.250   86.60 |  4.83    3.33
                0.167    0.00 | 1.750    3.33 | 3.333   12.21 |  4.92    3.33
                0.250    0.00 | 1.833    5.55 | 3.417   12.21 |  5.00    3.33
                0.333    2.22 | 1.917    5.55 | 3.500   12.21 |  5.08    3.33
                0.417    2.22 | 2.000    5.55 | 3.583   12.21 |  5.17    3.33
                0.500    2.22 | 2.083    5.55 | 3.667   12.21 |  5.25    3.33
                0.583    2.22 | 2.167    5.55 | 3.750   12.21 |  5.33    2.22
                0.667    2.22 | 2.250    5.55 | 3.833    5.55 |  5.42    2.22
                0.750    2.22 | 2.333    6.66 | 3.917    5.55 |  5.50    2.22
                0.833    3.33 | 2.417    6.66 | 4.000    5.55 |  5.58    2.22
                0.917    3.33 | 2.500    6.66 | 4.083    5.55 |  5.67    2.22
                1.000    3.33 | 2.583    6.66 | 4.167    5.55 |  5.75    2.22
                1.083    3.33 | 2.667    6.66 | 4.250    5.55 |  5.83    2.22
                1.167    3.33 | 2.750    6.66 | 4.333    4.44 |  5.92    2.22
                1.250    3.33 | 2.833   33.31 | 4.417    4.44 |  6.00    2.22
                1.333    3.33 | 2.917   33.31 | 4.500    4.44 |  6.08    2.22
                1.417    3.33 | 3.000   33.31 | 4.583    4.44 |  6.17    2.22
                1.500    3.33 | 3.083   86.60 | 4.667    4.44 |  6.25    2.22
                1.583    3.33 | 3.167   86.60 | 4.750    4.44 |

     Unit Hyd Qpeak  (cms)=   0.743
```

```
     PEAK FLOW       (cms)=   0.147 (i)
     TIME TO PEAK    (hrs)=   3.333
     RUNOFF VOLUME    (mm)=  11.949
     TOTAL RAINFALL   (mm)=  55.510
     RUNOFF COEFFICIENT   =   0.215

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

ADD HYD (0015)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0001):	3.50	0.147	3.33	11.95
	+ ID2= 2 (0007):	1.43	0.054	3.25	8.86
	ID = 3 (0015):	4.93	0.194	3.33	11.05

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

RESERVOIR(0017) / IN= 2---> OUT= 1 / DT= 5.0 min	OVERFLOW IS OFF			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0830	0.0204
	0.0260	0.0058	0.0980	0.0228
	0.0380	0.0115	0.1520	0.0264
	0.0440	0.0160	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0015)	4.930	0.194	3.33	11.05
OUTFLOW: ID= 1 (0017)	4.930	0.082	3.58	11.04

```
                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 42.53
                TIME SHIFT OF PEAK FLOW         (min)= 15.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.0204
```

ADD HYD (0019)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0017):	4.93	0.082	3.58	11.04
	+ ID2= 2 (0018):	2.78	0.052	3.50	10.90
	ID = 3 (0019):	7.71	0.132	3.58	10.99

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

CALIB / NASHYD (0005) / ID= 1 DT= 5.0 min				
	Area (ha)=	2.23	Curve Number (CN)=	58.0
	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.23		

```
        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	1.667	3.33	3.250	86.60	4.83	3.33
0.167	0.00	1.750	3.33	3.333	12.21	4.92	3.33
0.250	0.00	1.833	5.55	3.417	12.21	5.00	3.33
0.333	2.22	1.917	5.55	3.500	12.21	5.08	3.33
0.417	2.22	2.000	5.55	3.583	12.21	5.17	3.33
0.500	2.22	2.083	5.55	3.667	12.21	5.25	3.33
0.583	2.22	2.167	5.55	3.750	12.21	5.33	2.22
0.667	2.22	2.250	5.55	3.833	5.55	5.42	2.22
0.750	2.22	2.333	6.66	3.917	5.55	5.50	2.22
0.833	3.33	2.417	6.66	4.000	5.55	5.58	2.22
0.917	3.33	2.500	6.66	4.083	5.55	5.67	2.22
1.000	3.33	2.583	6.66	4.167	5.55	5.75	2.22
1.083	3.33	2.667	6.66	4.250	5.55	5.83	2.22
1.167	3.33	2.750	6.66	4.333	4.44	5.92	2.22
1.250	3.33	2.833	33.31	4.417	4.44	6.00	2.22
1.333	3.33	2.917	33.31	4.500	4.44	6.08	2.22
1.417	3.33	3.000	33.31	4.583	4.44	6.17	2.22
1.500	3.33	3.083	86.60	4.667	4.44	6.25	2.22
1.583	3.33	3.167	86.60	4.750	4.44		

```
     Unit Hyd Qpeak  (cms)=   0.370

     PEAK FLOW       (cms)=   0.073 (i)
     TIME TO PEAK    (hrs)=   3.333
     RUNOFF VOLUME    (mm)=  10.870
     TOTAL RAINFALL   (mm)=  55.510
     RUNOFF COEFFICIENT   =   0.196

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

CALIB / NASHYD (0003) / ID= 1 DT= 5.0 min				
	Area (ha)=	2.95	Curve Number (CN)=	56.0
	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.12		

```
        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	1.667	3.33	3.250	86.60	4.83	3.33
0.167	0.00	1.750	3.33	3.333	12.21	4.92	3.33
0.250	0.00	1.833	5.55	3.417	12.21	5.00	3.33
0.333	2.22	1.917	5.55	3.500	12.21	5.08	3.33
0.417	2.22	2.000	5.55	3.583	12.21	5.17	3.33
0.500	2.22	2.083	5.55	3.667	12.21	5.25	3.33
0.583	2.22	2.167	5.55	3.750	12.21	5.33	2.22
0.667	2.22	2.250	5.55	3.833	5.55	5.42	2.22
0.750	2.22	2.333	6.66	3.917	5.55	5.50	2.22
0.833	3.33	2.417	6.66	4.000	5.55	5.58	2.22
0.917	3.33	2.500	6.66	4.083	5.55	5.67	2.22
1.000	3.33	2.583	6.66	4.167	5.55	5.75	2.22
1.083	3.33	2.667	6.66	4.250	5.55	5.83	2.22
1.167	3.33	2.750	6.66	4.333	4.44	5.92	2.22
1.250	3.33	2.833	33.31	4.417	4.44	6.00	2.22
1.333	3.33	2.917	33.31	4.500	4.44	6.08	2.22
1.417	3.33	3.000	33.31	4.583	4.44	6.17	2.22
1.500	3.33	3.083	86.60	4.667	4.44	6.25	2.22
1.583	3.33	3.167	86.60	4.750	4.44		

```
     Unit Hyd Qpeak  (cms)=   0.939
```

```
     PEAK FLOW       (cms)=   0.134 (i)
     TIME TO PEAK    (hrs)=   3.250
     RUNOFF VOLUME    (mm)=  10.065
     TOTAL RAINFALL   (mm)=  55.510
     RUNOFF COEFFICIENT   =   0.181

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

```
--------------------
| CALIB            |
| NASHYD   (  0006)|   Area    (ha)=   2.96   Curve Number   (CN)= 47.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.25

         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	1.667	3.33	3.250	86.60	4.83	3.33
0.167	0.00	1.750	3.33	3.333	12.21	4.92	3.33
0.250	0.00	1.833	5.55	3.417	12.21	5.00	3.33
0.333	2.22	1.917	5.55	3.500	12.21	5.08	3.33
0.417	2.22	2.000	5.55	3.583	12.21	5.17	3.33
0.500	2.22	2.083	5.55	3.667	12.21	5.25	3.33
0.583	2.22	2.167	5.55	3.750	12.21	5.33	2.22
0.667	2.22	2.250	5.55	3.833	5.55	5.42	2.22
0.750	2.22	2.333	6.66	3.917	5.55	5.50	2.22
0.833	3.33	2.417	6.66	4.000	5.55	5.58	2.22
0.917	3.33	2.500	6.66	4.083	5.55	5.67	2.22
1.000	3.33	2.583	6.66	4.167	5.55	5.75	2.22
1.083	3.33	2.667	6.66	4.250	5.55	5.83	2.22
1.167	3.33	2.750	6.66	4.333	4.44	5.92	2.22
1.250	3.33	2.833	33.31	4.417	4.44	6.00	2.22
1.333	3.33	2.917	33.31	4.500	4.44	6.08	2.22
1.417	3.33	3.000	33.31	4.583	4.44	6.17	2.22
1.500	3.33	3.083	86.60	4.667	4.44	6.25	2.22
1.583	3.33	3.167	86.60	4.750	4.44		

```
     Unit Hyd Qpeak  (cms)=   0.452

     PEAK FLOW       (cms)=   0.062 (i)
     TIME TO PEAK    (hrs)=   3.417
     RUNOFF VOLUME    (mm)=   7.566
     TOTAL RAINFALL   (mm)=  55.510
     RUNOFF COEFFICIENT   =   0.136

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

```
--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0019):      7.71   0.132     3.58    10.99
     + ID2= 2 (  0024):      9.86   0.248     3.42     9.13
       ================================================
       ID = 3 (  0020):     17.57   0.356     3.42     9.95

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

```
--------------------
| ADD HYD  (  0020)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0020):     17.57   0.356     3.42     9.95
     + ID2= 2 (  0003):      2.95   0.134     3.25    10.07
       ================================================
       ID = 1 (  0020):     20.52   0.433     3.33     9.96

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

```
--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0020):     20.52   0.433     3.33     9.96
     + ID2= 2 (  0005):      2.23   0.073     3.33    10.87
       ================================================
       ID = 3 (  0020):     22.75   0.506     3.33    10.05

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

```
--------------------
| ADD HYD  (  0020)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0020):     22.75   0.506     3.33    10.05
     + ID2= 2 (  0006):      2.96   0.062     3.42     7.57
       ================================================
       ID = 1 (  0020):     25.71   0.567     3.33     9.77

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

```
**********************************************
** SIMULATION:05 50yr 6hr 15min SCS Type II **
**********************************************

--------------------
|    READ STORM    |    Filename: C:\Users\lmattern\AppD
|                  |              ata\Local\Temp\
|                  |              91553c60-0c11-464d-8964-39321412d085\84e9097e
| Ptotal= 59.33 mm |    Comments: 50yr 6hr 15min SCS Type II
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	1.75	5.93	3.50	13.05	5.25	2.37
0.25	2.37	2.00	5.93	3.75	5.93	5.50	2.37
0.50	2.37	2.25	7.12	4.00	5.93	5.75	2.37
0.75	3.56	2.50	7.12	4.25	4.75	6.00	2.37
1.00	3.56	2.75	35.60	4.50	4.75		
1.25	3.56	3.00	92.55	4.75	3.56		
1.50	3.56	3.25	13.05	5.00	3.56		

```
--------------------
| CALIB            |
| NASHYD   (  0004)|   Area    (ha)=   3.00   Curve Number   (CN)= 54.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.24

         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	1.667	3.56	3.250	92.55	4.83	3.56
0.167	0.00	1.750	3.56	3.333	13.05	4.92	3.56
0.250	0.00	1.833	5.93	3.417	13.05	5.00	3.56
0.333	2.37	1.917	5.93	3.500	13.05	5.08	3.56
0.417	2.37	2.000	5.93	3.583	13.05	5.17	3.56
0.500	2.37	2.083	5.93	3.667	13.05	5.25	3.56
0.583	2.37	2.167	5.93	3.750	13.05	5.33	2.37
0.667	2.37	2.250	5.93	3.833	5.93	5.42	2.37
0.750	2.37	2.333	7.12	3.917	5.93	5.50	2.37
0.833	3.56	2.417	7.12	4.000	5.93	5.58	2.37
0.917	3.56	2.500	7.12	4.083	5.93	5.67	2.37
1.000	3.56	2.583	7.12	4.167	5.93	5.75	2.37
1.083	3.56	2.667	7.12	4.250	5.93	5.83	2.37
1.167	3.56	2.750	7.12	4.333	4.75	5.92	2.37
1.250	3.56	2.833	35.60	4.417	4.75	6.00	2.37
1.333	3.56	2.917	35.60	4.500	4.75	6.08	2.37
1.417	3.56	3.000	35.60	4.583	4.75	6.17	2.37
1.500	3.56	3.083	92.55	4.667	4.75	6.25	2.37
1.583	3.56	3.167	92.55	4.750	4.75		

Unit Hyd Qpeak (cms)= 0.477

PEAK FLOW (cms)= 0.094 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 10.894
TOTAL RAINFALL (mm)= 59.330
RUNOFF COEFFICIENT = 0.184

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

CALIB					
NASHYD (0009)	Area	(ha)=	6.86	Curve Number	(CN)= 52.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.26		

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	1.667	3.56	3.250	92.55	4.83	3.56
0.167	0.00	1.750	3.56	3.333	13.05	4.92	3.56
0.250	0.00	1.833	5.93	3.417	13.05	5.00	3.56
0.333	2.37	1.917	5.93	3.500	13.05	5.08	3.56
0.417	2.37	2.000	5.93	3.583	13.05	5.17	3.56
0.500	2.37	2.083	5.93	3.667	13.05	5.25	3.56
0.583	2.37	2.167	5.93	3.750	13.05	5.33	2.37
0.667	2.37	2.250	5.93	3.833	5.93	5.42	2.37
0.750	2.37	2.333	7.12	3.917	5.93	5.50	2.37
0.833	3.56	2.417	7.12	4.000	5.93	5.58	2.37
0.917	3.56	2.500	7.12	4.083	5.93	5.67	2.37
1.000	3.56	2.583	7.12	4.167	5.93	5.75	2.37
1.083	3.56	2.667	7.12	4.250	5.93	5.83	2.37
1.167	3.56	2.750	7.12	4.333	4.75	5.92	2.37
1.250	3.56	2.833	35.60	4.417	4.75	6.00	2.37
1.333	3.56	2.917	35.60	4.500	4.75	6.08	2.37
1.417	3.56	3.000	35.60	4.583	4.75	6.17	2.37
1.500	3.56	3.083	92.55	4.667	4.75	6.25	2.37
1.583	3.56	3.167	92.55	4.750	4.75		

Unit Hyd Qpeak (cms)= 1.008

PEAK FLOW (cms)= 0.191 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 10.214
TOTAL RAINFALL (mm)= 59.330
RUNOFF COEFFICIENT = 0.172

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

ADD HYD (0024)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0004):		3.00	0.094	3.33	10.89
+ ID2= 2 (0009):		6.86	0.191	3.42	10.21
ID = 3 (0024):		9.86	0.284	3.42	10.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0002)	Area	(ha)=	1.75	Curve Number	(CN)= 62.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.11		

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	1.667	3.56	3.250	92.55	4.83	3.56
0.167	0.00	1.750	3.56	3.333	13.05	4.92	3.56
0.250	0.00	1.833	5.93	3.417	13.05	5.00	3.56
0.333	2.37	1.917	5.93	3.500	13.05	5.08	3.56
0.417	2.37	2.000	5.93	3.583	13.05	5.17	3.56
0.500	2.37	2.083	5.93	3.667	13.05	5.25	3.56
0.583	2.37	2.167	5.93	3.750	13.05	5.33	2.37
0.667	2.37	2.250	5.93	3.833	5.93	5.42	2.37
0.750	2.37	2.333	7.12	3.917	5.93	5.50	2.37
0.833	3.56	2.417	7.12	4.000	5.93	5.58	2.37
0.917	3.56	2.500	7.12	4.083	5.93	5.67	2.37
1.000	3.56	2.583	7.12	4.167	5.93	5.75	2.37
1.083	3.56	2.667	7.12	4.250	5.93	5.83	2.37
1.167	3.56	2.750	7.12	4.333	4.75	5.92	2.37
1.250	3.56	2.833	35.60	4.417	4.75	6.00	2.37
1.333	3.56	2.917	35.60	4.500	4.75	6.08	2.37
1.417	3.56	3.000	35.60	4.583	4.75	6.17	2.37
1.500	3.56	3.083	92.55	4.667	4.75	6.25	2.37
1.583	3.56	3.167	92.55	4.750	4.75		

Unit Hyd Qpeak (cms)= 0.608

PEAK FLOW (cms)= 0.115 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 13.797
TOTAL RAINFALL (mm)= 59.330
RUNOFF COEFFICIENT = 0.233

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

CALIB					
NASHYD (0008)	Area (ha)= 1.03	Curve Number (CN)= 52.0			
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 0.13				

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	1.667	3.56	3.250	92.55	4.83	3.56
0.167	0.00	1.750	3.56	3.333	13.05	4.92	3.56
0.250	0.00	1.833	5.93	3.417	13.05	5.00	3.56
0.333	2.37	1.917	5.93	3.500	13.05	5.08	3.56
0.417	2.37	2.000	5.93	3.583	13.05	5.17	3.56
0.500	2.37	2.083	5.93	3.667	13.05	5.25	3.56
0.583	2.37	2.167	5.93	3.750	13.05	5.33	2.37
0.667	2.37	2.250	5.93	3.833	5.93	5.42	2.37
0.750	2.37	2.333	7.12	3.917	5.93	5.50	2.37
0.833	3.56	2.417	7.12	4.000	5.93	5.58	2.37
0.917	3.56	2.500	7.12	4.083	5.93	5.67	2.37
1.000	3.56	2.583	7.12	4.167	5.93	5.75	2.37
1.083	3.56	2.667	7.12	4.250	5.93	5.83	2.37
1.167	3.56	2.750	7.12	4.333	4.75	5.92	2.37
1.250	3.56	2.833	35.60	4.417	4.75	6.00	2.37
1.333	3.56	2.917	35.60	4.500	4.75	6.08	2.37
1.417	3.56	3.000	35.60	4.583	4.75	6.17	2.37
1.500	3.56	3.083	92.55	4.667	4.75	6.25	2.37
1.583	3.56	3.167	92.55	4.750	4.75		

Unit Hyd Qpeak (cms)= 0.303

PEAK FLOW (cms)= 0.045 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 10.119
TOTAL RAINFALL (mm)= 59.330
RUNOFF COEFFICIENT = 0.171

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

ADD HYD (0016)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0002):	1.75	0.115	3.25	13.80
	+ ID2= 2 (0008):	1.03	0.045	3.25	10.12
	ID = 3 (0016):	2.78	0.160	3.25	12.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0018)	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	0.0530	0.0119
	0.0120	0.0038	0.0830	0.0128
	0.0180	0.0073	0.1010	0.0151
	0.0300	0.0092	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0016)	2.780	0.160	3.25	12.43
OUTFLOW: ID= 1 (0018)	2.780	0.080	3.42	12.41

PEAK FLOW REDUCTION [Qout/Qin](%)= 50.25
TIME SHIFT OF PEAK FLOW (min)= 10.00
MAXIMUM STORAGE USED (ha.m.)= 0.0128

CALIB					
NASHYD (0007)	Area (ha)= 1.43	Curve Number (CN)= 52.0			
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 0.13				

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	1.667	3.56	3.250	92.55	4.83	3.56
0.167	0.00	1.750	3.56	3.333	13.05	4.92	3.56
0.250	0.00	1.833	5.93	3.417	13.05	5.00	3.56
0.333	2.37	1.917	5.93	3.500	13.05	5.08	3.56
0.417	2.37	2.000	5.93	3.583	13.05	5.17	3.56
0.500	2.37	2.083	5.93	3.667	13.05	5.25	3.56
0.583	2.37	2.167	5.93	3.750	13.05	5.33	2.37
0.667	2.37	2.250	5.93	3.833	5.93	5.42	2.37
0.750	2.37	2.333	7.12	3.917	5.93	5.50	2.37
0.833	3.56	2.417	7.12	4.000	5.93	5.58	2.37
0.917	3.56	2.500	7.12	4.083	5.93	5.67	2.37
1.000	3.56	2.583	7.12	4.167	5.93	5.75	2.37
1.083	3.56	2.667	7.12	4.250	5.93	5.83	2.37
1.167	3.56	2.750	7.12	4.333	4.75	5.92	2.37
1.250	3.56	2.833	35.60	4.417	4.75	6.00	2.37
1.333	3.56	2.917	35.60	4.500	4.75	6.08	2.37
1.417	3.56	3.000	35.60	4.583	4.75	6.17	2.37
1.500	3.56	3.083	92.55	4.667	4.75	6.25	2.37
1.583	3.56	3.167	92.55	4.750	4.75		

Unit Hyd Qpeak (cms)= 0.420

PEAK FLOW (cms)= 0.062 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 10.120
TOTAL RAINFALL (mm)= 59.330
RUNOFF COEFFICIENT = 0.171

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

CALIB					
NASHYD (0001)	Area (ha)= 3.50	Curve Number (CN)= 61.0			
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 0.18				

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	1.667	3.56	3.250	92.55	4.83	3.56
0.167	0.00	1.750	3.56	3.333	13.05	4.92	3.56
0.250	0.00	1.833	5.93	3.417	13.05	5.00	3.56
0.333	2.37	1.917	5.93	3.500	13.05	5.08	3.56
0.417	2.37	2.000	5.93	3.583	13.05	5.17	3.56
0.500	2.37	2.083	5.93	3.667	13.05	5.25	3.56
0.583	2.37	2.167	5.93	3.750	13.05	5.33	2.37
0.667	2.37	2.250	5.93	3.833	5.93	5.42	2.37
0.750	2.37	2.333	7.12	3.917	5.93	5.50	2.37
0.833	3.56	2.417	7.12	4.000	5.93	5.58	2.37
0.917	3.56	2.500	7.12	4.083	5.93	5.67	2.37
1.000	3.56	2.583	7.12	4.167	5.93	5.75	2.37
1.083	3.56	2.667	7.12	4.250	5.93	5.83	2.37
1.167	3.56	2.750	7.12	4.333	4.75	5.92	2.37
1.250	3.56	2.833	35.60	4.417	4.75	6.00	2.37
1.333	3.56	2.917	35.60	4.500	4.75	6.08	2.37
1.417	3.56	3.000	35.60	4.583	4.75	6.17	2.37
1.500	3.56	3.083	92.55	4.667	4.75	6.25	2.37
1.583	3.56	3.167	92.55	4.750	4.75		

Unit Hyd Qpeak (cms)= 0.743

PEAK FLOW (cms)= 0.167 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 13.581
TOTAL RAINFALL (mm)= 59.330
RUNOFF COEFFICIENT = 0.229

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

ADD HYD (0015)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0001):	3.50	0.167	3.33	13.58
	+ ID2= 2 (0007):	1.43	0.062	3.25	10.12
	ID = 3 (0015):	4.93	0.221	3.33	12.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0017)	IN= 2---> OUT= 1	DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0830	0.0204
0.0260	0.0058	0.0980	0.0228
0.0380	0.0115	0.1520	0.0264
0.0440	0.0160	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0015)	4.930	0.221	3.33	12.58
OUTFLOW: ID= 1 (0017)	4.930	0.098	3.58	12.57

PEAK FLOW REDUCTION [Qout/Qin](%)= 44.24
TIME SHIFT OF PEAK FLOW (min)= 15.00
MAXIMUM STORAGE USED (ha.m.)= 0.0228

ADD HYD (0019)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0017):	4.93	0.098	3.58	12.57
	+ ID2= 2 (0018):	2.78	0.080	3.42	12.41
	ID = 3 (0019):	7.71	0.163	3.50	12.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	NASHYD (0005)	ID= 1 DT= 5.0 min

Area (ha)= 2.23 Curve Number (CN)= 58.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.23

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	1.667	3.56	3.250	92.55	4.83	3.56
0.167	0.00	1.750	3.56	3.333	13.05	4.92	3.56
0.250	0.00	1.833	5.93	3.417	13.05	5.00	3.56
0.333	2.37	1.917	5.93	3.500	13.05	5.08	3.56
0.417	2.37	2.000	5.93	3.583	13.05	5.17	3.56
0.500	2.37	2.083	5.93	3.667	13.05	5.25	3.56
0.583	2.37	2.167	5.93	3.750	13.05	5.33	2.37
0.667	2.37	2.250	5.93	3.833	5.93	5.42	2.37
0.750	2.37	2.333	7.12	3.917	5.93	5.50	2.37
0.833	3.56	2.417	7.12	4.000	5.93	5.58	2.37
0.917	3.56	2.500	7.12	4.083	5.93	5.67	2.37
1.000	3.56	2.583	7.12	4.167	5.93	5.75	2.37
1.083	3.56	2.667	7.12	4.250	5.93	5.83	2.37
1.167	3.56	2.750	7.12	4.333	4.75	5.92	2.37
1.250	3.56	2.833	35.60	4.417	4.75	6.00	2.37
1.333	3.56	2.917	35.60	4.500	4.75	6.08	2.37
1.417	3.56	3.000	35.60	4.583	4.75	6.17	2.37
1.500	3.56	3.083	92.55	4.667	4.75	6.25	2.37
1.583	3.56	3.167	92.55	4.750	4.75		

Unit Hyd Qpeak (cms)= 0.370

PEAK FLOW (cms)= 0.083 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 12.375
TOTAL RAINFALL (mm)= 59.330
RUNOFF COEFFICIENT = 0.209

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

CALIB	NASHYD (0003)	ID= 1 DT= 5.0 min

Area (ha)= 2.95 Curve Number (CN)= 56.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.12

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	1.667	3.56	3.250	92.55	4.83	3.56
0.167	0.00	1.750	3.56	3.333	13.05	4.92	3.56
0.250	0.00	1.833	5.93	3.417	13.05	5.00	3.56
0.333	2.37	1.917	5.93	3.500	13.05	5.08	3.56
0.417	2.37	2.000	5.93	3.583	13.05	5.17	3.56
0.500	2.37	2.083	5.93	3.667	13.05	5.25	3.56
0.583	2.37	2.167	5.93	3.750	13.05	5.33	2.37
0.667	2.37	2.250	5.93	3.833	5.93	5.42	2.37
0.750	2.37	2.333	7.12	3.917	5.93	5.50	2.37
0.833	3.56	2.417	7.12	4.000	5.93	5.58	2.37
0.917	3.56	2.500	7.12	4.083	5.93	5.67	2.37
1.000	3.56	2.583	7.12	4.167	5.93	5.75	2.37
1.083	3.56	2.667	7.12	4.250	5.93	5.83	2.37
1.167	3.56	2.750	7.12	4.333	4.75	5.92	2.37
1.250	3.56	2.833	35.60	4.417	4.75	6.00	2.37
1.333	3.56	2.917	35.60	4.500	4.75	6.08	2.37
1.417	3.56	3.000	35.60	4.583	4.75	6.17	2.37
1.500	3.56	3.083	92.55	4.667	4.75	6.25	2.37
1.583	3.56	3.167	92.55	4.750	4.75		

Unit Hyd Qpeak (cms)= 0.939

PEAK FLOW (cms)= 0.153 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 11.470
TOTAL RAINFALL (mm)= 59.330
RUNOFF COEFFICIENT = 0.193

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

CALIB	
NASHYD (0006)	Area (ha)= 2.96 Curve Number (CN)= 47.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.25

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	1.667	3.56	3.250	92.55	4.83	3.56
0.167	0.00	1.750	3.56	3.333	13.05	4.92	3.56
0.250	0.00	1.833	5.93	3.417	13.05	5.00	3.56
0.333	2.37	1.917	5.93	3.500	13.05	5.08	3.56
0.417	2.37	2.000	5.93	3.583	13.05	5.17	3.56
0.500	2.37	2.083	5.93	3.667	13.05	5.25	3.56
0.583	2.37	2.167	5.93	3.750	13.05	5.33	2.37
0.667	2.37	2.250	5.93	3.833	5.93	5.42	2.37
0.750	2.37	2.333	7.12	3.917	5.93	5.50	2.37
0.833	3.56	2.417	7.12	4.000	5.93	5.58	2.37
0.917	3.56	2.500	7.12	4.083	5.93	5.67	2.37
1.000	3.56	2.583	7.12	4.167	5.93	5.75	2.37
1.083	3.56	2.667	7.12	4.250	5.93	5.83	2.37
1.167	3.56	2.750	7.12	4.333	4.75	5.92	2.37
1.250	3.56	2.833	35.60	4.417	4.75	6.00	2.37
1.333	3.56	2.917	35.60	4.500	4.75	6.08	2.37
1.417	3.56	3.000	35.60	4.583	4.75	6.17	2.37
1.500	3.56	3.083	92.55	4.667	4.75	6.25	2.37
1.583	3.56	3.167	92.55	4.750	4.75		

Unit Hyd Qpeak (cms)= 0.452

PEAK FLOW (cms)= 0.071 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 8.655
TOTAL RAINFALL (mm)= 59.330
RUNOFF COEFFICIENT = 0.146

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

ADD HYD (0020)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0019):	7.71	0.163	3.50	12.51
	+ ID2= 2 (0024):	9.86	0.284	3.42	10.42
	ID = 3 (0020):	17.57	0.444	3.42	11.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1	ID1= 3 (0020):	17.57	0.444	3.42	11.34
	+ ID2= 2 (0003):	2.95	0.153	3.25	11.47
	ID = 1 (0020):	20.52	0.523	3.42	11.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0020):	20.52	0.523	3.42	11.36
	+ ID2= 2 (0005):	2.23	0.083	3.33	12.37
	ID = 3 (0020):	22.75	0.603	3.42	11.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1	ID1= 3 (0020):	22.75	0.603	3.42	11.46
	+ ID2= 2 (0006):	2.96	0.071	3.42	8.66
	ID = 1 (0020):	25.71	0.674	3.42	11.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:06 100yr 6hr 15min SCS Type II **
****

```
|    READ STORM    |    Filename: C:\Users\lmattern\AppD
|                  |              ata\Local\Temp\
|                  |              91553c60-0c11-464d-8964-39321412d085\fc31aea5
| Ptotal= 66.92 mm |    Comments: 100yr 6hr 15min SCS Type II
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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	1.75	6.69	3.50	14.72	5.25	2.68
0.25	2.68	2.00	6.69	3.75	6.69	5.50	2.68
0.50	2.68	2.25	8.03	4.00	6.69	5.75	2.68
0.75	4.02	2.50	8.03	4.25	5.35	6.00	2.68
1.00	4.02	2.75	40.15	4.50	5.35		
1.25	4.02	3.00	104.40	4.75	4.02		
1.50	4.02	3.25	14.72	5.00	4.02		

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--------------------
| CALIB            |
| NASHYD   (  0004)|   Area    (ha)=   3.00   Curve Number   (CN)= 54.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.24

        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	1.667	4.02	3.250	104.40	4.83	4.02
0.167	0.00	1.750	4.02	3.333	14.72	4.92	4.02
0.250	0.00	1.833	6.69	3.417	14.72	5.00	4.02
0.333	2.68	1.917	6.69	3.500	14.72	5.08	4.02
0.417	2.68	2.000	6.69	3.583	14.72	5.17	4.02
0.500	2.68	2.083	6.69	3.667	14.72	5.25	4.02
0.583	2.68	2.167	6.69	3.750	14.72	5.33	2.68
0.667	2.68	2.250	6.69	3.833	6.69	5.42	2.68
0.750	2.68	2.333	8.03	3.917	6.69	5.50	2.68
0.833	4.02	2.417	8.03	4.000	6.69	5.58	2.68
0.917	4.02	2.500	8.03	4.083	6.69	5.67	2.68
1.000	4.02	2.583	8.03	4.167	6.69	5.75	2.68
1.083	4.02	2.667	8.03	4.250	6.69	5.83	2.68
1.167	4.02	2.750	8.03	4.333	5.35	5.92	2.68
1.250	4.02	2.833	40.15	4.417	5.35	6.00	2.68
1.333	4.02	2.917	40.15	4.500	5.35	6.08	2.68
1.417	4.02	3.000	40.15	4.583	5.35	6.17	2.68
1.500	4.02	3.083	104.39	4.667	5.35	6.25	2.68
1.583	4.02	3.167	104.40	4.750	5.35		

```
    Unit Hyd Qpeak  (cms)=   0.477

    PEAK FLOW       (cms)=   0.120 (i)
    TIME TO PEAK    (hrs)=   3.333
    RUNOFF VOLUME    (mm)=  13.764
    TOTAL RAINFALL   (mm)=  66.920
    RUNOFF COEFFICIENT   =   0.206

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0009)|   Area    (ha)=   6.86   Curve Number   (CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.26

        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	1.667	4.02	3.250	104.40	4.83	4.02
0.167	0.00	1.750	4.02	3.333	14.72	4.92	4.02
0.250	0.00	1.833	6.69	3.417	14.72	5.00	4.02
0.333	2.68	1.917	6.69	3.500	14.72	5.08	4.02
0.417	2.68	2.000	6.69	3.583	14.72	5.17	4.02
0.500	2.68	2.083	6.69	3.667	14.72	5.25	4.02
0.583	2.68	2.167	6.69	3.750	14.72	5.33	2.68
0.667	2.68	2.250	6.69	3.833	6.69	5.42	2.68
0.750	2.68	2.333	8.03	3.917	6.69	5.50	2.68
0.833	4.02	2.417	8.03	4.000	6.69	5.58	2.68
0.917	4.02	2.500	8.03	4.083	6.69	5.67	2.68
1.000	4.02	2.583	8.03	4.167	6.69	5.75	2.68
1.083	4.02	2.667	8.03	4.250	6.69	5.83	2.68
1.167	4.02	2.750	8.03	4.333	5.35	5.92	2.68
1.250	4.02	2.833	40.15	4.417	5.35	6.00	2.68
1.333	4.02	2.917	40.15	4.500	5.35	6.08	2.68
1.417	4.02	3.000	40.15	4.583	5.35	6.17	2.68
1.500	4.02	3.083	104.39	4.667	5.35	6.25	2.68
1.583	4.02	3.167	104.40	4.750	5.35		

```
    Unit Hyd Qpeak  (cms)=   1.008

    PEAK FLOW       (cms)=   0.243 (i)
    TIME TO PEAK    (hrs)=   3.417
    RUNOFF VOLUME    (mm)=  12.927
    TOTAL RAINFALL   (mm)=  66.920
    RUNOFF COEFFICIENT   =   0.193

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

--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0024)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0004):     3.00   0.120     3.33     13.76
     + ID2= 2 (  0009):     6.86   0.243     3.42     12.93
       ================================================
       ID = 3 (  0024):     9.86   0.361     3.42     13.18

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0002)|   Area    (ha)=   1.75   Curve Number   (CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.11

        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	1.667	4.02	3.250	104.40	4.83	4.02
0.167	0.00	1.750	4.02	3.333	14.72	4.92	4.02
0.250	0.00	1.833	6.69	3.417	14.72	5.00	4.02

0.333	2.68	1.917	6.69	3.500	14.72	5.08	4.02
0.417	2.68	2.000	6.69	3.583	14.72	5.17	4.02
0.500	2.68	2.083	6.69	3.667	14.72	5.25	4.02
0.583	2.68	2.167	6.69	3.750	14.72	5.33	2.68
0.667	2.68	2.250	6.69	3.833	6.69	5.42	2.68
0.750	2.68	2.333	8.03	3.917	6.69	5.50	2.68
0.833	4.02	2.417	8.03	4.000	6.69	5.58	2.68
0.917	4.02	2.500	8.03	4.083	6.69	5.67	2.68
1.000	4.02	2.583	8.03	4.167	6.69	5.75	2.68
1.083	4.02	2.667	8.03	4.250	6.69	5.83	2.68
1.167	4.02	2.750	8.03	4.333	5.35	5.92	2.68
1.250	4.02	2.833	40.15	4.417	5.35	6.00	2.68
1.333	4.02	2.917	40.15	4.500	5.35	6.08	2.68
1.417	4.02	3.000	40.15	4.583	5.35	6.17	2.68
1.500	4.02	3.083	104.39	4.667	5.35	6.25	2.68
1.583	4.02	3.167	104.40	4.750	5.35		

Unit Hyd Qpeak (cms)= 0.608

PEAK FLOW (cms)= 0.145 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 17.296
TOTAL RAINFALL (mm)= 66.920
RUNOFF COEFFICIENT = 0.258

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

CALIB					
NASHYD (0008)	Area (ha)=	1.03	Curve Number (CN)=	52.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.13			

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	1.667	4.02	3.250	104.40	4.83	4.02
0.167	0.00	1.750	4.02	3.333	14.72	4.92	4.02
0.250	0.00	1.833	6.69	3.417	14.72	5.00	4.02
0.333	2.68	1.917	6.69	3.500	14.72	5.08	4.02
0.417	2.68	2.000	6.69	3.583	14.72	5.17	4.02
0.500	2.68	2.083	6.69	3.667	14.72	5.25	4.02
0.583	2.68	2.167	6.69	3.750	14.72	5.33	2.68
0.667	2.68	2.250	6.69	3.833	6.69	5.42	2.68
0.750	2.68	2.333	8.03	3.917	6.69	5.50	2.68
0.833	4.02	2.417	8.03	4.000	6.69	5.58	2.68
0.917	4.02	2.500	8.03	4.083	6.69	5.67	2.68
1.000	4.02	2.583	8.03	4.167	6.69	5.75	2.68
1.083	4.02	2.667	8.03	4.250	6.69	5.83	2.68
1.167	4.02	2.750	8.03	4.333	5.35	5.92	2.68
1.250	4.02	2.833	40.15	4.417	5.35	6.00	2.68
1.333	4.02	2.917	40.15	4.500	5.35	6.08	2.68
1.417	4.02	3.000	40.15	4.583	5.35	6.17	2.68
1.500	4.02	3.083	104.39	4.667	5.35	6.25	2.68
1.583	4.02	3.167	104.40	4.750	5.35		

Unit Hyd Qpeak (cms)= 0.303

PEAK FLOW (cms)= 0.057 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 12.808

TOTAL RAINFALL (mm)= 66.920
RUNOFF COEFFICIENT = 0.191

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

ADD HYD (0016)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0002):	1.75	0.145	3.25	17.30
	+ ID2= 2 (0008):	1.03	0.057	3.25	12.81
	ID = 3 (0016):	2.78	0.201	3.25	15.63

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0018)	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	0.0530	0.0119
	0.0120	0.0038	0.0830	0.0128
	0.0180	0.0073	0.1010	0.0151
	0.0300	0.0092	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0016)	2.780	0.201	3.25	15.63
OUTFLOW: ID= 1 (0018)	2.780	0.101	3.42	15.61

PEAK FLOW REDUCTION [Qout/Qin](%)= 49.95
TIME SHIFT OF PEAK FLOW (min)= 10.00
MAXIMUM STORAGE USED (ha.m.)= 0.0151

CALIB					
NASHYD (0007)	Area (ha)=	1.43	Curve Number (CN)=	52.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.13			

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	1.667	4.02	3.250	104.40	4.83	4.02
0.167	0.00	1.750	4.02	3.333	14.72	4.92	4.02
0.250	0.00	1.833	6.69	3.417	14.72	5.00	4.02
0.333	2.68	1.917	6.69	3.500	14.72	5.08	4.02
0.417	2.68	2.000	6.69	3.583	14.72	5.17	4.02
0.500	2.68	2.083	6.69	3.667	14.72	5.25	4.02
0.583	2.68	2.167	6.69	3.750	14.72	5.33	2.68
0.667	2.68	2.250	6.69	3.833	6.69	5.42	2.68
0.750	2.68	2.333	8.03	3.917	6.69	5.50	2.68
0.833	4.02	2.417	8.03	4.000	6.69	5.58	2.68
0.917	4.02	2.500	8.03	4.083	6.69	5.67	2.68
1.000	4.02	2.583	8.03	4.167	6.69	5.75	2.68
1.083	4.02	2.667	8.03	4.250	6.69	5.83	2.68
1.167	4.02	2.750	8.03	4.333	5.35	5.92	2.68
1.250	4.02	2.833	40.15	4.417	5.35	6.00	2.68

1.333	4.02	2.917	40.15	4.500	5.35	6.08	2.68
1.417	4.02	3.000	40.15	4.583	5.35	6.17	2.68
1.500	4.02	3.083	104.39	4.667	5.35	6.25	2.68
1.583	4.02	3.167	104.40	4.750	5.35		

Unit Hyd Qpeak (cms)= 0.420

PEAK FLOW (cms)= 0.079 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 12.808
TOTAL RAINFALL (mm)= 66.920
RUNOFF COEFFICIENT = 0.191

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

CALIB					
NASHYD (0001)	Area	(ha)= 3.50	Curve Number	(CN)= 61.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 5.00	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 0.18				

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	1.667	4.02	3.250	104.40	4.83	4.02
0.167	0.00	1.750	4.02	3.333	14.72	4.92	4.02
0.250	0.00	1.833	6.69	3.417	14.72	5.00	4.02
0.333	2.68	1.917	6.69	3.500	14.72	5.08	4.02
0.417	2.68	2.000	6.69	3.583	14.72	5.17	4.02
0.500	2.68	2.083	6.69	3.667	14.72	5.25	4.02
0.583	2.68	2.167	6.69	3.750	14.72	5.33	2.68
0.667	2.68	2.250	6.69	3.833	6.69	5.42	2.68
0.750	2.68	2.333	8.03	3.917	6.69	5.50	2.68
0.833	4.02	2.417	8.03	4.000	6.69	5.58	2.68
0.917	4.02	2.500	8.03	4.083	6.69	5.67	2.68
1.000	4.02	2.583	8.03	4.167	6.69	5.75	2.68
1.083	4.02	2.667	8.03	4.250	6.69	5.83	2.68
1.167	4.02	2.750	8.03	4.333	5.35	5.92	2.68
1.250	4.02	2.833	40.15	4.417	5.35	6.00	2.68
1.333	4.02	2.917	40.15	4.500	5.35	6.08	2.68
1.417	4.02	3.000	40.15	4.583	5.35	6.17	2.68
1.500	4.02	3.083	104.39	4.667	5.35	6.25	2.68
1.583	4.02	3.167	104.40	4.750	5.35		

Unit Hyd Qpeak (cms)= 0.743

PEAK FLOW (cms)= 0.211 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 17.043
TOTAL RAINFALL (mm)= 66.920
RUNOFF COEFFICIENT = 0.255

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

ADD HYD (0015)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0001):	3.50	0.211	3.33	17.04
	+ ID2= 2 (0007):	1.43	0.079	3.25	12.81
	ID = 3 (0015):	4.93	0.278	3.25	15.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0017)	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	0.0830	0.0204
	0.0260	0.0058	0.0980	0.0228
	0.0380	0.0115	0.1520	0.0264
	0.0440	0.0160	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0015)	4.930	0.278	3.25	15.81
OUTFLOW: ID= 1 (0017)	4.930	0.151	3.50	15.81

PEAK FLOW REDUCTION [Qout/Qin](%)= 54.31
TIME SHIFT OF PEAK FLOW (min)= 15.00
MAXIMUM STORAGE USED (ha.m.)= 0.0266

ADD HYD (0019)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0017):	4.93	0.151	3.50	15.81
	+ ID2= 2 (0018):	2.78	0.101	3.42	15.61
	ID = 3 (0019):	7.71	0.247	3.50	15.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0005)	Area	(ha)= 2.23	Curve Number	(CN)= 58.0	
ID= 1 DT= 5.0 min	Ia	(mm)= 5.00	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 0.23				

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	1.667	4.02	3.250	104.40	4.83	4.02
0.167	0.00	1.750	4.02	3.333	14.72	4.92	4.02
0.250	0.00	1.833	6.69	3.417	14.72	5.00	4.02
0.333	2.68	1.917	6.69	3.500	14.72	5.08	4.02
0.417	2.68	2.000	6.69	3.583	14.72	5.17	4.02
0.500	2.68	2.083	6.69	3.667	14.72	5.25	4.02
0.583	2.68	2.167	6.69	3.750	14.72	5.33	2.68
0.667	2.68	2.250	6.69	3.833	6.69	5.42	2.68
0.750	2.68	2.333	8.03	3.917	6.69	5.50	2.68
0.833	4.02	2.417	8.03	4.000	6.69	5.58	2.68
0.917	4.02	2.500	8.03	4.083	6.69	5.67	2.68
1.000	4.02	2.583	8.03	4.167	6.69	5.75	2.68
1.083	4.02	2.667	8.03	4.250	6.69	5.83	2.68
1.167	4.02	2.750	8.03	4.333	5.35	5.92	2.68
1.250	4.02	2.833	40.15	4.417	5.35	6.00	2.68

```
1.333    4.02 | 2.917   40.15 | 4.500    5.35 |  6.08    2.68
1.417    4.02 | 3.000   40.15 | 4.583    5.35 |  6.17    2.68
1.500    4.02 | 3.083  104.39 | 4.667    5.35 |  6.25    2.68
1.583    4.02 | 3.167  104.40 | 4.750    5.35 |
```

Unit Hyd Qpeak (cms)= 0.370

PEAK FLOW (cms)= 0.105 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 15.578
TOTAL RAINFALL (mm)= 66.920
RUNOFF COEFFICIENT = 0.233

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

CALIB					
NASHYD (0003)	Area (ha)=	2.95	Curve Number (CN)=	56.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.12			

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	1.667	4.02	3.250	104.40	4.83	4.02
0.167	0.00	1.750	4.02	3.333	14.72	4.92	4.02
0.250	0.00	1.833	6.69	3.417	14.72	5.00	4.02
0.333	2.68	1.917	6.69	3.500	14.72	5.08	4.02
0.417	2.68	2.000	6.69	3.583	14.72	5.17	4.02
0.500	2.68	2.083	6.69	3.667	14.72	5.25	4.02
0.583	2.68	2.167	6.69	3.750	14.72	5.33	2.68
0.667	2.68	2.250	6.69	3.833	6.69	5.42	2.68
0.750	2.68	2.333	8.03	3.917	6.69	5.50	2.68
0.833	4.02	2.417	8.03	4.000	6.69	5.58	2.68
0.917	4.02	2.500	8.03	4.083	6.69	5.67	2.68
1.000	4.02	2.583	8.03	4.167	6.69	5.75	2.68
1.083	4.02	2.667	8.03	4.250	6.69	5.83	2.68
1.167	4.02	2.750	8.03	4.333	5.35	5.92	2.68
1.250	4.02	2.833	40.15	4.417	5.35	6.00	2.68
1.333	4.02	2.917	40.15	4.500	5.35	6.08	2.68
1.417	4.02	3.000	40.15	4.583	5.35	6.17	2.68
1.500	4.02	3.083	104.39	4.667	5.35	6.25	2.68
1.583	4.02	3.167	104.40	4.750	5.35		

Unit Hyd Qpeak (cms)= 0.939

PEAK FLOW (cms)= 0.193 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 14.467
TOTAL RAINFALL (mm)= 66.920
RUNOFF COEFFICIENT = 0.216

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

CALIB					
NASHYD (0006)	Area (ha)=	2.96	Curve Number (CN)=	47.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.25			

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	1.667	4.02	3.250	104.40	4.83	4.02
0.167	0.00	1.750	4.02	3.333	14.72	4.92	4.02
0.250	0.00	1.833	6.69	3.417	14.72	5.00	4.02
0.333	2.68	1.917	6.69	3.500	14.72	5.08	4.02
0.417	2.68	2.000	6.69	3.583	14.72	5.17	4.02
0.500	2.68	2.083	6.69	3.667	14.72	5.25	4.02
0.583	2.68	2.167	6.69	3.750	14.72	5.33	2.68
0.667	2.68	2.250	6.69	3.833	6.69	5.42	2.68
0.750	2.68	2.333	8.03	3.917	6.69	5.50	2.68
0.833	4.02	2.417	8.03	4.000	6.69	5.58	2.68
0.917	4.02	2.500	8.03	4.083	6.69	5.67	2.68
1.000	4.02	2.583	8.03	4.167	6.69	5.75	2.68
1.083	4.02	2.667	8.03	4.250	6.69	5.83	2.68
1.167	4.02	2.750	8.03	4.333	5.35	5.92	2.68
1.250	4.02	2.833	40.15	4.417	5.35	6.00	2.68
1.333	4.02	2.917	40.15	4.500	5.35	6.08	2.68
1.417	4.02	3.000	40.15	4.583	5.35	6.17	2.68
1.500	4.02	3.083	104.39	4.667	5.35	6.25	2.68
1.583	4.02	3.167	104.40	4.750	5.35		

Unit Hyd Qpeak (cms)= 0.452

PEAK FLOW (cms)= 0.090 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 10.998
TOTAL RAINFALL (mm)= 66.920
RUNOFF COEFFICIENT = 0.164

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

ADD HYD (0020)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0019):	7.71	0.247	3.50	15.73
+ ID2= 2 (0024):	9.86	0.361	3.42	13.18
ID = 3 (0020):	17.57	0.587	3.42	14.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0020):	17.57	0.587	3.42	14.30
+ ID2= 2 (0003):	2.95	0.193	3.25	14.47
ID = 1 (0020):	20.52	0.688	3.33	14.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0020)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.

```
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0020):    20.52   0.688     3.33    14.33
     + ID2= 2 (  0005):     2.23   0.105     3.33    15.58
       ================================================
       ID = 3 (  0020):    22.75   0.793     3.33    14.45

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

--------------------
| ADD HYD  (  0020)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0020):    22.75   0.793     3.33    14.45
     + ID2= 2 (  0006):     2.96   0.090     3.42    11.00
       ================================================
       ID = 1 (  0020):    25.71   0.883     3.33    14.05

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
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Appendix D: Conveyance Calculations

Channel Design Sheet

Project Name: York River
Project No: 22069

Designed By: LM
Date: 2022-11-25

Location		Contributing Area and Flow		Channel Properties						Hydraulics					
Channel Description	Description	Flow (m^3/s)	Bed Slope	Side Slope (X:1)	Bottom Width (m)	Depth (m)	Lining Material	Manning's n	Channel Capacity (m^3)	% Capacity	Cross Sectional Area (m^2)	Wetted Perimter (m)	Flow Depth (m)	Velocity (m/s)
PR1 Road Side Swale	50% 100 Yr from PR1+ 100 Yr from PXT7	0.146	0.1400	3.000	0.75	0.50	Grass	0.03	6.11	2%	1.125	3.91	0.21	0.49
PR1 Convayance Swale	50% 100 Yr from PR1	0.106	0.0650	3.000	0.00	0.50	Grass	0.03	2.44	4%	0.750	3.16	0.36	0.28
PR2 Roadside Swale	100 Yr from PR2 and PXT8	0.202	0.0530	3.000	0.75	0.50	Grass	0.03	3.76	5%	1.125	3.91	0.27	0.48

Weir Sizing Pond A

Project Name: York River
Project No: 22069

Designed By: LM
Date: 2022-11-11

Weir Parameters					
Type:[1,2]	Broad Crested Trapezoidal		Weir Invert:	335.1	m
Peak Flow:	0.278	m^3/s	Weir Height:	0.4	m
Included Angle:	33	Degrees	Width:	0.6	m

Stage Discharge

Elevation (m)	Weir Flow (m^3/s)
335.10	0.000
335.15	0.012
335.20	0.034
335.25	0.063
335.30	0.098
335.35	0.140
335.40	0.187
335.45	0.239
335.50	0.297
-	-
-	-
-	-
-	-

Weir Overflow Results

Pond Elevation at Peak Flow:	335.480	m
Freeboard:	0.020	m
Velocity:	1.219	m/s

Notes:

1. Flows over rectangular broad crested weir calculated based on weir equations in MTO Drainage Manual Chapter 8, Section Flow Over Weirs and Notches.

2 Flows over trapezoidal broad crested weir calculated based on weir equations in Nottawasaga Valley Conservation Authority Section 9.9, Trapezoidal Broad Crested Weir (Emergency Spillways)

Weir Sizing Pond B

Project Name: York River
Project No: 22069

Designed By: LM
Date: 2022-11-1

Weir Parameters					
Type:[1,2]	Broad Crested Trapezoidal		Weir Invert:	344.65	m
Peak Flow:	0.201	m^3/s	Weir Height:	0.35	m
Included Angle:	33	Degrees	Width:	0.6	m

Stage Discharge

Elevation (m)	Weir Flow (m^3/s)
344.65	0.000
344.70	0.012
344.75	0.034
344.80	0.063
344.85	0.098
344.90	0.140
344.95	0.187
345.00	0.239
-	-
-	-
-	-
-	-
-	-

Weir Overflow Results

Pond Elevation at Peak Flow:	344.988	m
Freeboard:	0.012	m
Velocity:	0.991	m/s

Notes:

1. Flows over rectangular broad crested weir calculated based on weir equations in MTO Drainage Manual Chapter 8, Section Flow Ove Weirs and Notches.

2 Flows over trapezoidal broad crested weir calculated based on weir equations in Nottawasaga Valley Conservation Authority Section Trapezoidal Broad Crested Weir (Emergency Spillways)

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Nov 25 2022

Seep Culverts

Invert Elev Dn (m)	=	346.2200
Pipe Length (m)	=	10.5000
Slope (%)	=	0.7619
Invert Elev Up (m)	=	346.3000
Rise (mm)	=	450.0
Shape	=	Circular
Span (mm)	=	450.0
No. Barrels	=	2
n-Value	=	0.012
Culvert Type	=	Circular Corrugate Metal Pipe
Culvert Entrance	=	Projecting
Coeff. K,M,c,Y,k	=	0.034, 1.5, 0.0553, 0.54, 0.9

Embankment

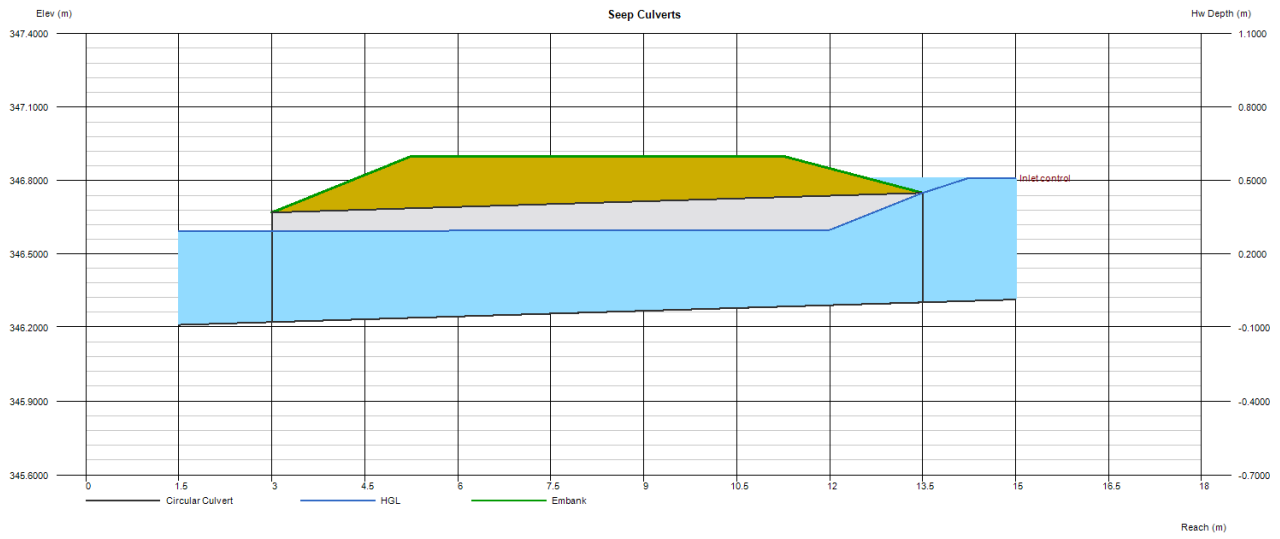
Top Elevation (m)	=	346.9000
Top Width (m)	=	6.0000
Crest Width (m)	=	14.0000

Calculations

Qmin (cms)	=	0.0000
Qmax (cms)	=	0.3610
Tailwater Elev (m)	=	(dc+D)/2

Highlighted

Qtotal (cms)	=	0.3610
Qpipe (cms)	=	0.3610
Qovertop (cms)	=	0.0000
Veloc Dn (m/s)	=	1.2765
Veloc Up (m/s)	=	1.6040
HGL Dn (m)	=	346.5943
HGL Up (m)	=	346.5997
Hw Elev (m)	=	346.8113
Hw/D (m)	=	1.1363
Flow Regime	=	Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Nov 25 2022

Pond A Road Crossing

Invert Elev Dn (m)	=	340.1800
Pipe Length (m)	=	10.0000
Slope (%)	=	0.6001
Invert Elev Up (m)	=	340.2400
Rise (mm)	=	450.0
Shape	=	Circular
Span (mm)	=	450.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Corrugate Metal Pipe
Culvert Entrance	=	Projecting
Coeff. K,M,c,Y,k	=	0.034, 1.5, 0.0553, 0.54, 0.9

Embankment

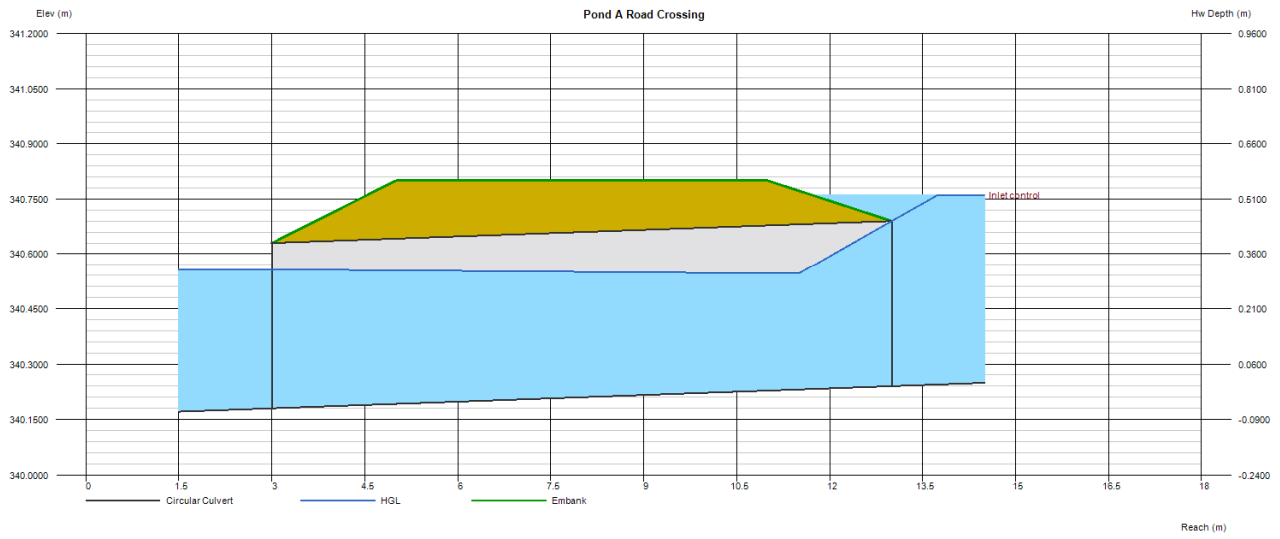
Top Elevation (m)	=	340.8000
Top Width (m)	=	6.0000
Crest Width (m)	=	20.0000

Calculations

Qmin (cms)	=	0.0000
Qmax (cms)	=	0.1850
Tailwater Elev (m)	=	(dc+D)/2

Highlighted

Qtotal (cms)	=	0.1850
Qpipe (cms)	=	0.1850
Qovertop (cms)	=	0.0000
Veloc Dn (m/s)	=	1.3026
Veloc Up (m/s)	=	1.6214
HGL Dn (m)	=	340.5562
HGL Up (m)	=	340.5435
Hw Elev (m)	=	340.7614
Hw/D (m)	=	1.1587
Flow Regime	=	Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Nov 25 2022

Pond B Road Crossing

Invert Elev Dn (m)	=	340.5500
Pipe Length (m)	=	10.0000
Slope (%)	=	0.5004
Invert Elev Up (m)	=	340.6000
Rise (mm)	=	375.0
Shape	=	Circular
Span (mm)	=	375.0
No. Barrels	=	2
n-Value	=	0.012
Culvert Type	=	Circular Corrugate Metal Pipe
Culvert Entrance	=	Projecting
Coeff. K,M,c,Y,k	=	0.034, 1.5, 0.0553, 0.54, 0.9

Embankment

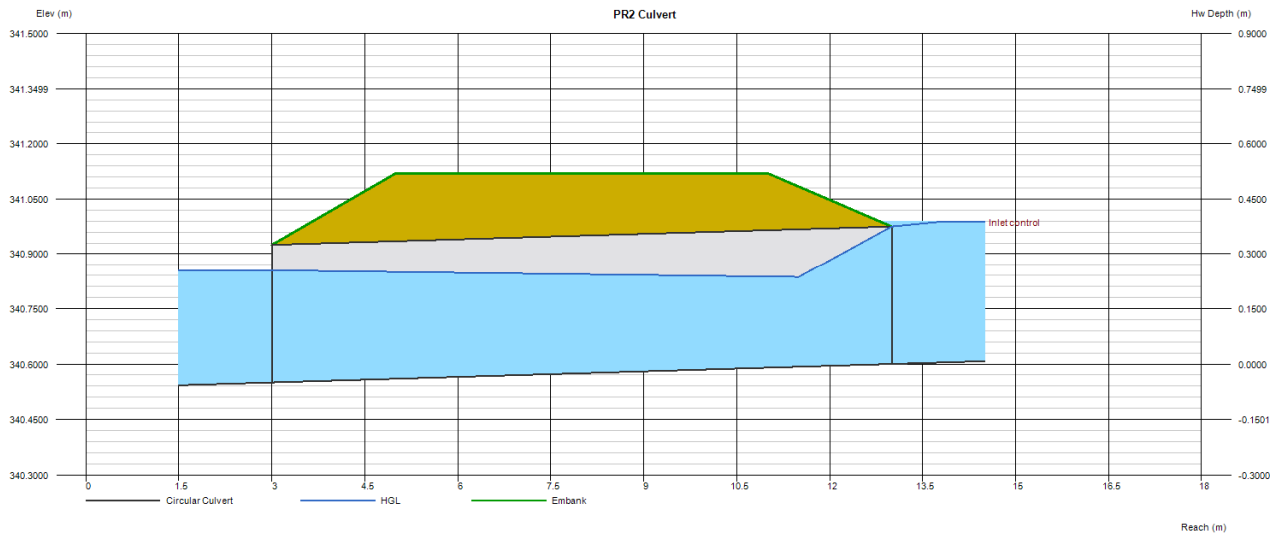
Top Elevation (m)	=	341.1200
Top Width (m)	=	6.0000
Crest Width (m)	=	14.0000

Calculations

Qmin (cms)	=	0.0000
Qmax (cms)	=	0.2010
Tailwater Elev (m)	=	(dc+D)/2

Highlighted

Qtotal (cms)	=	0.2010
Qpipe (cms)	=	0.2010
Qovertop (cms)	=	0.0000
Veloc Dn (m/s)	=	1.0483
Veloc Up (m/s)	=	1.3954
HGL Dn (m)	=	340.8539
HGL Up (m)	=	340.8327
Hw Elev (m)	=	340.9875
Hw/D (m)	=	1.0332
Flow Regime	=	Inlet Control



Appendix E: Geotechnical Report

Geotechnical Investigation Report, Woodcox Road Subdivision, Bancroft, Ontario

January 11, 2022

Prepared for:
Ecostructure Canada c/o EcoVue Consulting Services

Cambium Reference: 111849-001

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1.0 Introduction

Cambium Inc. (Cambium) was retained by Ecostructure Canada c/o EcoVue Consulting Services (Client) to complete a geotechnical investigation and report for a proposed subdivision development located on Woodcox Road, on Part of Lots 7 & 8, Concession 2 (Herschel), in the Municipality of Hasting Highlands (Site).

The Site is 16.62 ha (41.07 acres) in size and is currently vacant and heavily treed. Access to the Site is from Woodcox Road and the Site is bound by parcels along Woodcox Road on the west, Glory Road and parcels along Glory Road to the south, the York River to the east, and treed property to the north.

The proposed development includes 20 lots for residential housing, block designated as open space and residential amenities, and the new road from Woodcox Road that terminates in a cul-de-sac at the southern end of the Site. The 20 lots will be privately serviced will be developed with detached residential units. The eastern limit for the lots is controlled by the 30 m wetland buffer around the existing wetland located on the west side of the York River.

The geotechnical investigation was required to confirm subsurface and groundwater conditions and provide geotechnical recommendations for design and construction of the proposed development.

This report presents the methodology and findings of the geotechnical investigation at the Site and addresses the requirements and constraints for the design and construction of the proposed development.

2.0 Methodology

2.1 Test Pit Investigation

A test pit investigation was conducted on December 17, 2020, in conjunction with the hydrogeological investigation. Nine (9) test pits, designated as TP101-20 through TP109-20, were excavated throughout the Site in accessible locations to a depth of 2.0 m below ground surface (mbgs). The test pits were excavated by Yantha Excavating and overseen by a Cambium technician. Dynamic Probe Penetration Test (DPT) values were recorded for the sampled intervals as the number of blows required to drive a 19 mm diameter steel rod into the soil in 150 mm increments with an 8 kg hammer falling 750 mm. The DPT values are used in this report to assess consistency of cohesive soils and relative density of non-cohesive materials.

Soil samples were collected at changes in stratigraphy. The encountered soil units were logged in the field using visual and tactile methods and samples were placed in labelled plastic bags for transport, future reference, possible laboratory testing, and storage. Open test pits were checked for groundwater and general stability prior to backfilling. The backhoe bucket was used to compact the test pit on completion of backfilling, returning the area to approximately the elevation it was prior to excavating.

2.2 Borehole Investigation

A borehole investigation was conducted on March 2, 2021, to supplement the test pit investigation and assess subsurface conditions at deeper elevations at the Site. Four (4) boreholes, designated BH101-21 through BH104-21, were completed at the Site in accessible locations. The boreholes were augered to 6.0 mbgs.

Drilling and sampling was completed using a track-mounted drill rig overseen by a Cambium technician. The boreholes were advanced to the termination depths by means of continuous flight solid stem augers with 50 mm O.D. split spoon samplers. Standard Penetration Test (SPT) N values were recorded for the sampled intervals as the number of blows required to drive a split spoon sampler 305 mm into the soil using a 63.5 kg drop hammer falling 750 mm,

as per ASTM D1586 procedures. The SPT N values are used in this report to assess consistency of cohesive soils and relative density of non-cohesive materials. Soil samples were collected at 0.75 m intervals to 3.0 m depth and 1.5 m intervals at depths greater than 3.0 m. The encountered soil units were logged in the field using visual and tactile methods and samples were placed in labelled plastic bags for transport, future reference, possible laboratory testing, and storage. Open boreholes were checked for groundwater and general stability prior to backfilling. All boreholes were backfilled and sealed in accordance with Ontario Regulation (O.Reg.) 903.

Borehole logs are provided in Appendix A. Site soil and groundwater conditions are described, and geotechnical recommendations are discussed in subsequent sections of this report.

2.3 Test Pit and Borehole Locations

The test pit and borehole locations were obtained using a handheld GPS. Test pit and borehole elevations were estimated to the nearest 0.25 m using the topographic survey included on the “Concept Draft Plan of Subdivision” P1, completed by EcoVue Consulting Services Inc. and dated December 9, 2021. The test pit and borehole locations are shown on Figure 1.

2.4 Physical Laboratory Testing

Physical laboratory testing, including three (3) particle size distribution analyses (LS-702, 705), was completed on selected soil samples to confirm textural classification, to assess geotechnical parameters, and confirm soil hydraulic conductivity. Moisture content testing (LS-701) was completed on all retrieved soil samples. Results are presented in Appendix B and are discussed in subsequent sections of this report.

3.0 Subsurface Conditions

The detailed soil profiles encountered in the test holes are indicated on the test pit and borehole logs in Appendix A. It should be noted that the soil conditions indicated on the logs are for specific locations only and can vary between and beyond the test locations. It should also be noted that the soil boundaries indicated on the borehole logs are inferred from non-continuous sampling and observations during drilling. These boundaries are intended to reflect approximate transition zones and should not be interpreted as exact planes of geological change. In addition, the descriptions provided on the logs are inferred from a variety of factors, including visual observations of the retrieved soil samples, laboratory testing, measurements prior to and after drilling/excavating, and the drilling/excavating process itself (speed of drilling, shaking/grinding of the augers, etc.).

Based on the test pit and borehole investigation results, subsurface conditions at the Site consist of a surficial layer of topsoil overlying a thin layer of sandy silt soil, which is underlain by sand. The sand contains varying amounts of silt and trace amounts of gravel and clay. Bedrock was not encountered within the investigation depths.

3.1 Topsoil

A 150 mm to 455 mm thick layer of silt topsoil was observed at the surface of each test location except test pit TP104-20, with an average thickness of 227 mm. The topsoil contained a significant amount of organic material and was moist to saturated at the time of the investigation with natural moisture content varying from 11% to 63% based on laboratory testing.

Tests on organic content were not part of the scope of this project.

3.2 Sandy Silt

In most of the test locations a layer of brown to orange sandy silt was encountered beneath the topsoil. The exception was in test pits TP101-20, TP102-21, and TP104-20. The sandy silt extended from beneath the topsoil to between 0.6 mbgs and 1.4 mbgs. The sandy silt

contained a trace to some organics and a trace of cobbles was observed within the sandy silt in the test pits. The sandy silt in the boreholes was frozen at the time of the investigation. In the test pits, the sandy silt was generally moist at the time of the investigation with natural moisture content varying from 16% to 29% based on laboratory testing. DPT values indicate the sandy silt has a loose to compact relative density, becoming dense in test pits TP105-20 and TP109-20.

3.3 Sand

The predominant soil type at the Site is sand containing varying amounts of silt and trace amounts of gravel and clay. Trace amounts of cobbles were observed within the test pits. The sand was encountered beneath the sandy silt described above and extends to the test hole termination depths varying from 1.4 mbgs to 6.6 mbgs. The sand was predominantly brown in colour throughout, with some orangey brown sand observed in test pit TP105-20. The sand has a loose to compact relative density, becoming consistently dense to very dense below 3.0 m depth.

The sand was generally moist throughout the investigation depths with a notable exception at borehole BH101-21 and test pit TP107-20. Outside of this exception moist conditions were observed to the test pit termination depths and extensively within the boreholes, becoming saturated at 6.0 mbgs. The natural moisture content of the sand varies from 3% to 18% based on laboratory testing.

Borehole BH101-21 and test pit TP107-20 are located adjacent to one another and at the edge / just north of a seep area, which was identified in the Environmental Impact Study completed by Cambium under separate cover. (Cambium Inc., 2021) The seep area is a naturally occurring area characterized by temporary surface water and saturated soils that drains to the wetland area to the east, adjacent to the York River. In borehole BH101-21 and test pit TP107-20, groundwater seepage was observed at approximately 1.5 mbgs (corresponding to an elevation of 342.2 masl to 342.8 masl). Saturated soils were observed between 1.5 mbgs and 2.0 mbgs in TP107-20. Wet soils were observed in BH101-21, becoming saturated at 6.0

mbgs. The groundwater seepage in these test holes is likely due to the “seep” and is not indicative of an overall groundwater level at the Site.

Laboratory particle size distribution analysis was completed on three (3) samples of the sand taken from the boreholes and depths provided in Table 1. The analysis results are based on the Unified Soil Classification System (USCS) scale and are summarized in Table 1, with full results provided in Appendix B.

Table 1 Particle Size Distribution Analysis Results – Sand

Borehole	Depth (mbgs)	Soil	% Gravel	% Sand	% Silt	% Clay	% Moisture
BH101-21	1.5-2.0	Sand and silt	5	54	36	5	10
BH103-21	2.3-2.7	Sand and silt	3	54	36	7	7
BH104-21	1.5-2.0	Silty sand	9	60	28	3	5

3.4 Bedrock

Bedrock was not encountered within the investigation depths. All test pits were terminated in native soils at depths of 1.4 mbgs to 2.0 mbgs and all boreholes were terminated in native soils at 6.6 mbgs. Refusal within some test pits was likely due to dense soils and cobbles and not by bedrock.

3.5 Groundwater

All the test pits and boreholes except BH101-21, TP107-20, and TP103-20 remained open (no sloughing) and were dry (no groundwater seepage) on completion. Test holes BH101-21 and TP107-20 were located in proximity to a natural seep, resulting in groundwater seepage and saturated soils at 1.5 mbgs (approximate elevation 342.2 masl to 342.8 masl). In test pit TP103-20, localized groundwater seepage was observed within a 300 mm thick saturated sandy silt layer encountered at 0.8 mbgs (333 masl approximate elevation).

Based on these observations it appears that the groundwater table throughout most of the Site is below 2.0 mbgs and quite likely below 6.6 mbgs. The exception to this is the area adjacent to the seep identified in the southern portion of the Site, where there is potential for elevated

groundwater seepage, as observed at approximately 1.5 mbgs in test holes BH101-21 and TP107-20. Adjacent to the seep there is potential for elevated groundwater levels depending on seasonal conditions.

It should be noted that groundwater levels at the Site may fluctuate seasonally and in response to climatic events.

4.0 Geotechnical Considerations

The following recommendations are based on the information and intended to assist designers. Recommendations should not be construed as providing instructions to contractors, who should form their own opinions about site conditions. It is possible that subsurface conditions beyond the borehole locations may vary from those observed. If significant variations are found before or during construction Cambium should be contacted so that we can reassess our findings, if necessary.

4.1 General Site Preparation

Any topsoil and organic soils should be removed from beneath all proposed building and paved areas. The exposed subgrade should be proof-rolled and inspected by qualified geotechnical engineering personnel prior to the placement of any footings, engineered fill or bedding material. Any loose/soft soils identified at the time of proof-rolling that are unable to be uniformly compacted should be sub-excavated and removed. The excavations created through the removal of these materials should be backfilled with approved engineered fill consistent with the recommendations provided below. All excavations and backfill should be completed concurrently and excavations should not be left open for any length of time.

The near surface silt soils can be very unstable if they are wet or saturated. Such conditions are common in the spring and late fall. Under these conditions, temporary use of granular fill and possible reinforcing geotextiles, may be required to prevent severe rutting on construction access routes.

4.2 Frost Penetration

Based on the Ontario Provincial Standard Drawing (OPSD) 3090.101, the typical frost penetration depth for the proposed structure is expected to be approximately 1.8 mbgs. All exterior footings should be situated at or below this depth for frost penetration or should be protected. If construction is carried out during the winter months, all footing locations where excavated soils become exposed to potential frost penetration should be poured within the day to prevent potential future settlements. If the footings cannot be poured within the same day

the soils are excavated, the surface should be covered with thermal insulation equivalent to 1.8 m of soil cover to prevent potential freezing of the frost susceptible soils at the Site.

It is assumed that any pavement structure thickness will be less than 1.8 m; therefore, grading and drainage are important for good pavement performance and life expectancy. Any utilities should be located below this depth or be appropriately insulated.

4.3 Excavations

All excavations must be carried out in accordance with the latest edition of the Occupational Health and Safety Act (OHSA). The compact silt and sand above the groundwater table may be classified as Type 3 soils in accordance with OHSA and may be excavated with unsupported side slopes not steeper than 1H:1V. The dense to very dense sand above the groundwater table may be classified as Type 2 soils and may be excavated with vertical sides for 1.2 m depth then side slopes not steeper than 1H:1V. The dense to very dense sand below the groundwater table may be classified as Type 3 soils as well.

Test excavations are recommended for construction in proximity to the seep area (BH101-21 and TP107-20) as identified by the EIS (Cambium Inc., 2021) to confirm groundwater conditions at the time of construction.

Excavation side slopes should be protected from exposure to precipitation and associated ground surface runoff and should be inspected regularly for signs of instability. If localized instability is noted during excavation or if wet conditions are encountered, the side slopes should be flattened as required to maintain safe working conditions or the excavation sidewalls must be fully supported (shored).

4.4 Dewatering

Final grades for each lot were not known at the time of construction. However, throughout most of the Site groundwater is below 2.0 m depth and appears to be below 6.0 m depth. Provided grades to not change significantly from existing, most excavations will remain above the groundwater table. While some groundwater seepage may be observed, it should be controllable by filtered sumps and pumps and registration on the Environmental Activity and

Sector Registry (EASR) or a Permit to Take Water (PTTW) is likely not required. It is recommended that excavations are backfilled concurrently and do not remain open for long periods of time.

In the seep area, some groundwater seepage is anticipated; however, provided excavations are completed during drier seasons and are not left open for any length of time, and registration on the Environmental Activity and Sector Registry (EASR) or a Permit to Take Water (PTTW) is likely not required.

We would be pleased to review this further into the design stage, as more detail on proposed finished elevations is available.

We also recommend completion of test excavations at the time of construction to confirm groundwater seepage.

4.5 Backfill and Compaction

Excavated sand and silt soils from the site may be appropriate for use as fill below grading and parking areas, provided that the actual or adjusted moisture content at the time of construction is within a range that permits compaction to required densities. Some moisture content adjustments may be required depending on seasonal conditions. Geotechnical inspections and testing of engineered fill are required to confirm acceptable quality.

Engineered fill for foundations should consist of free-draining granular material meeting the specifications of OPSS 1010 Granular B or an approved equivalent and should be placed in maximum 200 mm thick lifts compacted to a minimum of 100 percent standard Proctor maximum dry density (SPMDD) as confirmed by nuclear densometer testing. Foundation wall backfill should consist of imported free-draining granular material meeting the specifications for OPSS Granular B, or an approved equivalent, compacted to 98 percent SPMDD, taking care to keep heavy compaction equipment from damaging the walls.

The backfill material, if any, in the upper 300 mm below the pavement subgrade elevation should be compacted to 100 percent SPMDD in all areas.

4.5.1 Engineered Fill

When the fill is treated as an engineered fill to support structural elements such as foundations and/or floor slabs the following is recommended for the construction of engineered fill:

I. Remove any and all existing vegetation, surficial topsoil/ organics, organic fills or fills and any loose soils to a competent subgrade for a suitable building envelope;

II. The area of the engineered fill should extend horizontally 1 m beyond the outside edge of the foundations then extend downward at a 1:1 slope to the competent native soil;

III. The subgrade or base of the engineered fill area must be approved by Cambium prior to placement of any new fill, to ensure that suitability of subgrade condition;

IV. Place approved OPSS 1010 SSM or Granular 'B' Type I material at a moisture content at or near optimum moisture in suitable maximum 200 mm thick lifts, compacted to 100% of SPMDD. Any frost penetration into the fill material must be removed prior to placement of subsequent lifts of fill or reviewed by Cambium;

V. Full time testing and inspection of the engineered fill will be required for it to be used as a founding material, as outlined in Section 4.2.2.2 of the Ontario Building Code.

4.5.2 Lateral Earth Pressure

Lateral earth pressure coefficients (K) for foundation and retaining wall design are provided below. It is assumed that potential lateral loads will result from cohesionless, frictional materials, such as granular backfill.

Ko (at rest)	0.42
Ka (active)	0.27
Kp (passive)	3.7

The following formula may be used to calculate active lateral thrust (Pa) on yielding retaining structures;

$$Pa = (H/2)\,(Ka)(\gamma H + 2q)$$

where,

H = Height of retaining structure (m)

γ= unit weight of retained soil (kN/m^3)

q = surcharge (kPa)

A unit weight of 22 kN/m^3 should be assumed for compacted granular backfill loadings.

4.6 Foundation Design

Provided the Site is prepared as outlined above, the proposed buildings may be supported by conventional shallow strip and spread footings bearing on native soils or engineered fill. All footings must be placed at least 1.8 mbgs below final grades and, based on the test excavations, will be founded on compact to dense sand and may be designed for a bearing capacity of 100 kPa at serviceability limit state (SLS) and 150 kPa at ultimate limit state (ULS). Higher allowable bearing capacities are possible in most areas of the site at greater depths. Cambium can provide details if necessary.

Settlement potential at the noted SLS loadings is less than 25 mm and differential settlement should be less than 10 mm.

The quality of the subgrade shall be inspected by Cambium during construction, prior to constructing the footings and placing engineered fill, to confirm bearing capacity estimates.

4.7 Floor Slabs

Floor slabs may be constructed using conventional concrete poured slab techniques, following removal of loose soils or otherwise deleterious soils and preparation of the subgrade as outlined in Section 4.6.

To create a stable working surface, to distribute loadings, and for drainage purposes, the floor slabs should be constructed on a minimum of 300 mm of OPSS 1010 Granular A compacted to 98% of SPMDD.

4.8 Subdrains

Geotextile wrapped perforated pipe subdrains set in a trench of clear stone and connected to a sump or other frost-free positive outlet are recommended around any basement footings. Based on the fact that groundwater was not observed throughout most of the investigation depths, subdrains are not required for slab on grade structures unless they are in the area of the seep. However, given that final site grades are unknown at the time of writing of this report, if shallow water is observed during excavations and at seasonal wetter times, geotextile wrapped subdrains set in a trench of clear stone and connected to a sump or other frost-free positive outlet will be recommended below the floor slab and around the perimeter of building foundations.

4.9 Buried Utilities

Trench excavations above the groundwater table should generally consider Type 3 soil conditions which require side slopes no steeper than 1H:1V to the bottom of the excavation. If trench excavations are required to extend below the groundwater table advance dewatering and shoring will be required. The bedding and cover material for any buried utilities should consist of OPSS 1010 Granular A or B Type II, placed in accordance with pertinent Ontario Provincial Standard Drawings (OPSD 802.013). The bedding and cover material shall be placed in maximum 200 mm thick lifts and should be compacted to at least 98% of SPMDD. The cover material shall be a minimum of 300 mm over the top of the pipe and compacted to 98% of SPMDD, taking care not to damage the utility pipes during compaction.

If wet or saturated conditions exist within any utility excavation, consideration should be given to using 19 mm diameter crushed clear stone wrapped in a geotextile filter fabric as pipe bedding.

4.10 Preliminary Pavement Design

Based on the proposed site plan, an internal road is proposed through the Site with access to Woodcox Road. Driveways are also anticipated at each lot.

The performance of the pavement is dependent upon proper subgrade preparation. All topsoil and organic materials should be removed down to native material and backfilled with approved engineered fill or native material, compacted to 98% of SPMDD. The subgrade should be compacted, proof rolled, and inspected by a Geotechnical Engineer. Any areas where rutting or appreciable deflection is noted should be subexcavated and replaced with suitable fill. The fill should be compacted to at least 98% of SPMDD.

The recommended minimum pavement structure design has been developed for two (2) traffic loading scenarios, light duty and heavy duty. The heavy-duty design is appropriate for areas where heavy trucks and maintenance vehicles are anticipated to drive while the light duty design is appropriate for areas where no heavy traffic is anticipated. The recommended minimum pavement structure is provided in Table 2.

Table 2 Recommended Minimum Pavement Structure

Pavement Layer	Compaction Requirements	Heavy Duty (Cars and Trucks)	Light Duty (Cars Only)
Surface Course Asphalt	OPSS 310	50 mm HL3 or HL4	40 mm HL3 or HL4
Binder Course Asphalt	OPSS 310	50 mm HL8	50 mm HL8
Granular Base	100% SPMDD (ASTM-D698)	150 mm OPSS 1010 Granular A	150 mm OPSS 1010 Granular A
Granular Subbase	98% SPMDD (ASTM-D698)	450 mm OPSS 1010 Granular B	300 mm OPSS 1010 Granular B

Material and thickness substitutions must be approved by the Design Engineer.

The thickness of the subbase layer could be increased at the discretion of the Engineer, to accommodate site conditions at the time of construction, including soft or weak subgrade soil replacement.

Compaction of the subgrade should be verified by the Engineer prior to placing the granular fill. Granular layers should be placed in 200 mm maximum loose lifts and compacted to at least 98 percent of SPMDD (ASTM D698) standard. The granular materials specified should conform to OPSS standards, as confirmed by appropriate materials testing. The final asphalt surface should be sloped at a minimum of 2 percent to shed runoff.

4.11 Additional Investigations

Further geotechnical investigation may be required at the Site as individual lot development plans advance. This may include slope studies depending on the positioning of the proposed structures and final grades of the proposed development plans. Cambium would be pleased to review future development plans and site grading plans with the Client to determine any additional geotechnical requirements.

4.12 Design Review and Inspections

Cambium should be contacted to review design drawings, prior to tendering or commencing construction, to ensure that all pertinent geotechnical-related factors have been addressed. It is important that onsite geotechnical supervision be provided at this Site for excavation and backfill procedures, deleterious soil removal, subgrade inspections, compaction and concrete testing.

5.0 Closing

Please note that this report is governed by the attached qualifications and limitations. If you have questions or comments regarding this document, please do not hesitate to contact the undersigned at 705-742-7900.

Respectfully submitted,

Cambium Inc.

Jennifer Wales, P.Eng.
Project Manager

Stuart Baird, M.Eng., P.Eng.
Director, Geotechnical Engineering

P:\11800 to 11899\11849-001 Ecostructure Canada - Hydro & Geo - Woodcox Rd Subdivision\Deliverables\REPORT - Geotech\2022-01-11 RPT Woodcox Rd Subdivision Geotech.docx

6.0 Standard Limitations

Limited Warranty

In performing work on behalf of a client, Cambium relies on its client to provide instructions on the scope of its retainer and, on that basis, Cambium determines the precise nature of the work to be performed. Cambium undertakes all work in accordance with applicable accepted industry practices and standards. Unless required under local laws, other than as expressly stated herein, no other warranties or conditions, either expressed or implied, are made regarding the services, work or reports provided.

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Site Assessments

A site assessment is created using data and information collected during the investigation of a site and based on conditions encountered at the time and particular locations at which fieldwork is conducted. The information, sample results and data collected represent the conditions only at the specific times at which and at those specific locations from which the information, samples and data were obtained and the information, sample results and data may vary at other locations and times. To the extent that Cambium's work or report considers any locations or times other than those from which information, sample results and data was specifically received, the work or report is based on a reasonable extrapolation from such information, sample results and data but the actual conditions encountered may vary from those extrapolations.

Only conditions at the site and locations chosen for study by the client are evaluated; no adjacent or other properties are evaluated unless specifically requested by the client. Any physical or other aspects of the site chosen for study by the client, or any other matter not specifically addressed in a report prepared by Cambium, are beyond the scope of the work performed by Cambium and such matters have not been investigated or addressed.

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Appended Figures

GEOTECHNICAL INVESTIGATION

ECOSTRUCTURE CANADA
Woodcox Road,
Bancroft, Ontario

LEGEND

- Borehole
- Test Pit
- Site (approximate)

Notes:
- Base mapping features are © Queen's Printer of Ontario, 2019 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).
- Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
- Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.

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TEST PIT AND BOREHOLE LOCATION PLAN

Project No.:	11849-001	Date:	January 2022
		Rev.:	
Scale:	1:3,500	Projection:	NAD 1983 UTM Zone 18N
Created by:	TLC	Checked by:	JLW
Figure:	1		

O:\GIS\MXDs\11800-11899\11849-001 Ecostructure Canada - Hydro & Geo - Woodcox Rd Subdivision\2022-01-04 FIG 1 - Borehole and Test Pit Plan.mxd

Appendix A

Borehole Logs

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Log of Borehole: BH101-21

Client:	Ecostructure Canada	**Project Name:**	Geotechnical Investigation	**Project No.:**	11849-001
Contractor:	Drilltech Drilling Ltd.	**Method:**	Solid Stem Auger	**Date Completed:**	March 2, 2021
Location:	512 Woodcox Road, Harcourt, ON	**UTM:**	18T 270832 m E 4997332 m N	**Elevation:**	343.75 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
0		TOPSOIL: Dark brown, silt, organics, frozen	1	SS	83	2				
		SILT: Brown, silt, some sand, frozen								
343		SAND: Brown, sand, some silt, moist, very dense	2	SS	67	72				Groundwater seepage first encountered at 1.5 m depth
1										
		SAND AND SILT: Brown, sand and silt, trace gravel and clay, moist to wet, compact	3	SS	100	20				SS3 GSA 5% gravel 54% sand 36% silt 5% clay
342										
2			4	SS	100	20				Borehole open and groundwater encountered at 1.5 mbgs upon completion
		-becomes wet								
341			5	SS	100	33				
3		-becomes dense								
340										
4			6	SS	100	78				Caving of borehole occurred at 4.6 mbgs
339		-becomes very dense								
5										
338										
6			7	SS	100	50/ 125				
		-becomes saturated								
337		Borehole terminated at 6.6 mbgs in sand and silt								
7										

Logged By: J. Riseling **Input By:** J. Riseling

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Log of Borehole: BH102-21

Client:	Ecostructure Canada	**Project Name:**	Geotechnical Investigation	**Project No.:**	11849-001
Contractor:	Drilltech Drilling Ltd.	**Method:**	Solid Stem Auger	**Date Completed:**	March 2, 2021
Location:	512 Woodcox Road, Harcourt, ON	**UTM:**	18T 270799 m E 4997400 m N	**Elevation:**	342.50 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
0 / 342		TOPSOIL: Dark brown, silt, organics, frozen	1	SS	75	24				
		SILT AND SAND: Brown, silt and sand, frozen								
1 / 341		SAND: Brown, sand, some silt, moist, dense	2	SS	100	44				
2 / 340		-some gravel	3	SS	100	33				
		SILTY SAND: Brown, silty sand, some gravel, moist, dense	4	SS	100	35				
3 / 339			5	SS	100	32				
4 / 338										
5 / 337		-becomes grey/brown, no gravel, wet, very dense	6	SS	100	50/125				
6 / 336		-becomes saturated	7	SS	100	50/25				Borehole open and dry upon completion
7 / 335		Borehole terminated at 6.6 mbgs in silty sand								

Logged By: J. Riseling **Input By:** J. Riseling

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Log of Borehole: BH103-21

Client:	Ecostructure Canada	**Project Name:**	Geotechnical Investigation	**Project No.:**	11849-001
Contractor:	Drilltech Drilling Ltd.	**Method:**	Solid Stem Auger	**Date Completed:**	March 2, 2021
Location:	512 Woodcox Road, Harcourt, ON	**UTM:**	18T 270763 m E 4997477 m N	**Elevation:**	342.25 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
342 / 0		TOPSOIL: Dark brown, silt, organics, frozen	1	SS	75	14				
		SANDY SILT: Orange/brown, sandy silt, frozen								
341 / 1		SAND: Brown, sand, trace silt, moist, compact	2	SS	100	25				
340 / 2		-trace gravel, dense	3	SS	100	37				
		SAND AND SILT: Brown, sand and silt, moist, compact	4	SS	100	19				SS4 GSA 3% gravel 54% sand 36% silt 7% clay
339 / 3		SILTY SAND: Brown, silty sand, moist, dense	5	SS	100	32				
338 / 4										
337 / 5		-becomes moist to wet	6	AS	100	41				
336 / 6		-trace gravel, dense	7	SS	100	85				Borehole open and dry upon completion
335 / 7		Borehole terminated at 6.6 mbgs in silty sand								

Logged By: J. Riseling **Input By:** J. Riseling

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Log of Borehole: BH104-21

Client:	Ecostructure Canada	**Project Name:**	Geotechnical Investigation	**Project No.:**	11849-001
Contractor:	Drilltech Drilling Ltd.	**Method:**	Solid Stem Auger	**Date Completed:**	March 2, 2021
Location:	512 Woodcox Road, Harcourt, ON	**UTM:**	18T 270714 m E 4997600 m N	**Elevation:**	342.50 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
342 / 0		TOPSOIL: Dark brown, silt, organics, frozen	1	SS	75	14				
		SANDY SILT: Brown, sandy silt, frozen								
341 / 1		SAND: Brown, sand, trace silt, moist, loose	2	SS	56	6				
		SILTY SAND: Brown, silty sand, trace gravel, moist, compact to dense	3	SS	89	29				SS3 GSA 9% gravel 60% sand 28% silt 3% clay
340 / 2			4	SS	100	47				
339 / 3		SAND: Brown, sand, some silt, some gravel, moist, dense	5	SS	100	42				
338 / 4		SILTY SAND: Brown, silty sand, trace gravel, moist, very dense	6	SS	100	73				
337 / 5										
336 / 6			7	SS	100	50/100				Borehole open and dry upon completion
335 / 7		Borehole terminated at 6.6 mbgs in silty sand								

Logged By: J. Riseling **Input By:** J. Riseling

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Log of Test Pit: TP101-20

Client:	Ecostructure Canada	**Project Name:**	Woodcox Road Subdivision	**Project No.:**	11849-001
Contractor:	Yantha Excavating	**Method:**	Excavator	**Date Completed:**	Dec 17, 2020
Location:	Woodcox Road, Bancroft	**UTM:**	18T 270814.04 E 4997617.17 N	**Elevation:**	331.3 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type		DPT	% Moisture (25 50 75)	DPT (5 10 15 20)		Remarks
0 / 331		TOPSOIL: 150 mm thick	1	GS		4				
		SAND: Brown sand, trace silt, trace organics, moist, compact to dense				6				
						10				
						11				
			2	GS		15				
1						17				
						20				
330						30				
		SAND: Brown coarse sand, trace gravel, moist, very dense				17				
						30				
			3	GS		32				
2						30				
						35				
						40				
329		Test pit terminated at 2.0 m depth at maximum reach of excavator arm				>50				
3										
328										
4										
327										

Logged By: S. Kennaley **Input By:** J. Wales

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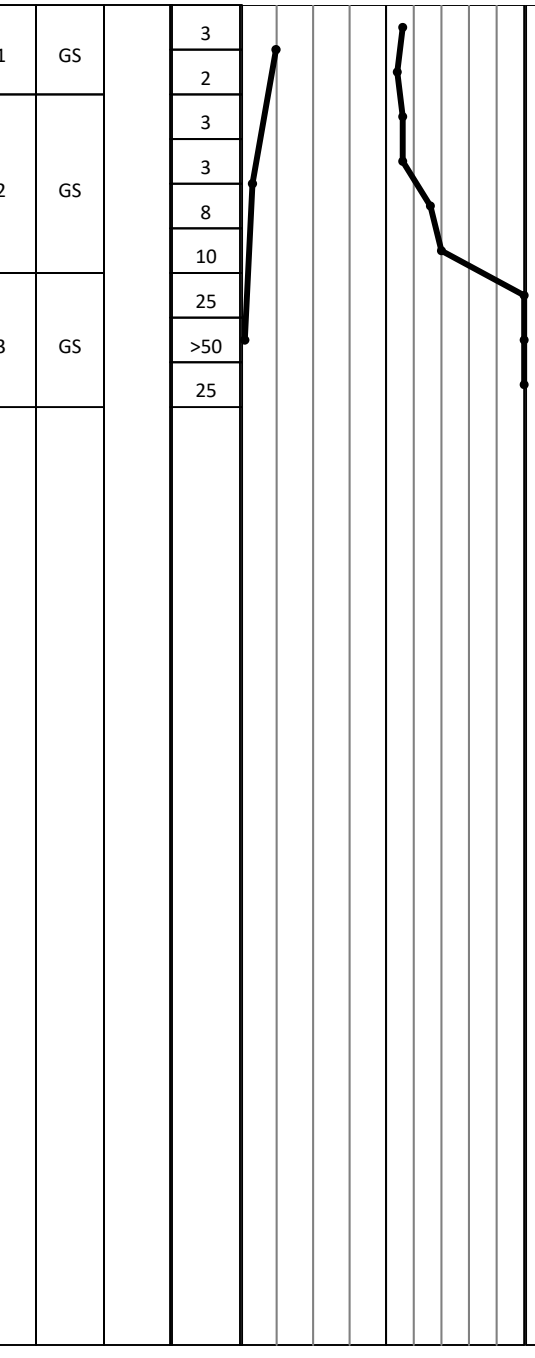
Log of Test Pit: TP102-20

Client:	Ecostructure Canada	**Project Name:**	Woodcox Road Subdivision	**Project No.:**	11849-001
Contractor:	Yantha Excavating	**Method:**	Excavator	**Date Completed:**	Dec 17, 2020
Location:	Woodcox Road, Bancroft	**UTM:**	18T 270856.25 E 4997542.24 N	**Elevation:**	330.0 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type		DPT	% Moisture (25 50 75)	DPT (5 10 15 20)		Remarks
0		TOPSOIL: 305 mm thick	1	GS		3				
						2				
		SAND: Brown sand, some cobbles, trace gravel, trace silt, trace organics, moist, loose to compact	2	GS		3				
						3				
						8				
329						10				
1		SAND: Brown coarse sand, some cobbles, trace gravel, moist, compact to very dense	3	GS		25				
						>50				
						25				
		Test pit terminated at 1.4 m depth due to refusal								
328										
2										
327										
3										
326										
4										



Logged By: S. Kennaley **Input By:** J. Wales

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Log of Test Pit: TP103-20

Client:	Ecostructure Canada	**Project Name:**	Woodcox Road Subdivision	**Project No.:**	11849-001
Contractor:	Yantha Excavating	**Method:**	Excavator	**Date Completed:**	Dec 17, 2020
Location:	Woodcox Road, Bancroft	**UTM:**	18T 270860.98 E 4997433.06 N	**Elevation:**	334.0 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type		DPT	% Moisture (25 50 75)	DPT (5 10 15 20)		Remarks
0		TOPSOIL: 455 mm thick	1	GS		2				
						2				
						3				
		SANDY SILT: Light brown to orange sandy silt, mottled, trace organics, moist, loose to compact	2	GS		4				
						17				
333 — 1		- saturated, groundwater seepage at 0.75 m depth				23				
						35				
		SAND: Brown coarse sand, trace cobbles, trace gravel, moist, dense to very dense	3	GS		40				
						6				
						25				
						26				
						33				
332 — 2						32				
		Test pit terminated at 2.0 m depth at maximum reach of excavator arm				42				
						>50				
331 — 3										
330 — 4										

Logged By: S. Kennaley **Input By:** J. Wales

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Log of Test Pit: TP104-20

Client:	Ecostructure Canada	**Project Name:**	Woodcox Road Subdivision	**Project No.:**	11849-001
Contractor:	Yantha Excavating	**Method:**	Excavator	**Date Completed:**	Dec 17, 2020
Location:	Woodcox Road, Bancroft	**UTM:**	18T 270706.52 E 4997628.84 N	**Elevation:**	342.5 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type		DPT	% Moisture (25 50 75)	DPT (5 10 15 20)		Remarks
0 / 342		SAND: Brown sand, trace silt, moist, loose to compact	1	GS		2 4 3 4 5 5 6 15				
1 / 341		SAND: Brown coarse sand, moist, compact	2	GS		5 6 5 5 5				
2 / 340		Test pit terminated at 2.0 m depth at maximum reach of excavator arm				13 15 21				
3 / 339										
4 / 338										

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Log of Test Pit: TP105-20

Client:	Ecostructure Canada	**Project Name:**	Woodcox Road Subdivision	**Project No.:**	11849-001
Contractor:	Yantha Excavating	**Method:**	Excavator	**Date Completed:**	Dec 17, 2020
Location:	Woodcox Road, Bancroft	**UTM:**	18T 270746.23 E 4997528.41 N	**Elevation:**	341.0 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type		DPT	% Moisture (25 50 75)	DPT (5 10 15 20)		Remarks
0		TOPSOIL: 305 mm thick	1	GS		1				
						2				
		SANDY SILT: Light brown to orange sandy silt, mottled, some cobbles, trace gravel, trace organics, moist, loose to dense	2	GS		4				
						6				
						15				
340 — 1						38				
						>50				
		SAND: Light brown to orange coarse sand, some cobbles, trace gravel, moist, very dense	3	GS		25				
						>50				
		Test pit terminated at 1.5 m depth due to refusal								
339 — 2										
338 — 3										
337 — 4										

Logged By: S. Kennaley **Input By:** J. Wales

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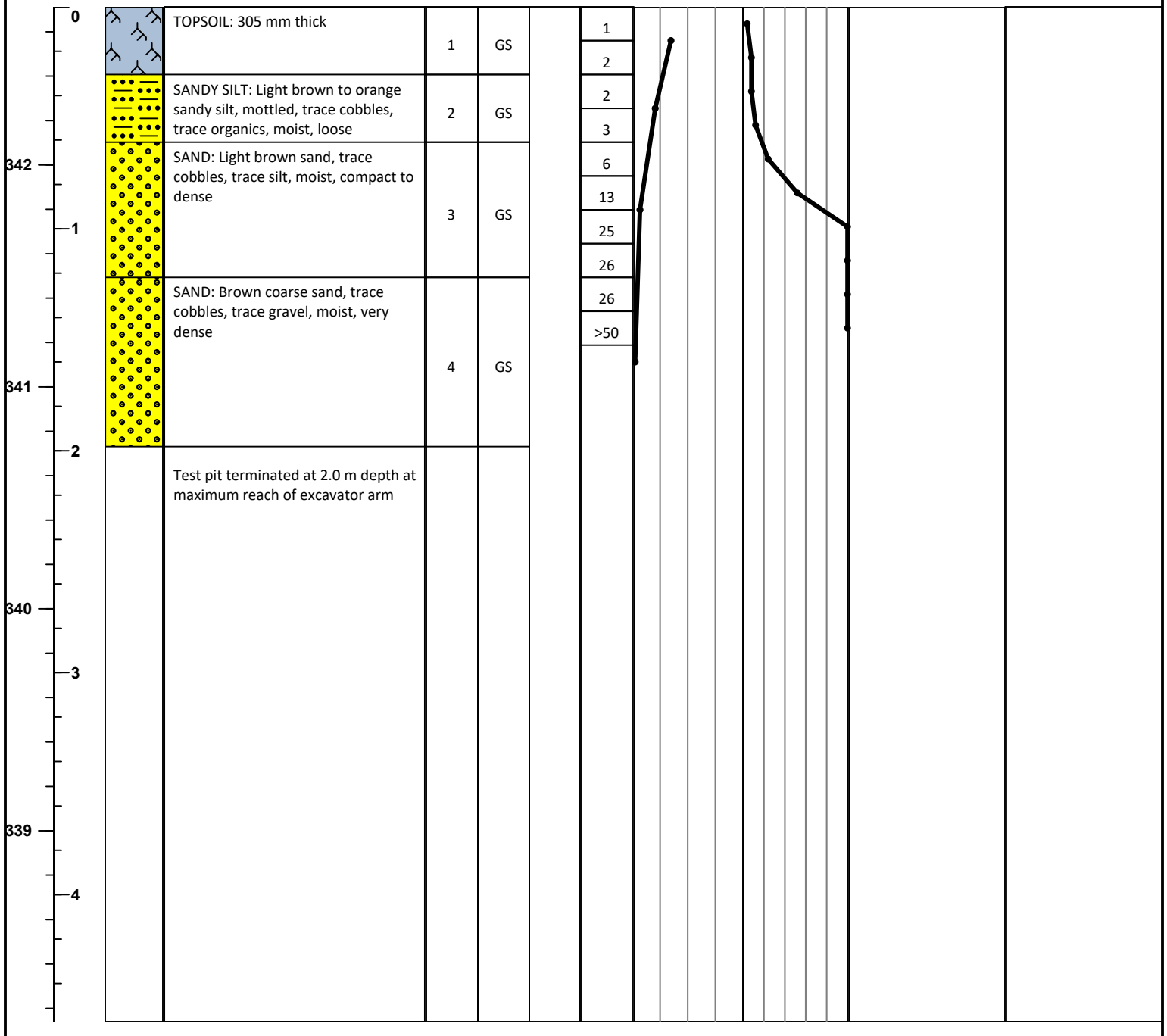
Log of Test Pit: TP106-20

Client:	Ecostructure Canada	**Project Name:**	Woodcox Road Subdivision	**Project No.:**	11849-001
Contractor:	Yantha Excavating	**Method:**	Excavator	**Date Completed:**	Dec 17, 2020
Location:	Woodcox Road, Bancroft	**UTM:**	18T 270796.19 E 4997384.23 N	**Elevation:**	342.8 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type		DPT	% Moisture (25 50 75)	DPT (5 10 15 20)		Remarks
0		TOPSOIL: 305 mm thick	1	GS		1 2				
		SANDY SILT: Light brown to orange sandy silt, mottled, trace cobbles, trace organics, moist, loose	2	GS		2 3				
342 / 1		SAND: Light brown sand, trace cobbles, trace silt, moist, compact to dense	3	GS		6 13 25 26				
341 / 2		SAND: Brown coarse sand, trace cobbles, trace gravel, moist, very dense	4	GS		26 >50				
		Test pit terminated at 2.0 m depth at maximum reach of excavator arm								
340 / 3										
339 / 4										



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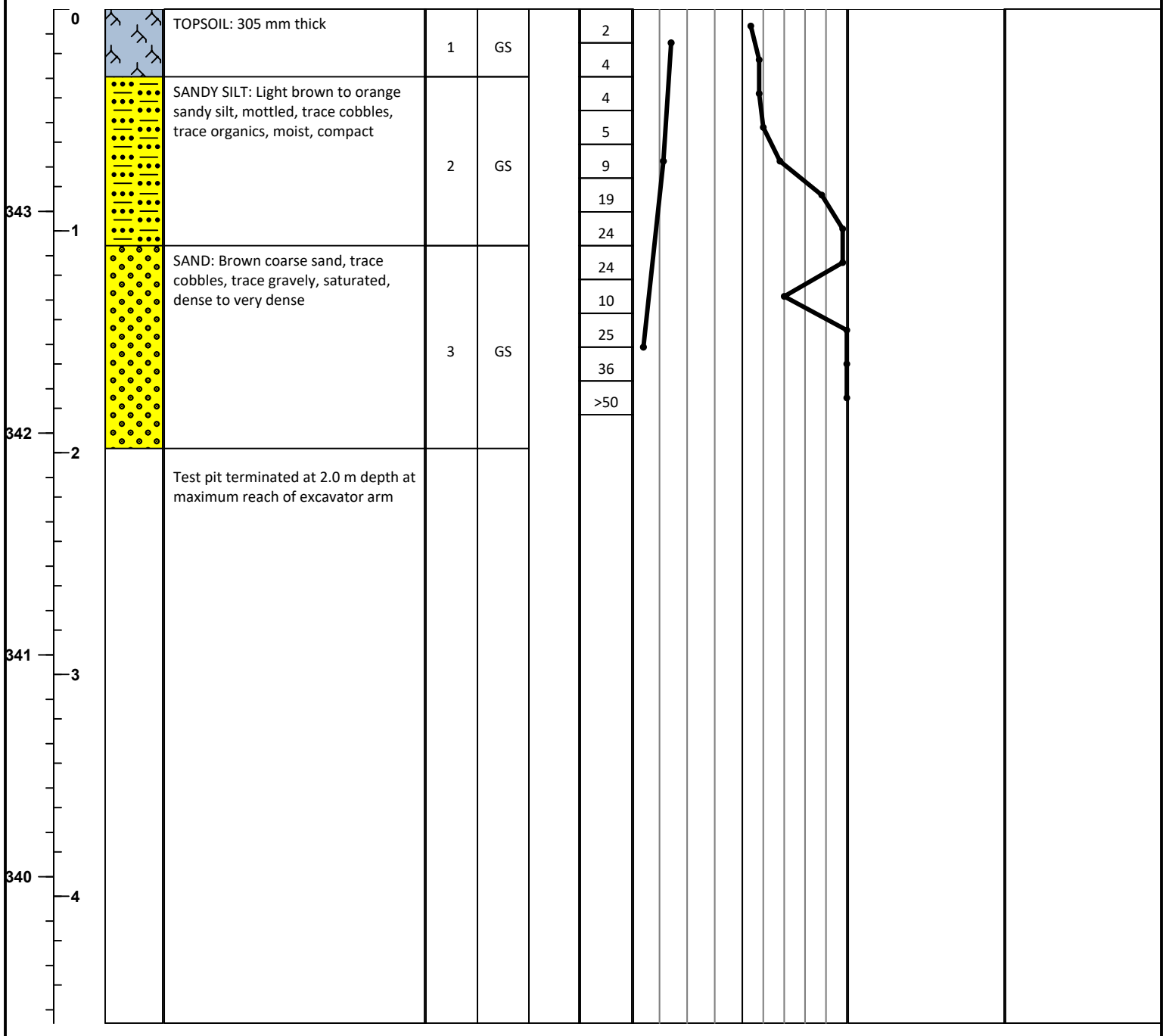
Log of Test Pit: TP107-20

Client:	Ecostructure Canada	**Project Name:**	Woodcox Road Subdivision	**Project No.:**	11849-001
Contractor:	Yantha Excavating	**Method:**	Excavator	**Date Completed:**	Dec 17, 2020
Location:	Woodcox Road, Bancroft	**UTM:**	18T 270849.80 E 4997297.76 N	**Elevation:**	344.0 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type		DPT	% Moisture (25 50 75)	DPT (5 10 15 20)		Remarks
0		TOPSOIL: 305 mm thick	1	GS		2 4				
		SANDY SILT: Light brown to orange sandy silt, mottled, trace cobbles, trace organics, moist, compact	2	GS		4 5 9 19 24				
343 — 1		SAND: Brown coarse sand, trace cobbles, trace gravely, saturated, dense to very dense	3	GS		24 10 25 36 >50				
342 — 2		Test pit terminated at 2.0 m depth at maximum reach of excavator arm								
341 — 3										
340 — 4										



Logged By: S. Kennaley **Input By:** J. Wales

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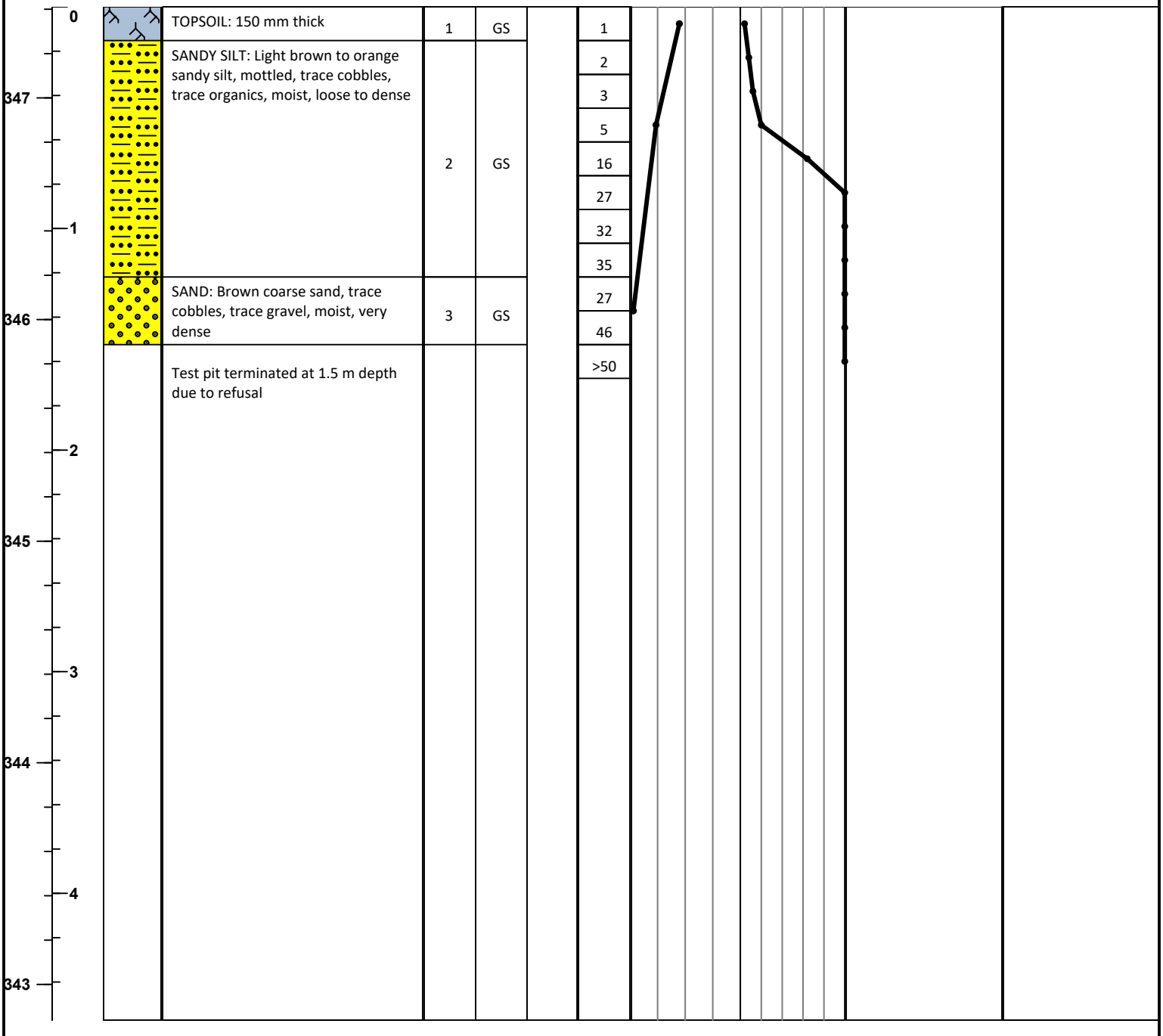
Log of Test Pit: TP108-20

Client:	Ecostructure Canada	**Project Name:**	Woodcox Road Subdivision	**Project No.:**	11849-001
Contractor:	Yantha Excavating	**Method:**	Excavator	**Date Completed:**	Dec 17, 2020
Location:	Woodcox Road, Bancroft	**UTM:**	18T 270883.33 E 4997244.27 N	**Elevation:**	347.5 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type		DPT	% Moisture (25 50 75)	DPT (5 10 15 20)		Remarks
0 / 347		TOPSOIL: 150 mm thick	1	GS		1				
		SANDY SILT: Light brown to orange sandy silt, mottled, trace cobbles, trace organics, moist, loose to dense	2	GS		2 3 5 16 27 32 35				
1 / 346		SAND: Brown coarse sand, trace cobbles, trace gravel, moist, very dense	3	GS		27 46				
2 / 345		Test pit terminated at 1.5 m depth due to refusal				>50				
3 / 344										
4 / 343										



Logged By: S. Kennaley **Input By:** J. Wales

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Log of Test Pit: TP109-20

Client:	Ecostructure Canada	**Project Name:**	Woodcox Road Subdivision	**Project No.:**	11849-001
Contractor:	Yantha Excavating	**Method:**	Excavator	**Date Completed:**	Dec 17, 2020
Location:	Woodcox Road, Bancroft	**UTM:**	18T 270624.45 E 4997625.12 N	**Elevation:**	350.8 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type		DPT	% Moisture (25 50 75)	DPT (5 10 15 20)		Remarks
0 / 350		TOPSOIL: 150 mm thick	1	GS		1				
1 / 349		SANDY SILT: Brown sandy silt, trace cobbles, trace organics, moist, loose to compact	2	GS		1 3 3 3 9 15 >50 >50				
2 / 348		Test pit terminated at 1.4 m depth due to refusal								
3 / 347										
4										

Logged By: S. Kennaley **Input By:** J. Wales

Appendix B

Physical Laboratory Testing Results

Grain Size Distribution Chart

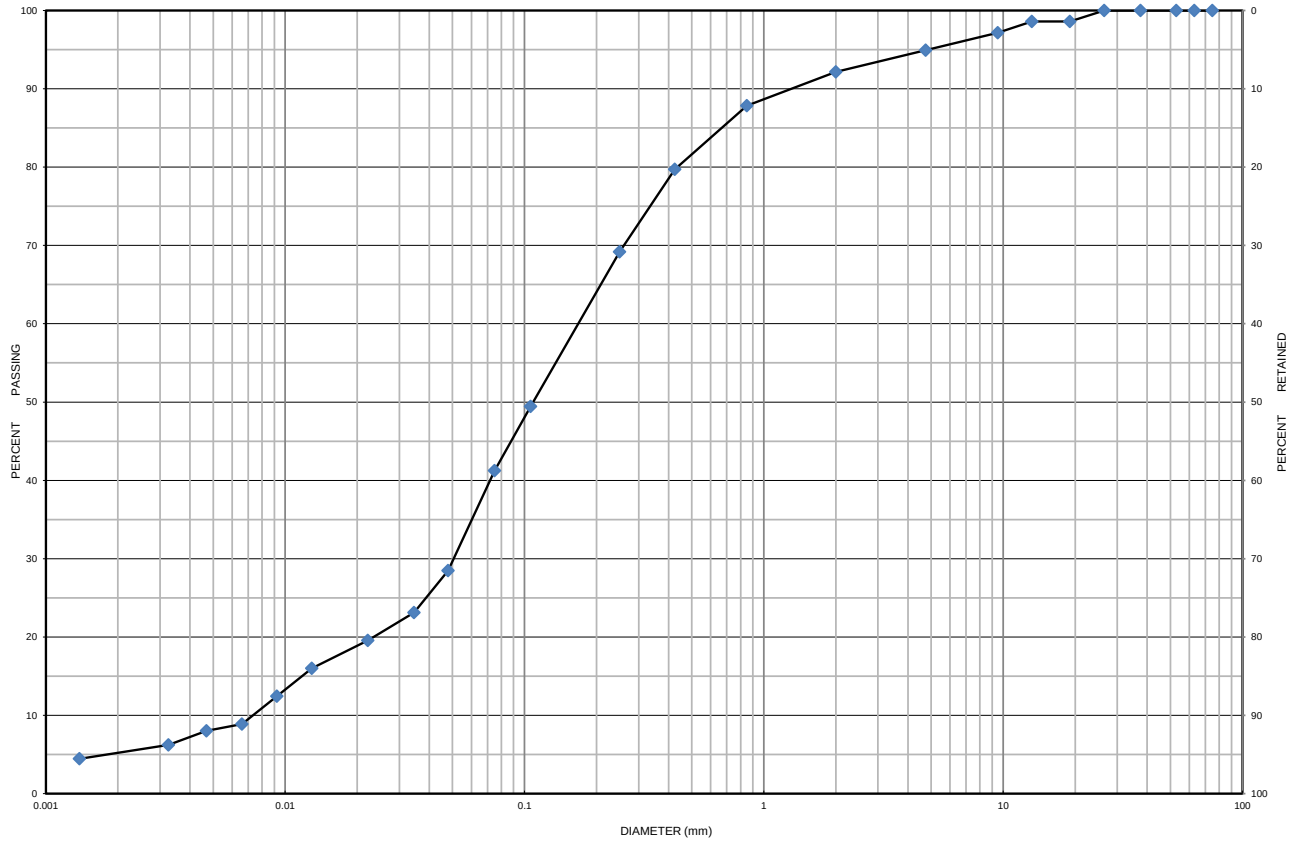
Project Number: *11849-001* **Client:** *2744529 Ontario Inc (York River Subdivision)*

Project Name: *Hydrogeological & Geotechnical Assessment - Woodcox Road Subdivision*

Sample Date: *March 2, 2021* **Sampled By:** *Josh Riseling - Cambium Inc.*

Location: *BH 101-21 SS 3* **Depth:** *1.5 m to 2 m* **Lab Sample No:** *S-22-0005*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 101-21	SS 3	1.5 m to 2 m	5	54	36	5	10.3

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Sand and Silt trace Gravel trace Clay	SM	0.1650	0.0510	0.0073	22.60	2.16

Additional information available upon request

Issued By: _____ *Date Issued:* *January 7, 2022*

(Senior Project Manager)

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Grain Size Distribution Chart

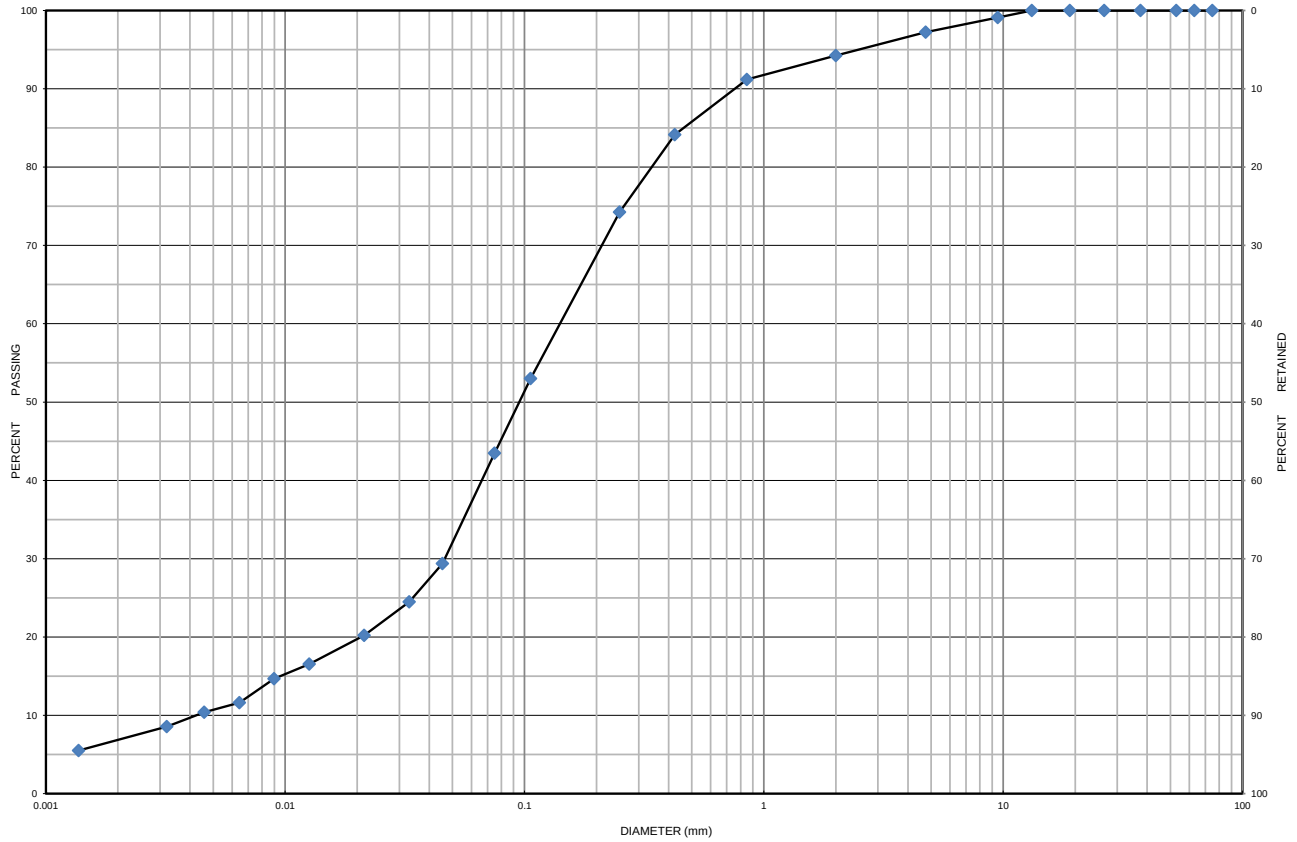
Project Number: *11849-001* **Client:** *2744529 Ontario Inc (York River Subdivision)*

Project Name: *Hydrogeological & Geotechnical Assessment - Woodcox Road Subdivision*

Sample Date: *March 2, 2021* **Sampled By:** *Josh Riseling - Cambium Inc.*

Location: *BH 103-21 SS 4* **Depth:** *2.3 m to 2.7 m* **Lab Sample No:** *S-22-0006*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 103-21	SS 4	2.3 m to 2.7 m	3	54	36	7	7.3

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Sand and Silt trace Clay trace Gravel	SM	0.1450	0.0460	0.0041	35.37	3.56

Additional information available upon request

Issued By: _____ *Date Issued:* *January 7, 2022*

(Senior Project Manager)

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Grain Size Distribution Chart

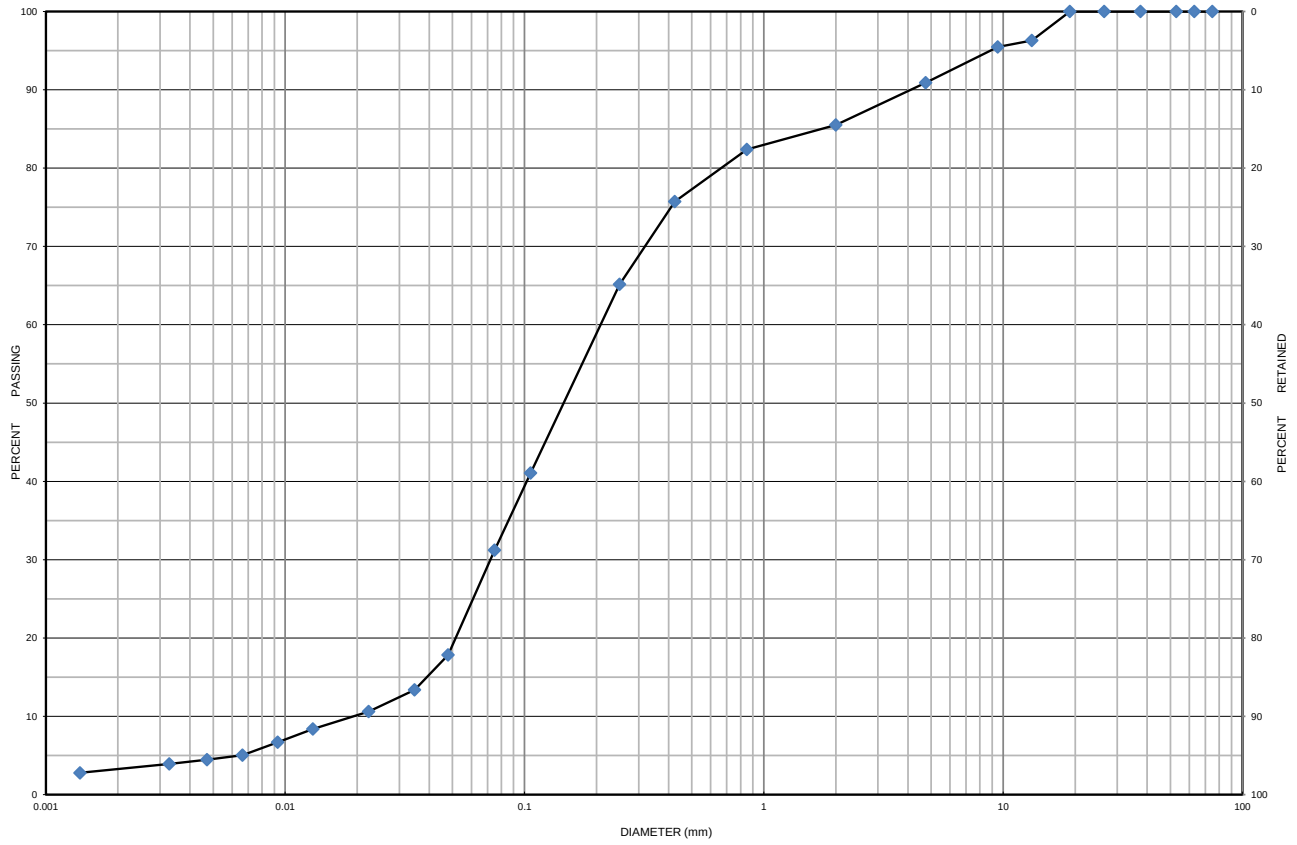
Project Number: *11849-001* **Client:** *2744529 Ontario Inc (York River Subdivision)*

Project Name: *Hydrogeological & Geotechnical Assessment - Woodcox Road Subdivision*

Sample Date: *March 2, 2021* **Sampled By:** *Josh Riseling - Cambium Inc.*

Location: *BH 104-21 SS 3* **Depth:** *1.5 m to 2 m* **Lab Sample No:** *S-22-0007*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 104-21	SS 3	1.5 m to 2 m	9	60	28	3	5.4

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Silty Sand trace Gravel trace Clay	SM	0.215	0.072	0.020	10.75	1.21

Additional information available upon request

Issued By: _____ *Date Issued:* *January 7, 2022*

(Senior Project Manager)

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Appendix F: Grading Plan

YORK RIVER

RIVERSIDE COURT

GLORY ROAD

WOODCOX ROAD

DEVELOPMENT BOUNDARY

FLOODPLAIN LIMIT (ELEV = 330.00)

30.0m WETLAND SETBACK

APPROXIMATE GRADING LIMITS

POND OUTLET (HICKENBOTTOM STRUCTURE AND OVERFLOW WEIR)

PROP. 375mm Ø CSP CULVERT

SWM POND A

ACCESS ROAD

PROP. 375mm Ø CSP CULVERT

HIGH POINT

PROP. 450mm Ø CSP CULVERT

PROPOSED CUTOFF SWALE
0.50m DEPTH w/ 3:1 SIDE SLOPES

PROP. 375mm Ø CSP
DRIVEWAY CULVERT (TYPICAL)

EXISTING SEEP

15.0m SETBACK FROM SEEP

SWM POND B

PROP. TWIN 375mm Ø CSP CULVERTS

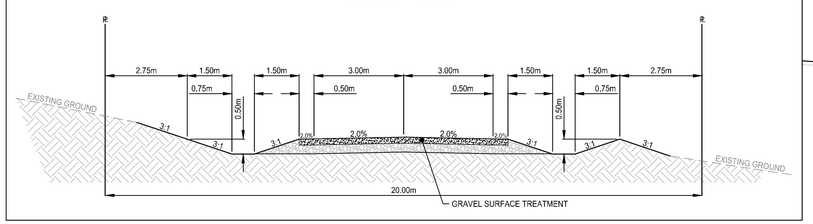
10.0m SETBACK FROM SEEP

PROP. TWIN 450mm Ø CSP CULVERTS

POTENTIAL SEPTIC BED

PROPOSED ROAD TYPICAL SECTION

SCALE = 1:100



SURVEY
TOPOGRAPHIC SURVEY PROVIDED BY BISHOP GEYER SURVEYING INC., DATED AUGUST 30, 2021.

BENCHMARK
A VERTICAL BENCHMARK HAS BEEN SET ON TOP OF THE SIB LOCATED AT THE NORTH EAST CORNER OF PART, PLAN 21R-13699. ELEVATIONS ARE GEODETIC AND BASED ON CGVD28 DATUM.

ELEV: 354.42m

NOTES:

No.	REVISION	BY	DATE
1.	ISSUED FOR DRAFT PLAN OF SUBDIVISION	AL	2022-11-29

ENGAGE ENGINEERING
www.engageeng.ca • 171 King Street, Suite 120, Peterborough, ON • Phone: (705) 750-0407

YORK RIVER 1 SUBDIVISION

ECOVUE CONSULTING

PRELIMINARY GRADING PLAN

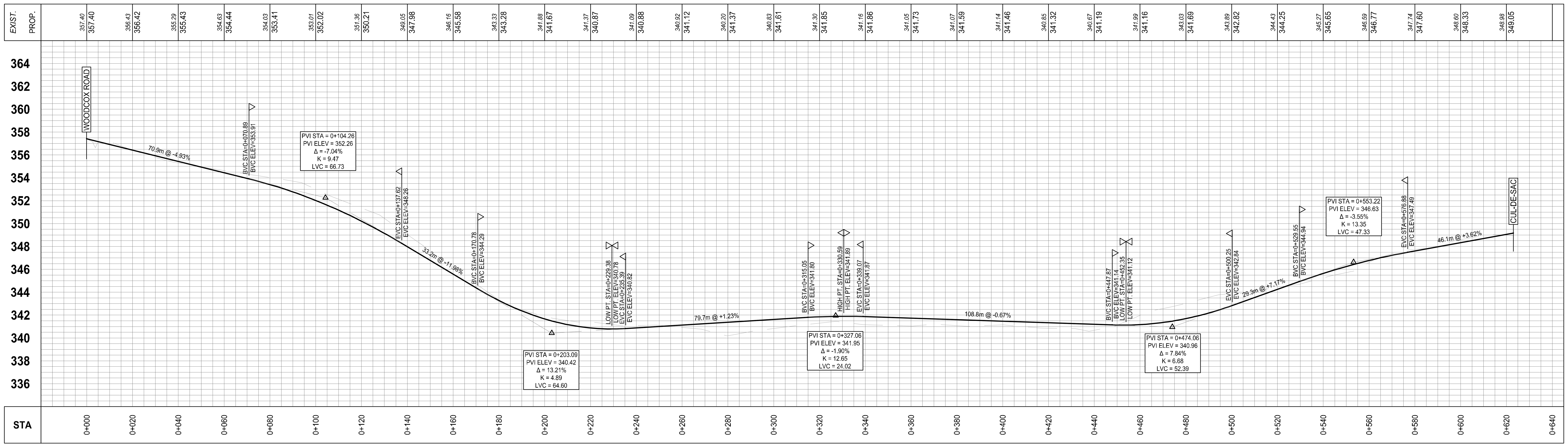
COUNTY OF HASTINGS

DRAWN BY: A.LAUTENBACH	STAMP: LICENSED PROFESSIONAL ENGINEER — L.T.PARSONS 100516860 2022-11-29 — PROVINCE OF ONTARIO
DESIGNED BY: A.LAUTENBACH	
APPROVED BY: L.PARSONS	
DATE: 2022-10-05	
SCALE: 1:1000	

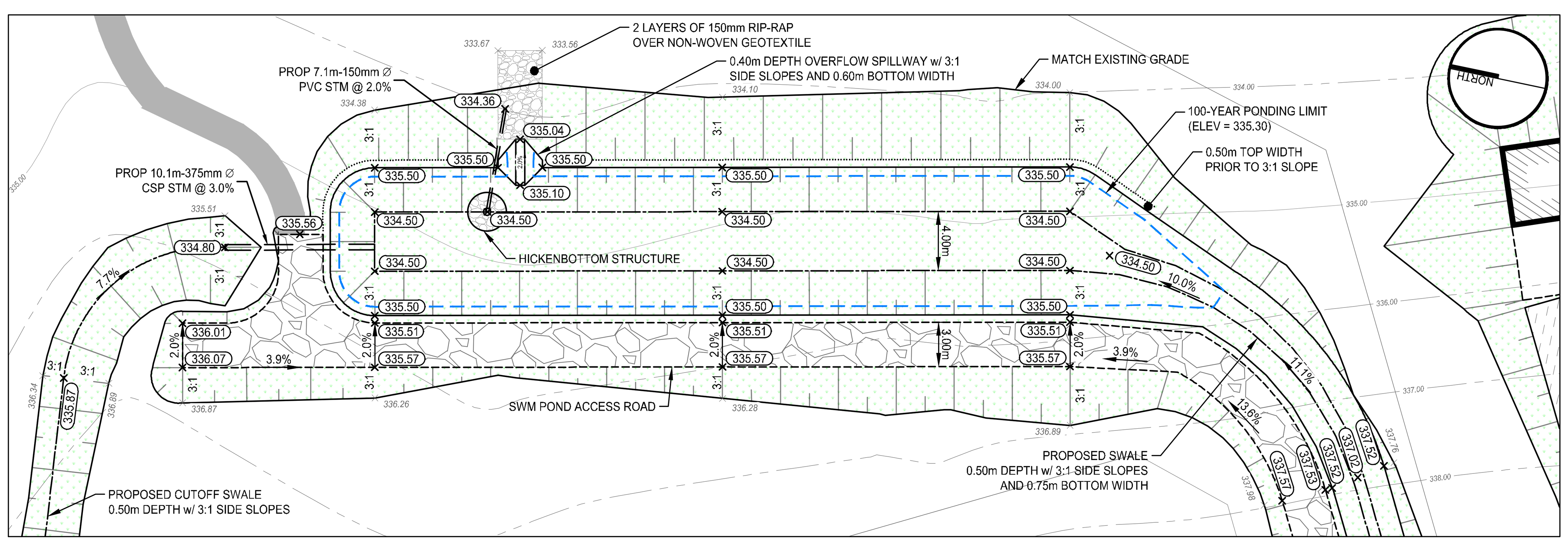
PROJECT NUMBER:	SHEET NAME:	SHEET:
22069	GP	1 of 2

22069 - GP1
Date: Nov. 29, 2022 - 9:20 am Plotted by: studio43 File name: S:\01 - Projects\2020\02\22069 - York River 1\02 Design\01 - Drawings\01 - Current Drawings\22069 - GP1.dwg

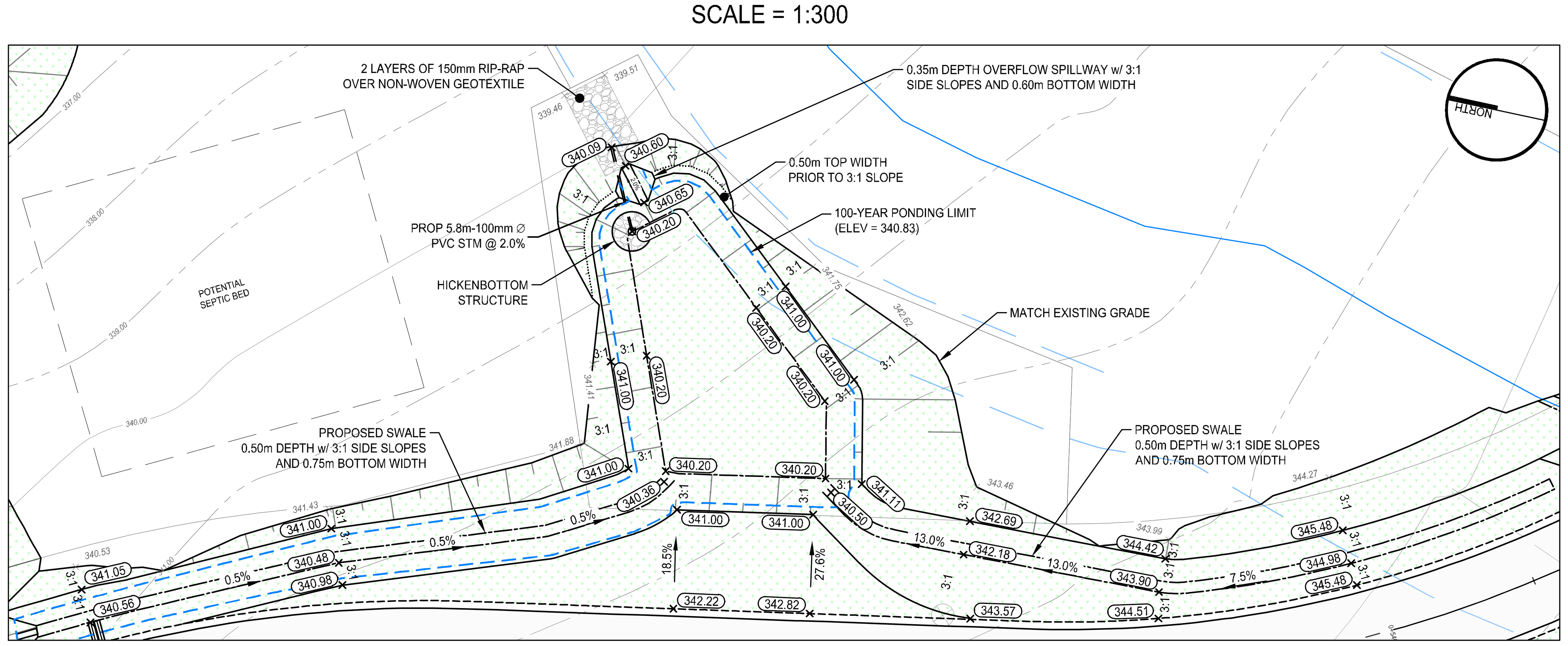
# PROPOSED ROAD PROFILE
SCALE = 1:1000H 1:200V



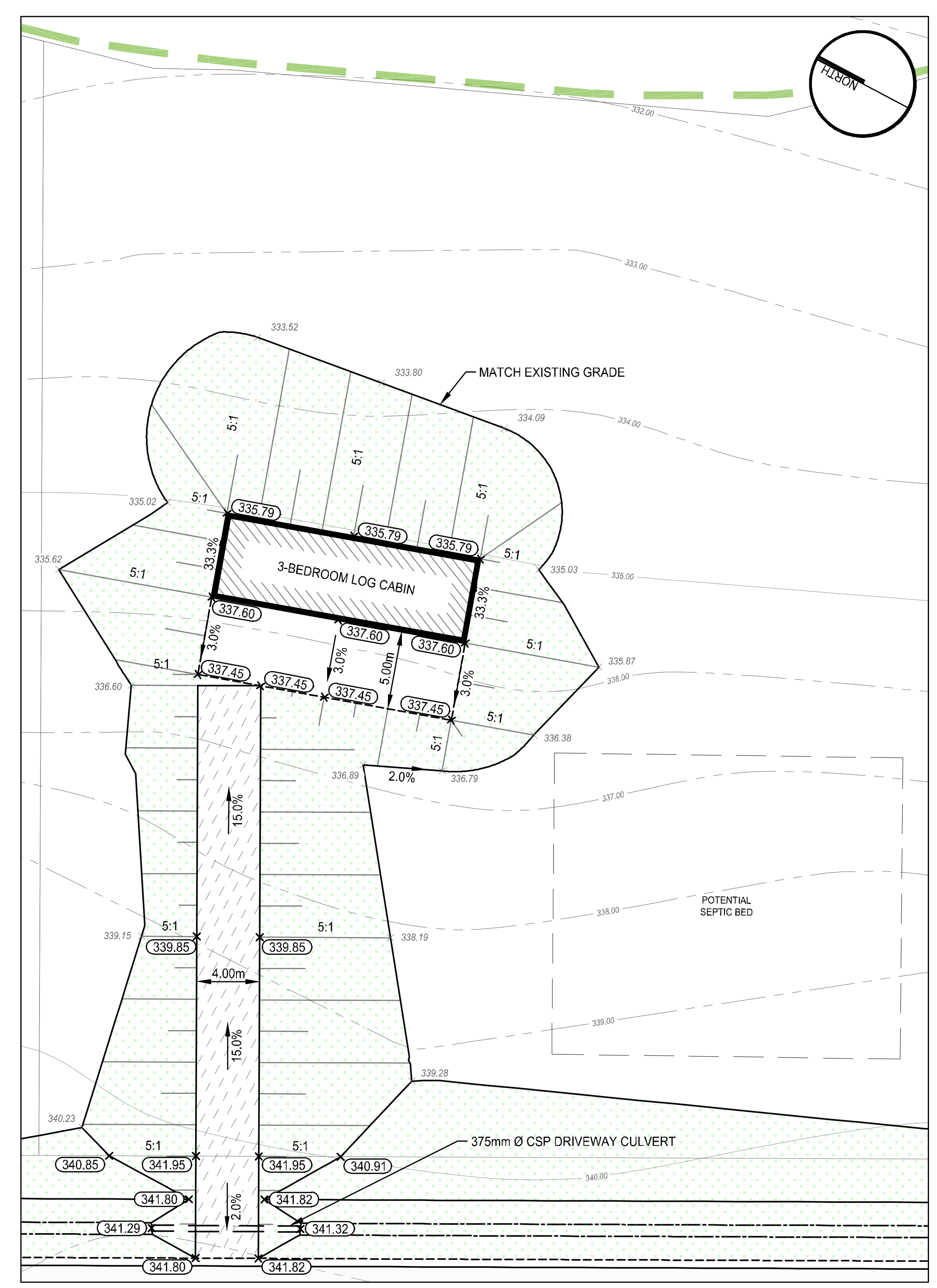
SWM POND A
SCALE = 1:300



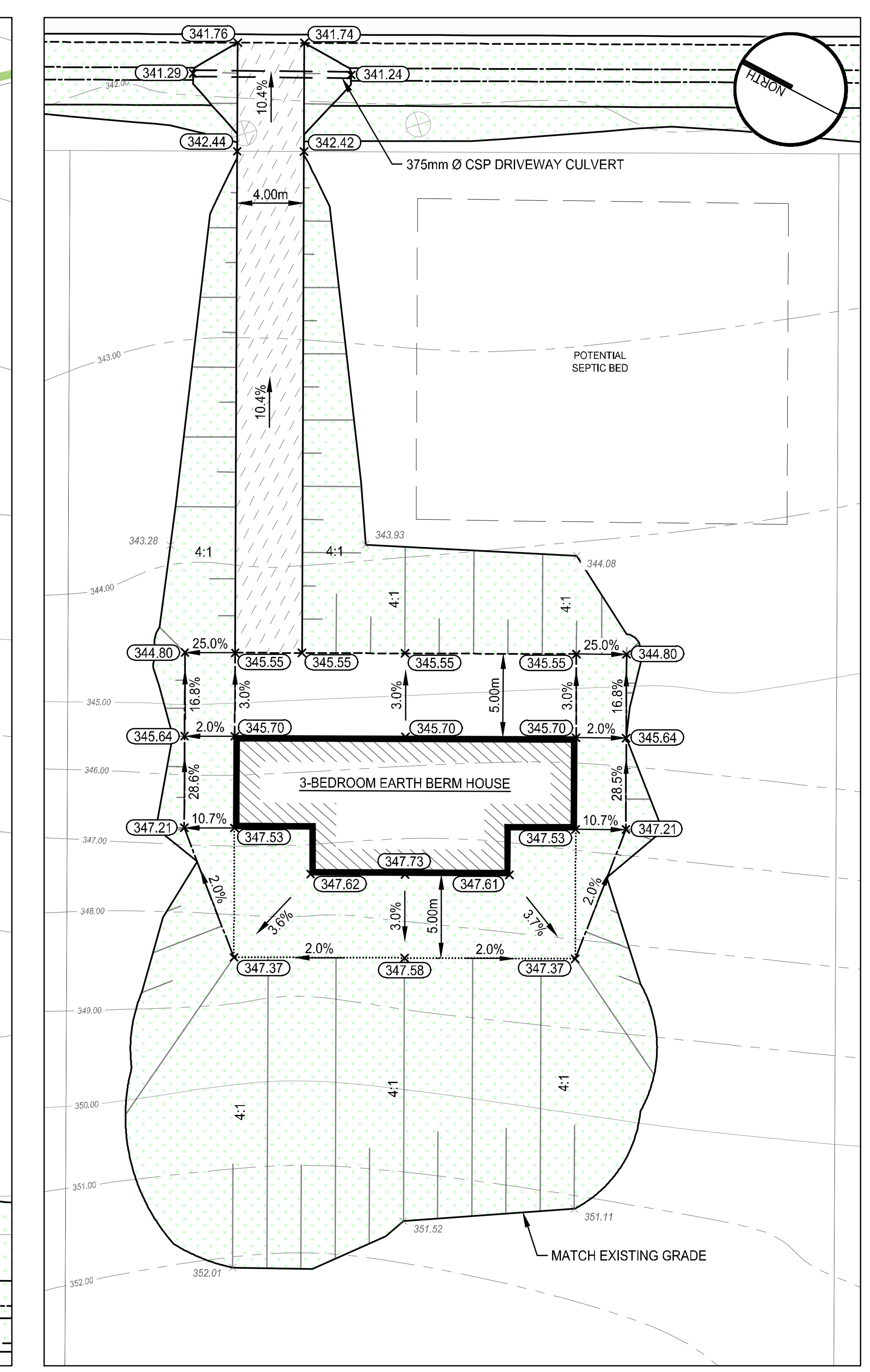
SWM POND B
SCALE = 1:300



TYPICAL LOT GRADING - LOG CABIN
SCALE = 1:300



TYPICAL LOT GRADING - EARTH BERM HOUSE
SCALE = 1:300



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ELEV: 354.42m

NOTES:

No.	REVISION	BY	DATE
1.	ISSUED FOR DRAFT PLAN OF SUBDIVISION	AL	2022-11-29

ENGAGE ENGINEERING

YORK RIVER 1 SUBDIVISION
ECOVUE CONSULTING

PRELIMINARY PROFILE, TYPICAL LOT GRADING, AND SWM POND DETAILS
COUNTY OF HASTINGS

DRAWN BY: A.LAUTENBACH
DESIGNED BY: A.LAUTENBACH
APPROVED BY: L.PARSONS
DATE: 2022-11-17
SCALE: VARIES
STAMP: LICENSED PROFESSIONAL ENGINEER L.T.PARSONS 100516860 2022-11-29 PROVINCE OF ONTARIO

PROJECT NUMBER:	SHEET NAME:	SHEET:
22069	DT	2 of 2

22069 - SR2