Village A - Base 31
Picton, Ontario

Stormwater Management Report

December 2025

Submitted by:
SCS Consulting Group Ltd
30 Centurian Drive, Suite 100
Markham, ON L3R 8B8
Phone 905 475 1900
Fax 905 475 8335

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Submission History

Submission	Date	In Support Of	Distributed To
1st	December 2025	Engineering Approval, MECP Approval	Prince Edward County, MECP, Quinte Conservation Authority

1.0 Introduction

SCS Consulting Group Ltd. has been retained by PEC Community Partners Inc. to prepare this Stormwater Management (SWM) Report in support of the submission for Engineering Approval from Prince Edward County (PEC), an Environmental Compliance Approval from the Ministry of the Environment, Conservation and Parks (MECP) the proposed development of the Village A property within the Community of Picton, located in Prince Edward County.

1.1 Study Area

Village A (Draft Plan of Subdivision 13-T-24-504) is approximately 30.8 ha, and is located within a greater 340 ha area known as Base31. Village A is generally bound by County Road #22 to the west, Kingsley Road to the south, an existing residential neighbourhood know as Macauley Village to the north and Base31 lands to the east, herein referred to as the subject development. Refer to **Figure 1.1** for the site location plan.

Village A - Phase 1 is approximately 18.6 ha in size and is proposed to consist of single-family homes, townhouses, medium density residential development blocks, parks lands and a SWM facility. The Draft Plan with the phasing limit is included in **Appendix A.** The proposed development is located within the Picton Subwatershed, which is a tributary to Lake Ontario**.**

1.2 Purpose and Objectives of the SWM Report

This SWM report has been prepared in support of the Engineering Approvals and subdivision registration for Phase 1 of the Village A lands. The detailed engineering design relating to site servicing and grading for the site will incorporate the design of the SWM measures outlined in this report.

The objectives of this report are to:

- Calculate the proposed stormwater runoff rate from the development based on the approved Draft Plan; and
- Provide design details and calculations for the end-of-pipe SWM facility.

The stormwater management design and strategy for Village A - Phase 2 will be presented as part of a separate report and application for those lands, as they do not drain to the proposed SWM facility servicing the Village A – Phase 1 lands.

1.3 Previous Documentation

The stormwater management strategy in this report was based on the following reports:

- Email correspondence with Gemtec re: 103306.002 Village A, Picton – SWM Facility Recommendations, dated October 31, 2025 and November 24, 2025;
- Preliminary Hydrogeological Investigation Report, Village A – Base 31 Residential Subdivision, prepared by Gemtec, September 15, 2025;
- Village A – Base 31, Functional Servicing and Stormwater Management Report, prepared by SCS Consulting Group Ltd., dated August 2025;
- Memo re: Wetland Stormwater Management Facility Information, prepared by SCS Consulting Group Ltd., dated July 10, 2025;
- Wetland Stormwater Management Facility Information, prepared by SCS Consulting Group Ltd., July 10, 2025;
- Functional Servicing Assessment, Base31 – Draft Plan of Subdivision, Picton, prepared by SCS Consulting Group Ltd., March 13, 2025;
- Preliminary Geotechnical Site Investigation, Village A – Base31 Residential Subdivision, prepared by Gemtec, dated September 20, 2024;
- Master Servicing Concept Submission, prepared by SCS Consulting Group Ltd., dated November 2023;
- Scoped Hydrogeological Assessment – Base31, prepared by Palmer, November 1, 2023;
- Ministry of Environment, Conservation, and Parks (MECP) Environmental Compliance Approval for a Municipal Stormwater Management System (April 2022).
- Preliminary Geotechnical Investigation prepared by Palmer TM, July 9, 2021;
- Hydrogeological Assessment Draft Memorandum to support planning for Groundwater and Septic Servicing by Palmer Environmental Consulting Group, November 24, 2021;
- Wellington Master Servicing Plan for Water, Wastewater and Stormwater, prepared by R.V. Anderson (RVA), dated May 6, 2021;
- Vineridge Boutique Towns Conceptual Stormwater Management Report prepared by Greck and Associates Limited, September 1, 2020 (Not approved); and
- Prince Edward County 2017 Development Charges Background Study, prepared by Watson & Associates, dated December 1, 2017
- Quinte Conservation Stormwater Management Submission Guidelines, Quinte Conservation (May 2012);
- Bay of Quinte Remedial Action Plan (BQRAP) Implementation Area Stormwater Management Design Guidelines (Revised March 2006); and

- Stormwater Management Planning and Design (SWMP) Manual, prepared by Ministry of Environment (March 2003)

2.0 Existing Conditions

2.1 Geotechnical Information

As described in the Preliminary Site Investigation, Village A – Base 31 Residential Subdivision, prepared by Gemtec dated September 2024, borehole logs and test pits were advanced across the Village A lands, and are included in **Appendix B.1.** This is in addition to a Preliminary Geotechnical Investigation, prepared by Palmer, dated July 2021, which has also been included in **Appendix B.1**.

The site is located within the physiographic region of southern Ontario, known as the Prince Edward Peninsula. This region consists of clays, sandy/silty sands and till deposits and is underlain, specifically in the subject site, by Palaeozoic bedrock.

Field work has been carried out in July to August 2024 to advance 18 boreholes and 47 test pits throughout the subject site. Monitoring wells were installed on 7 of the 18 boreholes to monitor groundwater levels.

As per the recorded information on-site, the subsurface conditions at the site generally consist of topsoil (50 mm to 510 mm), overlying silty sand to silt sand and gravel, overlying the limestone bedrock. Bedrock was encountered at depths ranging from 0.30 mbgs to 0.8 mbgs.

As noted in the Preliminary Hydogeological Investigation Report, prepared by Gemtec, September, 2025 (**Appendix B.1**) groundwater levels have been recorded in the seven monitoring wells, with depths ranging from 0.6 to 3.4 mbgs (137.6- 145.4m). Groundwater levels at the site are anticipated to vary between and beyond borehole locations, and fluctuate on a seasonal basis.

2.2 Existing Drainage Conditions

The existing drainage areas and flow patterns are described in the approved Village A – Base 31 FSSR (SCS, 2025) and illustrated on the Existing Storm Drainage Plan (Figure 5.1 included here in **Appendix B.2**). The majority of the Phase 1 lands are encompassed in the drainage area identified as Area 101 and EXT-1 on Figure 5.1 (**Appendix B.2**), where flows are conveyed towards Marsh Creek via overland flow and an existing culvert crossing County Road #22. There is a small portion of the Phase 1 lands that are encompassed in the drainage area identified as Area 102 on Figure 5.1, where stormwater is generally conveyed overland southeast to Kingsley Road ultimately to East Lake.

2.3 Storm Infrastructure

The existing site does not contain any stormwater management facilities, structures or controls. The vacant and vegetated areas drain solely by gravity to existing ditches along the east boulevard of County Road #22 and the northern boulevard of Kingsley Road. County Road #22 and Kingsley Road are currently rural roads with roadside ditches with a 400 mm diameter culvert crossing under County Road #22.

3.0 Proposed Conditions

3.1 Drainage

The proposed major and minor system flow patterns and drainage areas are shown on **Figure 3.1**. As illustrated, runoff from the proposed development will be conveyed to a proposed Phase 1 Stormwater Management (SWM) facility located at the southeast corner of Street A and County Road #22, which is proposed to outlet under County Road #22 to a channel that will convey flows towards the adjacent Mount Olivet RC Cemetery Lands, where stormwater will continue to follow existing drainage patterns, ultimately discharging to Marsh Creek.

The proposed minor system flows (up to and including the 5 year storm event) from Catchment 2101 (17.31 ha) will be captured via the internal storm sewer system and conveyed to the SWM facility, ultimately discharging to Marsh Creek via a proposed storm sewer outfall west of County Road #22. Major system flows from Catchment 2101 will be conveyed to the SWM facility via the proposed rights-of-way (ROW) and an overland flow route from Street K.

Proposed minor system flows (up to and including the 5 year storm event) from external Catchment EXT-1 (1.16 ha) will be captured via the internal storm sewer system and conveyed to the SWM facility, with major system flows conveyed to the SWM facility via the proposed ROWs and an overland flow route from Street A.

Upon the development of the Village A – Phase 2 lands, there will be major and minor system flow from the Village A – Phase 2 lands, Catchments 3101, 3102 and 3103 (1.89 ha, 0.25 ha and 0.75 ha, respectively) that will be conveyed through the Phase 1 internal storm sewer system and ROWs towards the Phase 1 SWM facility.

The proposed major and minor system flow from Catchment 2102 (0.21 ha) fronting onto County Road #22 and Kingsley Road will be conveyed uncontrolled to the existing culvert crossing under County Road #22, where it will be conveyed through the proposed outfall channel towards the Mount Olivet RC Cemetery lands, where stormwater will continue to follow existing drainage patterns, ultimately draining to Marsh Creek.

The proposed major and minor system flow from Catchment 2201 (0.20 ha) fronting onto Kingsley Road, where drainage from the catchment will continue easterly, following existing drainage patterns, ultimately draining to East Lake.

3.2 Storm Servicing

The storm sewer system has been designed to capture and convey the flows generated by the 5 year storm event (minor system) to the proposed Phase 1 SWM facility, the storm sewer design sheet (SSDS) has been included in **Appendix C**.

The proposed rights-of-way (ROWs) will convey flows greater than the 5 year (minor system) up to the 100 year storm event (major system). The capacity of the ROWs proposed within the development have been calculated using FlowMaster to confirm that the overland flows can be safely conveyed within the ROWs. Refer to **Appendix C** for ROW cross sections and ROW capacity calculations.

4.0 Stormwater Management

4.1 Design Guidelines

As directed by PEC, the following guidelines were used to develop the SWM design criteria:

- Sanitary, Storm and Water Systems Design Manual, prepared by the County of Prince Edward, March 2023;
- Grading and Drainage Manual, prepared by the County of Prince Edward, March 2023;
- Ministry of Environment, Conservation, and Parks (MECP) Environmental Compliance Approval for a Municipal Stormwater Management System, February 2023;
- Quinte Conservation Stormwater Management Submission Guidelines, Quinte Conservation (May 2012); and
- Bay of Quinte Remedial Action Plan (BQRAP) Implementation Area Stormwater Management Design Guidelines (Revised March 2006); and Stormwater Management Planning and Design Manual, prepared by Ministry of Environment (March 2003).

4.2 Design Criteria

As established through the approved FSSR (SCS, 2025) using the above guidelines, the stormwater management criteria are summarized below in **Table 4.1**:

Table 4.1: Stormwater Management Criteria

Criteria	Control Measure
Quantity Control	Control to existing peak flows for the 2 through 100 year storm events (Per BQRAP).
Quality Control	At a minimum, Enhanced Level Protection (80% Total Suspended Solids (TSS) Removal) through conventional stormwater management (Per BQRAP).
Erosion Control	Detention of the 25 mm rainfall runoff for a minimum of 24 hours (Per MOE).

4.3 Stormwater Management Plan

In order to achieve the above-mentioned criteria, outlined within **Table 4.1**, the proposed development will be controlled via the implementation of an end-of-pipe SWM facility which will discharge to a conveyance channel west of Country Road #22, where flows will discharge to the adjacent Mount Olivet RC Cemetery lands, and ultimately continue to Marsh Creek.

Due to the presence of bedrock, 0.30 m to 0.80 m below surface, a wetland SWM facility is proposed for Phase 1, as the design minimizes the amount of excavation required to construct the facility. It has been designed to provide the necessary quality, erosion and quantity control to achieve the criteria listed in **Table 4.1**. The memo re: Wetland Stormwater Management Facility Information, (SCS, July 2025) has been included in **Appendix B.3**, along with correspondence with PEC staff demonstrating support of a wetland type SWM facility. **Section 5.0** below provides further details regarding the SWM facility operating characteristics.

5.0 SWM Facility Design

5.1 Pond Grading

The SWM facility has been designed as a constructed wetland facility, and graded in accordance with the Stormwater Management Planning and Design Manual (MOE, 2003). The SWM Pond grading design is as summarized below:

- Maximum side slope of 3:1 from below the safety shelf to the bottom of the SWM facility within the forebay;
- A safety shelf with a maximum 5:1 slope for 3.0 m above and below the NWL, with 10:1 below the NWL within the aftbay;
- Maximum side slope of 3:1 from top of pond to a 2.0 m wide safety shelf 0.60 m above the normal water level (NWL);
- Minimum 0.3 m freeboard above maximum water level;
- Emergency spillway designed to convey the uncontrolled 100 year 24-hour SCS Type II storm event conveyed to the SWM facility; and
- Minimum berm top width of 2.0 m, with maximum 3:1 side slopes.

The pond grading is illustrated on **Drawings 601**, **602** and **603** included within this report.

5.2 Piped Inlets to Pond

The minor system flows from the proposed development will be captured via the proposed storm sewer network and discharge into the proposed SWM facility via a concrete headwall (HW1), located at the northeastern end of the SWM facility from Street A.

The proposed headwall will receive a 900 mm diameter concrete storm sewer, with a second 900 mm diameter concrete storm sewer connecting to a wingwall. **Drawings 601**, **602** and **603** included in this report, illustrate the plan and profile details of the proposed inlet storm sewer and headwall. The inlet will convey a maximum flow of 0.99 m^3/s during the 5 year storm event per the 5 year storm design sheet (SSDS), refer to **Appendix C** for the SSDS.

5.3 Overland Flow Routes into Pond

Major system flows (greater than the 5 year up to the 100 year storm event) will be conveyed within the road ROWs and overland flow routes to the main cell of the SWM facility. ROW conveyance capacity calculations are provided in **Appendix C** and show that the major system flows can be safely conveyed within the proposed ROWs into the SWM facility at two (2) locations, one from Street A and one from Street K. Refer to Cross Sections 'H-H' and 'I-I' on **Drawings 601** and **603**. Refer to Figure OLF in **Appendix C** for the drainage areas to each overland flow route.

The SWM facility will have permanent erosion control matting along the overland flow routes into the facility and along the emergency spillway to minimize possible erosion impacts created by flows entering and leaving the wetland. The SWM facility is to be stabilized prior to being brought online. Refer to **Appendix C** for supporting calculations for the proposed rip-rap and erosion control matting within the SWM facility.

5.4 Sediment Forebay

A sediment forebay, provided to facilitate maintenance, improve pollutant removal and prevent the conveyance of re-suspended material to the pond outlet has been proposed at the SWM facility inlet. The proposed sediment forebay has been graded 1.0 m deep (refer to **Drawing 601**) and the settling and dispersion length and bottom width have been designed to satisfy the MOE Guidelines (2003). Refer to **Appendix D** for the design calculations of the sediment forebay.

5.5 Outlet Configuration

Drawings 601, **602** and **603**, included in this report, illustrate the plan view, sections and details of the proposed SWM pond outlet configuration, which consists of:

- A 130 mm diameter orifice cutout with an invert of 140.00 m within the 1500 mm diameter control maintenance hole (MH81);
- A 500 mm high perforated aluminum screen with 4 rows of 6 – 50 mm holes spaced 125 mm centre to centre, to prevent clogging of the orifice;
- A 0.60 m long weir wall cutout at an elevation of 141.40 m within the 1500 mm diameter control maintenance hole (MH81);

In the event that the proposed outlet becomes completely blocked, a 25.0 m wide emergency spillway located along the west side of the SWM facility (adjacent to County Road #22) has been sized to convey the 100 year uncontrolled flow rate (5.09 m^3/s), refer to **Appendix E** for hydrologic modelling. Refer to **Appendix D** for the SWM pond operating characteristics including the emergency spillway and weir calculations.

5.6 Outlet Conveyance Channel

The Phase 1 SWM facility will outlet to a proposed plunge pool via a 900 mm diameter headwall (HW2), where it will be conveyed through a 5.0 m wide flat bottomed trapezoidal channel, with 3:1 side slopes and longitudinal grade of 0.50% (refer to Section G-G on **Drawing 603**). Check dams within the channel are proposed to reduce velocity and limit erosion before ultimately draining towards Marsh Creek through the Mount Olivet RC Cemetery lands (refer to **Figure 1.1**).

The channel will convey the total controlled release rates from Village A, along with the flows from the ultimate County Road #22 ROW and the future Village F1 development within the Base31 lands. The Village F1 lands will be controlled to existing levels via onsite controls and discharged to the ultimate County Road #22 storm sewer, refer to **Appendix B.4** for excerpts from the Master Servicing Concept (SCS, November 2025).

The total peak flow to be conveyed through the channel is 1.397 m^3/s, resulting in a flow depth of 0.30 m and velocity of 0.80 m/s. However, in the event, that the SWM facility outlet becomes blocked, and the uncontrolled flows from the emergency spillway will be directed to the channel. A total flow of 6.03 m^3/s could potentially be conveyed through the channel, resulting in a flow depth of 0.67 m and a velocity of 1.28 m/s. The channel can safely convey these flows as proposed. However, should development adjacent to the channel occur, the proposed grading of the development will be required to provide adequate freeboard to the uncontrolled water surface elevation. Refer to **Appendix D** for the modelling and **Drawings 601**, **602** and **603**.

5.7 Geotechnical Considerations

As noted in the correspondence with Gemtec, re: 1033606.022 Village A, Picton -SWM Facility Recommendations, dated October 31, 2025 and November 24, 2025, included in **Appendix B.1**, a borehole within the SWM facility block (BH24-17) was advanced. It was found that the groundwater elevations range from 137.0 m to 138.1 m, and bedrock was encountered at an elevation of 141.2 m. The wetland SWM facility has a proposed invert within the forebay of 139.0 m and 139.7 m in the main cell, which provides adequate separation to the groundwater. However, due to the SWM facility being excavated into the bedrock, there is the potential for the permanent pool to drawdown due to loss of water through fractures within the bedrock. A geosynthetic clay liner (GCL) is therefore proposed to an elevation of 140.3 m, to ensure the permanent pool volume and continued function of the wetland facility to retain a permanent pool is maintained.

To protect the GCL from puncture from the exposed bedrock, 150 mm of SSM (sand) bedding is proposed under the GCL, with a 300 mm layer of topsoil over the GCL. A filter fabric warning blanket is proposed 150 mm above the GCL in order to prevent damage during maintenance.

5.8 Plantings and Restoration

The proposed SWM facility will be planted and restored in accordance with the SWMP Manual (MOE, March 2003) and Quinte Conservation Authority criteria. The selected plants and restoration material will stabilize graded areas disturbed during construction, provide aesthetic value and maintain the quality of the existing ecosystem downstream of the site.

Landscaping drawings and details are being prepared by NAK Design Strategies, and will be submitted under separate cover.

6.0 SWM Facility Performance

6.1 Quality Control

The permanent pool will provide Enhanced water quality protection in accordance with SWMP Manual (MOE, March 2003) for a constructed wetland facility. The volume required is based on the total minor system drainage area of 21.36 ha with a weighted imperviousness of approximately 62%. The total required permanent pool volume is 1,543 m^3. The total permanent pool volume provided is 1,840 m^3 at an elevation of 140.00 m which satisfies the required volume. Refer to **Appendix D** for permanent pool calculations.

6.2 Erosion Control

The volume required for extended detention was based on the drainage area of 21.36 ha conveyed to the SWM facility. The overall weighted imperviousness is approximately 62%. The total required extended detention volume is 2,403 m^3 per output from the 25mm 4-hour Chicago rainfall event (refer to **Appendix D**).

The extended detention of the 25 mm 4-hour Chicago rainfall event over a minimum of 24 hours will be provided in the SWM facility by a 130 mm diameter orifice cutout, located in the 1500 mm diameter control maintenance hole (MH81) at an invert of 140.00 m. The 130 mm diameter orifice has been sized to discharge a maximum extended detention volume of 2,406 m^3 (which occurs at a depth of 0.52 m above the normal water level) at an elevation of 140.52 over a 48 hour period with a peak flow of 0.024 m^3/s to exceed the erosion control criteria and minimize erosion potential through the Mount Olivet RC Cemetery Lands. Refer to **Appendix D** for extended detention calculations and **Appendix E** for the hydrologic model and outputs.

6.3 Quantity Control

6.3.1 Pre-Development Flow Targets

As outlined in **Section 4.2**, control of the post-development flows to pre-development levels is required for the 2 through 100 year storm events. As discussed in the FSSR (SCS, August 2025) the pre-development flow rates for the 2 through 100 year storm events have been established utilizing the Visual Otthymo Version 6.2 software (VO6) based on the 4-hour Chicago and 6-hour, 12-hour, and 24-hour SCS Type II Distribution methods.

The study area is located within the Picton subwatershed; therefore, the City of Belleville 2012 IDF curves provided by Quinte Conservation were utilized to determine the existing peak flows to outlet locations. The pre-development release rates for each storm distribution for Phase 1 established through the approved FSSR (SCS, August

2025) are summarized below in **Table 6.1**, refer to **Appendix B.2** for excerpts from the FSSR for the supporting details and modelling outputs.

Table 6.1: Pre-Development Release Rate (m^3/s)

Storm Event	4-hour Chicago	6 Hour SCS II	12 Hour SCS II	24 Hour SCS II
2 Year	0.038	0.053	0.076	0.106
5 Year	0.068	0.100	0.137	0.187
10 Year	0.094	0.136	0.184	0.248
25 Year	0.133	0.189	0.253	0.335
50 Year	0.165	0.233	0.310	0.406
100 Year	0.199	0.280	0.369	0.480

6.3.2 SWM Facility Controlled Flows and Storage Requirements

The maximum active storage volume in the pond is 10,375 m^3 with an active storage fluctuation of 1.89 m and 0.31 m of freeboard during the 100 year 24-hour SCS Type II storm event to the top of pond, refer to **Appendix D**. The maximum 100 year release rate from the pond is 0.461 m^3/s (refer to the hydrology model in **Appendix E**). **Table 6.2** provides a summary of the SWM facility operating characteristics for the 24-hour SCS Type II storm distribution, as it generates the largest required volumes.

Table 6.2: Summary of SWM Facility Operating Characteristics

Return Period Storm	Required Storage Volume (m^3)	Provided Storage Volume (m^3)	Elevation (m)	SWM Pond Release Rate (m^3/s)
Permanent Pool	1,535	1,840	140.00	-
Extended Detention	2,406	2,406	140.52	0.024
2 Year	5,081	5,081	140.99	0.036
5 Year	6,691	6,691	141.27	0.056
10 Year	7,998	7,998	141.49	0.096
25 Year	8,854	8,854	141.63	0.210
50 Year	9,619	9,619	141.76	0.321
100 Year	10,375	10,375	141.89	0.461

6.3.3 Summary of Post-Development Flows

Table 6.3 below, provides a comparison for the allowable and total controlled release rates from the proposed SWM facility along with uncontrolled drainage from areas fronting onto Kingsley Road and County Road #22, for the 24-hour, SCS Type II design storms to Marsh Creek.

Table 6.3: Proposed Release Rates to Marsh Creek (m^3/s)

Return Period Storm	Allowable Release Rate (24 Hour SCS II)	Controlled Release Rate SWM Facility (2101)	Uncontrolled Release Rate (2102)	Total Proposed Release Rate to Marsh Creek
2 Year	0.106	0.036	0.028	0.053
5 Year	0.187	0.056	0.038	0.067
10 Year	0.248	0.096	0.044	0.097
25 Year	0.335	0.210	0.053	0.212
50 Year	0.406	0.321	0.059	0.324
100 Year	0.480	0.461	0.065	0.465

The resulting post-development peak flows to Marsh Creek for all storm events are summarized in **Appendix D** and compared to the pre-development allowable targets, showing that the pre-development peak flows are not exceeded for all storm events. The stormwater management strategy for the proposed development is therefore effective, and meets the quantity control criteria outlined in **Table 4.1**.

7.0 Operations, Maintenance and Monitoring

In order to provide sufficient detail on the operations and maintenance of the proposed SWM Pond, an Operations and Maintenance Manual will be provided as a standalone document at a later date. General maintenance requirements are outlined below.

7.1 Maintenance Access

A 4.0 m wide asphalt maintenance access road (maximum 8% longitudinal slope and maximum 2% crossfall) is proposed to provide maintenance access to the sediment forebay, main cell and the inlet and outlet structures. Refer to **Drawings 601**, **602** and **603** attached at the rear of this report.

7.2 Sediment Cleanout Frequency

The SWM facility is to be cleaned out when the overall sediment removal efficiency has been decreased by 5%. Based on the above criteria, the sediment cleanout frequency for the SWM Pond is calculated at 15 years, resulting in a total sediment accumulation of 514 m^3.

A letter was prepared by SCS Consulting Group Ltd. re: Wetland Stormwater Management Facility Information, dated July 10, 2025, included in **Appendix B.3**. This letter outlines the general maintenance and rationale of the wetland facility, which was shared with the County, reviewed and accepted.

As discussed in the letter, it was recommended that maintenance and sediment removal be carried out every 10 years to reduce the amount of sediment being removed, resulting in a sediment volume of 346 m^3. Refer to **Appendix F** for supporting calculations.

To determine the actual cleanout time of the sediment forebay, sediment accumulation should be monitored on an annual basis. The SWM facility should be inspected in accordance with the prescribed inspection frequency of the Environmental Compliance Approval (ECA) from MECP (per the ECA, a logbook should be maintained to record the results of the inspections and any cleaning and maintenance activities).

7.3 Maintenance of Outlet Structure

Routine maintenance of the proposed SWM facility outlet structure will include the inspection and removal of floating debris that could clog the orifice. The orifice and weir cut outs are protected from blockage by grates covering the openings. Refer to **Drawing 603** for details.

7.4 Drawdown for Facility Maintenance

To remove sediment from the SWM facility, the permanent pool will need to be drawn down. This can be achieved by placing a pump(s) in the forebay near the forebay berm, discharging pumped flows via flexible hose to the control maintenance hole (MH81).

8.0 Erosion and Sediment Control

Staged erosion and sediment control (ESC) plans have been prepared to address phasing and inspection aspects of temporary ESC measures during construction, as illustrated on **Drawings 701 - 704**, included in this report.

A temporary ESC pond and outlet is required for the Stage 1 – Overburden Removal and Earthworks phase. The temporary ESC pond will be located in ultimate SWM facility block adjacent to County Road #22 and has been sized to detain the required active storage for Phase 1 for 48 hours. The pond will have a temporary outlet that will discharge to a dispersion dam on the west side of County Road #22, where existing ESC measures from previous tree clearing work remain in place, to further treat runoff before draining towards the Mount Olivet RC Cemetery Lands and ultimately Marsh Creek. This will minimize the potential for sediment transport beyond the site. Supporting calculations for the temporary ESC measures have been included in **Appendix G**.

During Stage 2 – Underground Servicing, Roadworks and House Construction, runoff will be treated by the ultimate SWM facility, where extended detention volumes will be retained for 48 hours. Refer to **Section 6.2**.

9.0 Summary

This report describes a constructed wetland SWM facility, designed to provide quality, extended detention and quantity controls servicing the Phase 1 lands of Village A development in support of the submission for Engineering Approval from Prince Edward County, an Environmental Compliance Approval from the Ministry of the Environment, Conservation and Parks (MECP). The proposed SWM facility block is approximately 0.90 ha in size and services 21.36 ha of single family, townhouses and medium density residential development.

Quality Control:

- The SWM facility is sized to provide Enhanced water quality protection, as per Table 3.2 of the SWMP Manual (MOE, March 2003);
- A permanent pool volume of 1,535 m^3 is required;
- A total permanent pool volume of 1,840 m^3 is provided at a normal water level of 140.00 m.

Erosion Control:

- A 130 mm diameter weir wall orifice cutout in the 1500 mm diameter control maintenance hole (MH81) is provided at the normal water level of 140.00 m;
- A 500 mm high section of perforated aluminum with 4 rows of 6 – 50 mm holes spaced 125 mm centre to centre is provided around the orifice cutout to prevent clogging; and
- The extended detention volume of 2,406 m^3 is provided at an elevation of 140.52 m, and detained for 48 hours within the SWM Pond.

Quantity Control:

- Post-development release rates have been controlled to the allowable target release rates established through the approved FSSR (SCS, August 2025);
- The required storage within the SWM facility during the 100 year 24-hour SCS Type II storm event is 10,375 m^3;
- The active storage fluctuation within the pond is 1.89 m during a 100 year storm event; and
- The maximum 100 year release rate from the pond is 0.461 m^3/s.

Geotechnical Considerations:

- A geosynthetic clay liner (GCL) is required to prevent the permanent pool water from infiltrating through the fractures within the bedrock;
- A 150 mm layer of sand is required below the GCL to prevent the exposed bedrock from puncturing the GCL; and,

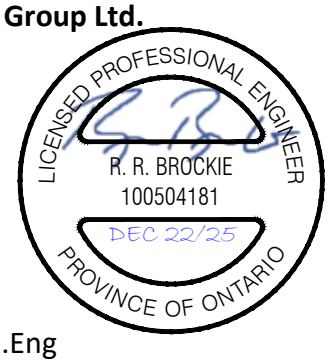
- The GCL is to be covered with 300 mm of topsoil to support the wetland plantings, with a warning blanket 150 mm below the wetland invert to prevent damage during maintenance of the wetland facility.

Erosion & Sediment Control:

- Temporary erosion control measures including a temporary pond are provided for the removal of overburden and earthworks in Stage 1; and
- During the underground servicing, roadworks and house construction (Stage 2), perimeter ESC measures will remain in place, and runoff will be treated by the ultimate SWM facility.

Respectfully Submitted:

SCS Consulting Group Ltd.



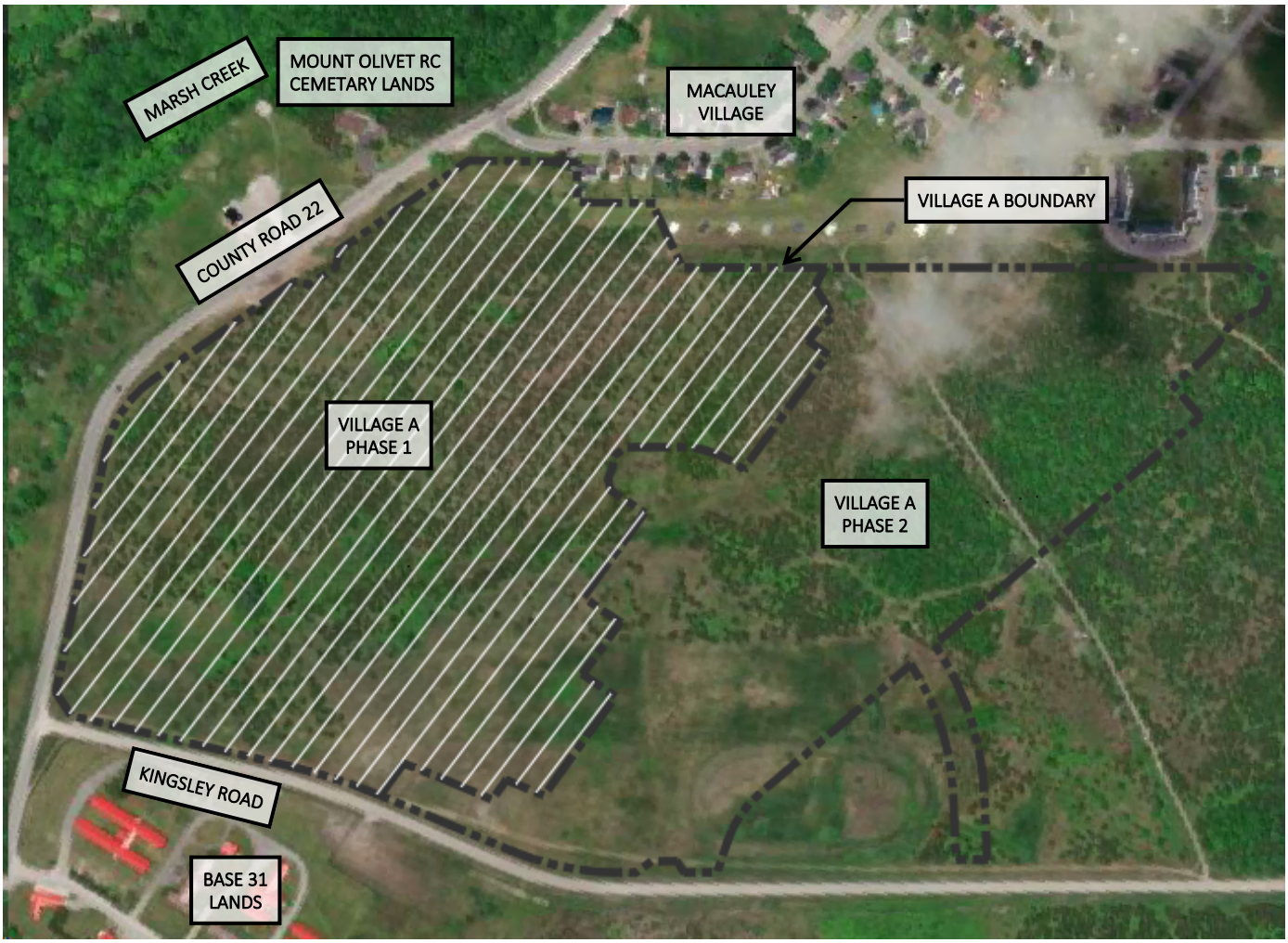


Ryan Brockie, P.Eng
rbrockie@scsconsultinggroup.com

Andrea Keeping, P.Eng.
akeeping@scsconsultinggroup.com

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Figures



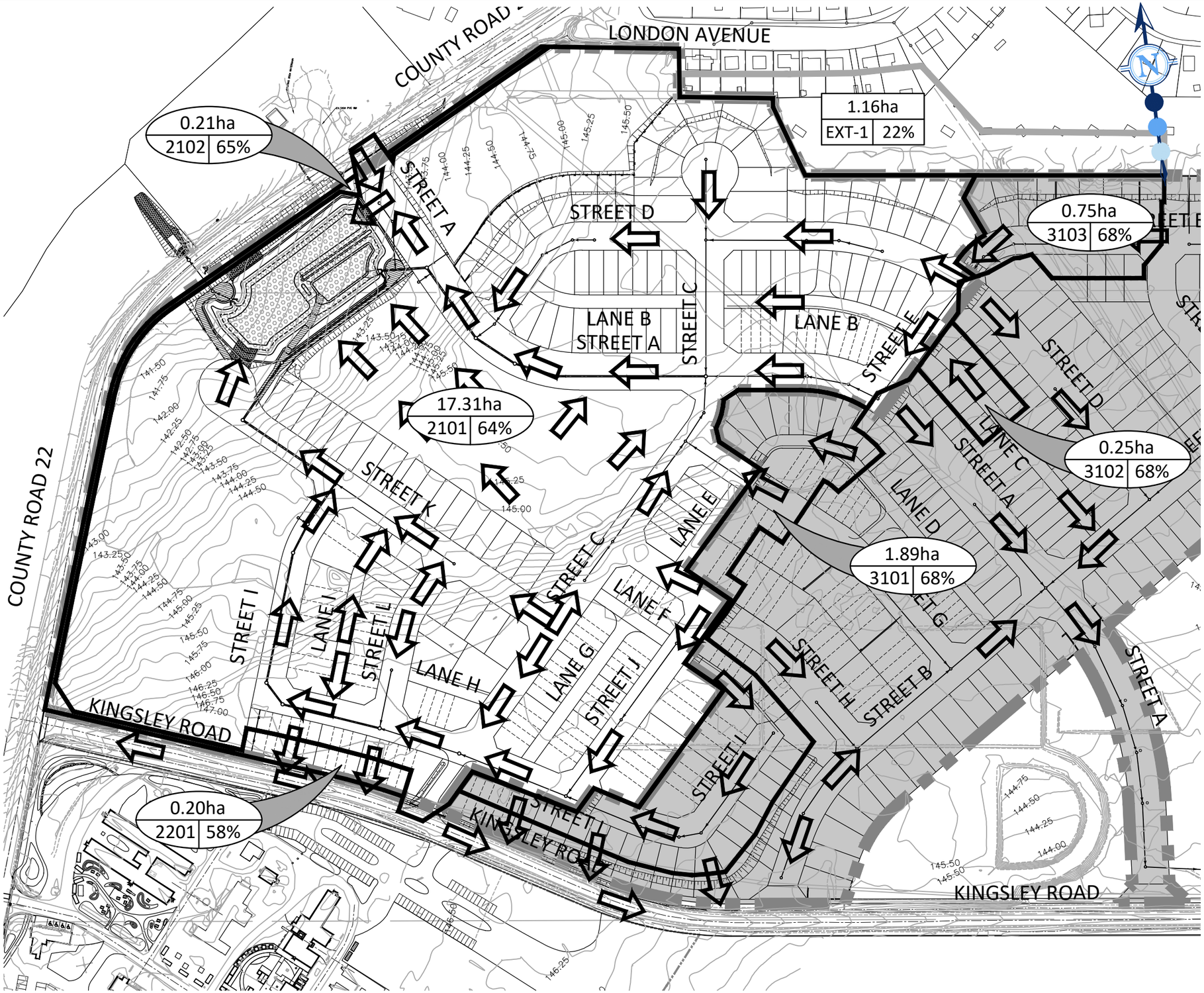
SCS consulting group ltd
30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475-1900
FAX: (905) 475-8335

VILLAGE A - PHASE 1

SITE LOCATION PLAN

DESIGNED BY: R.B.	CHECKED BY: A.K.	PROJECT No: 2365A	FIGURE No: 1.1
SCALE: N.T.S.	DATE: DECEMBER 2025		

File: Document1.pdf – Revised By <jrideout> : May 22 2025 – 3:17:04 PM



LEGEND:

- LIMIT OF DEVELOPMENT
- LIMIT OF PHASE
- EXISTING CONTOUR ELEVATION (270.00)
- MAJOR SYSTEM - OVERLAND FLOW
- STORM DRAINAGE BOUNDARY
- EXTERNAL STORM DRAINAGE BOUNDARY
- PROPOSED STORM SEWER AND MAINTENANCE HOLE
- PROPOSED STORM SEWER AND MAINTENANCE HOLE CENTRELINE (>750)
- 16.41ha / 301 / 58% — DRAINAGE AREA (HECTARES); PERCENT (%) IMPERVIOUS; CATCHMENT ID
- PHASE 2 LANDS

*NOTE: LAYOUT IS SCHEMATIC ONLY, DETAILS TO BE PROVIDED AT DETAILED DESIGN STAGE.

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30 CENTURIAN DRIVE, SUITE 100
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TEL: (905) 475-1900
FAX: (905) 475-8335

PICTON AIRPORT - PRINCE EDWARD COUNTY COMMUNITY PARTNERS INC.

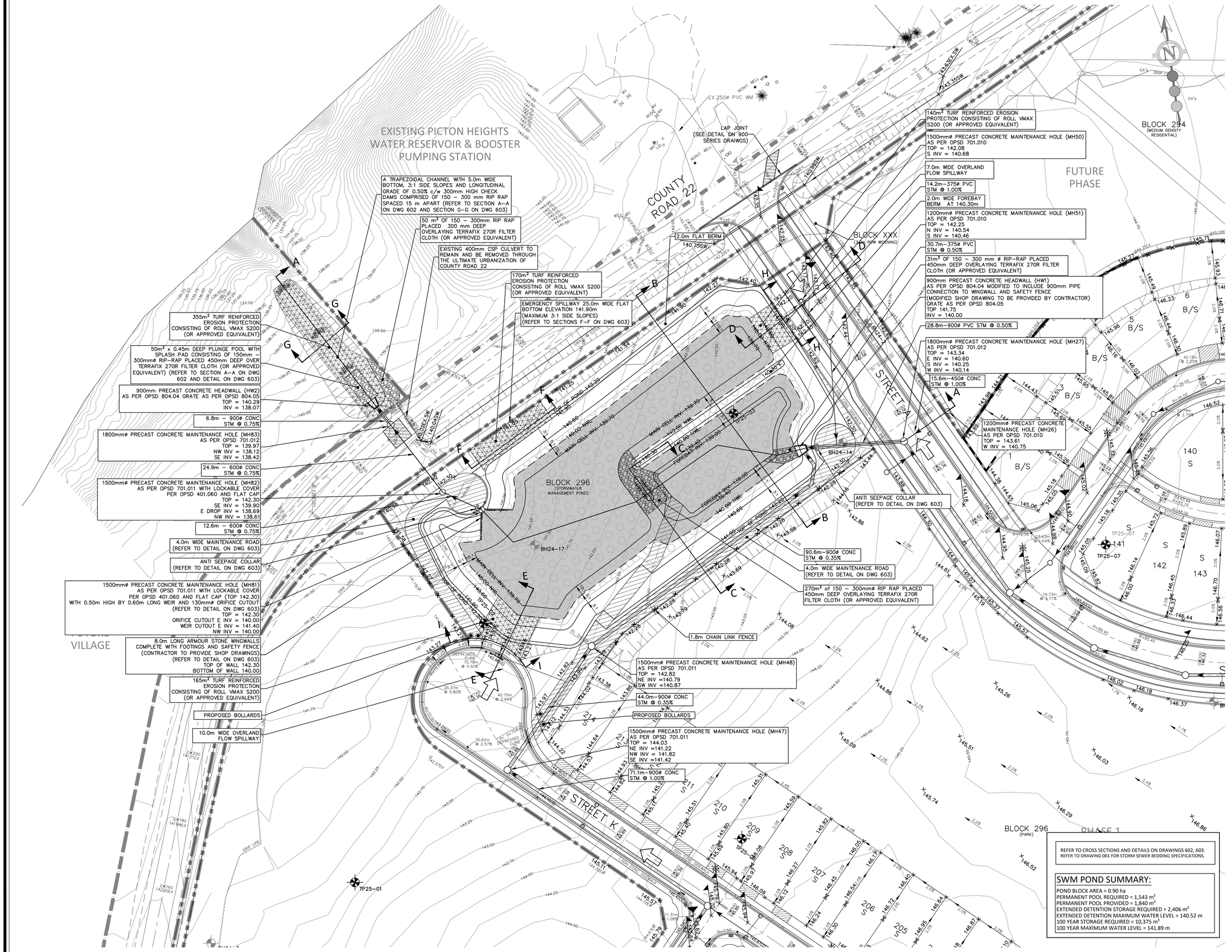
VILLAGE A

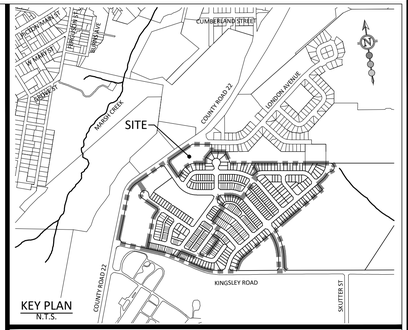
POST DEVELOPMENT DRAINAGE PLAN

DESIGNED BY:	R.B.	CHECKED BY:	A.R.K.
SCALE:	1:2500	DATE:	DECEMBER 2025
PROJECT No:	2365	FIGURE No:	3.1

Drawings

SCS consulting group ltd





BENCHMARK: ELEV. 141.477m

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO MNRF BENCHMARK No. 01019820216 HAVING A PUBLISHED ELEVATION OF 141.477 METERS.

LEGEND:

- LIMIT OF DEVELOPMENT/SUBDIVISION
- LIMIT OF PHASE
- LIMIT OF EXTERNAL WORKS
- EXISTING CONTOUR AND ELEVATION
- STORM SEWER / MAINTENANCE HOLE
- POND ELEVATION AND CONTOUR
- NORMAL WATER LEVEL
- FLOW ARROW
- PROPOSED ELEVATION
- EXISTING ELEVATION
- SWALE ELEVATION
- BOREHOLE
- REMOVABLE BOLLARD
- PERMANENT POOL
- 4.0m MAINTENANCE ACCESS ROAD (REFER TO DWG 603)
- GEOSYNTHETIC CLAY LINER
- RIP-RAP
- TURF REINFORCED EROSION PROTECTION
- PROPOSED EMBANKMENT (MAX 3:1 SLOPE)
- ROCK CHECK DAM
- OVERLAND FLOW ROUTE
- 1.8m CHAIN LINK FENCE
- EXISTING OVERHEAD WIRE
- EXISTING CHAINLINK FENCE
- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING GAS MAIN
- EXISTING HYDRO POLE
- EXISTING MANHOLE
- EXISTING WATERMAIN VALVE
- EXISTING HYDRANT
- EXISTING MONITORING WELL
- EXISTING UTILITY
- EXISTING ROAD SIGN
- EXISTING CATCHBASIN
- EXISTING TREES

TOPOGRAPHIC SURVEY PROVIDED BY SCHAEFFER DZALDOV BENNET LTD., OCTOBER 2022

REVISIONS

No.	DESCRIPTION	DATE	BY	APPROVED
1.	FIRST SUBMISSION	DEC 2025	J.S.S.	

SCS consulting group ltd
30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475-1900
FAX: (905) 475-8335

TheCounty
PRINCE EDWARD COUNTY • ONTARIO
332 PICTON MAIN STREET,
PICTON ON, K0K 2T0
TEL: 613.476.2148 EXT. 1023
TEL: 613.962.9108 EXT. 1023

PEC COMMUNITY PARTNERS INC.

BASE31 SUBDIVISION VILLAGE A - PHASE 1

STORMWATER MANAGEMENT PLAN - WETLAND SWMF

DATE: DECEMBER 2025	DESIGNED BY: J.Z./Y.A.	CHECKED BY:	A.K. / S.E.K.
SCALE: H 1:500 V 1:50	DRAWN BY: M.T.C.	CHECKED BY:	A.K. / S.E.K.

5 0 10 20 30 40

APPROVED AS TO FORM IN RELIANCE UPON THE PROFESSIONAL SKILL AND ABILITY OF SCS CONSULTING GROUP LTD. CONSULTING ENGINEERS AS TO DESIGN AND SPECIFICATION.

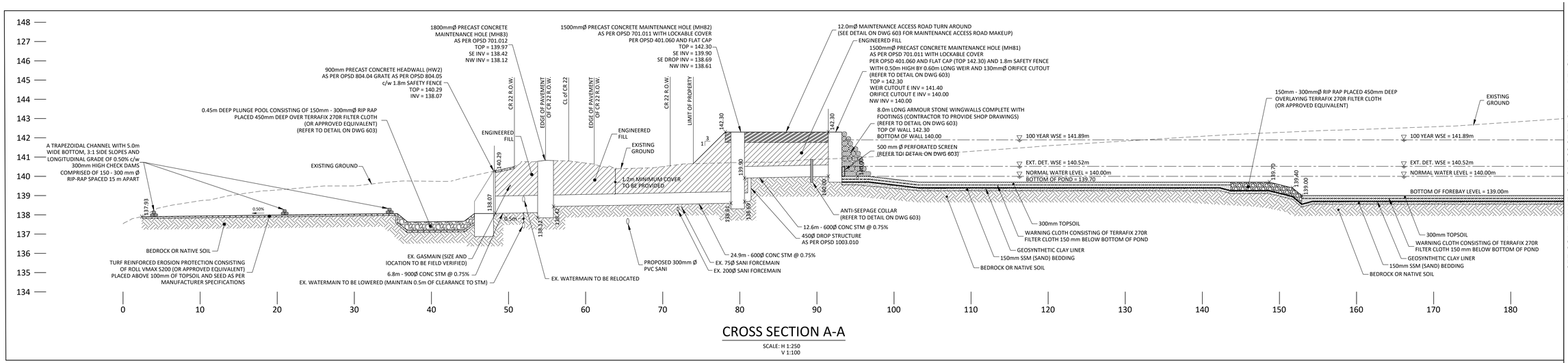
Peter Moyer, P.Eng.
Director Of Development Services

Date

PROJECT No: 2365

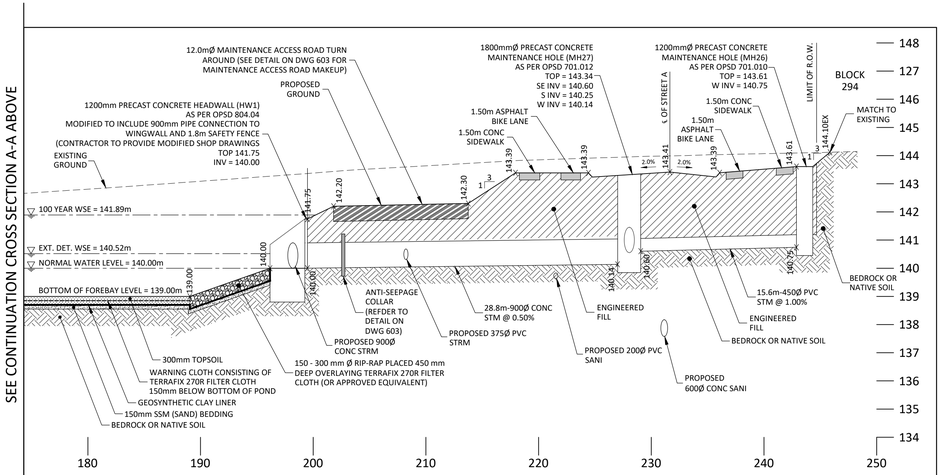
DRAWING No: 601

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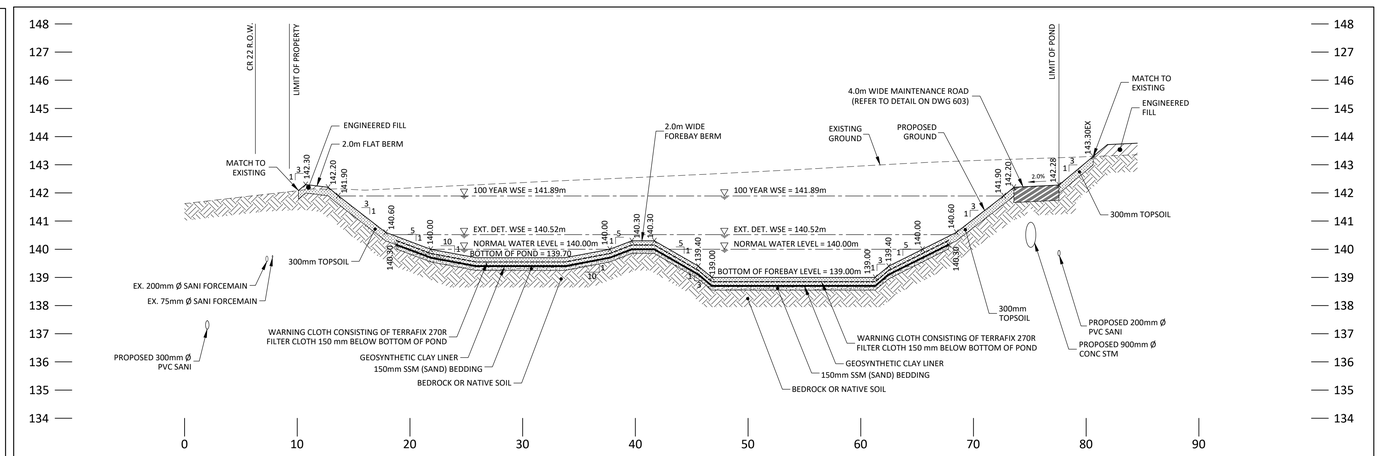
CROSS SECTION A-A

SCALE: H 1:250
V 1:100



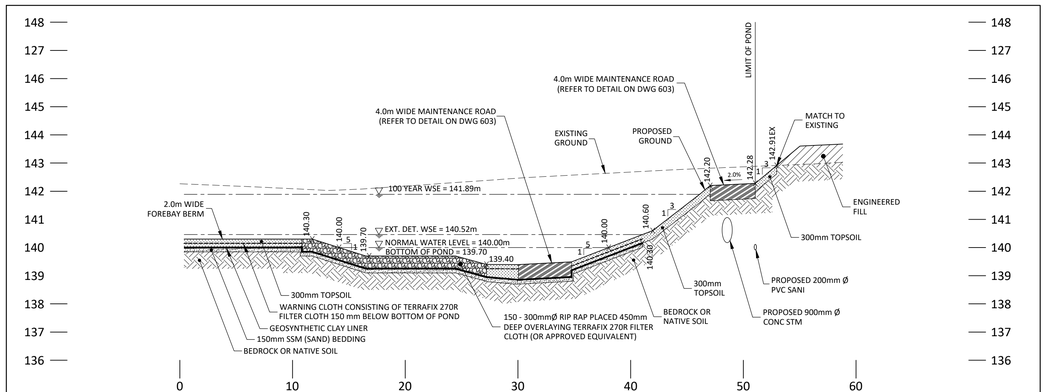
CROSS SECTION A-A

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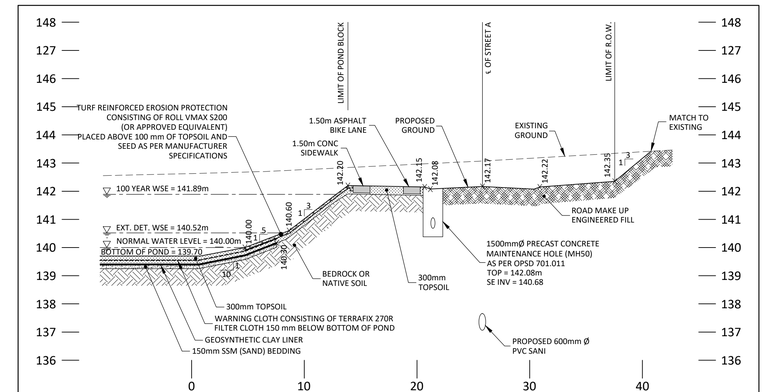
CROSS SECTION B-B

SCALE: H 1:250
V 1:100



CROSS SECTION C-C

SCALE: H 1:250
V 1:100



CROSS SECTION D-D (OVERLAND FLOW ROUTE)

SCALE: H 1:250
V 1:100

REVISIONS				
No.	DESCRIPTION	DATE	BY	APPROVED

SCS consulting group ltd
30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475-1900
FAX: (905) 475-8335

TheCounty
PRINCE EDWARD COUNTY • ONTARIO
332 PICTON MAIN STREET,
PICTON ON, K0K 2T0
TEL: 613.476.2148 EXT. 1023
TEL: 613.962.9108 EXT. 1023

PEC COMMUNITY PARTNERS INC.

BASE31 SUBDIVISION
VILLAGE A - PHASE 1

STORMWATER MANAGEMENT POND CROSS SECTION & DETAILS 1

DATE:	DECEMBER 2025	DESIGNED BY:	R.B.	CHECKED BY:	A.K. / S.E.K.
SCALE:	1:1000	DRAWN BY:	D.M.D.	CHECKED BY:	A.K. / S.E.K.

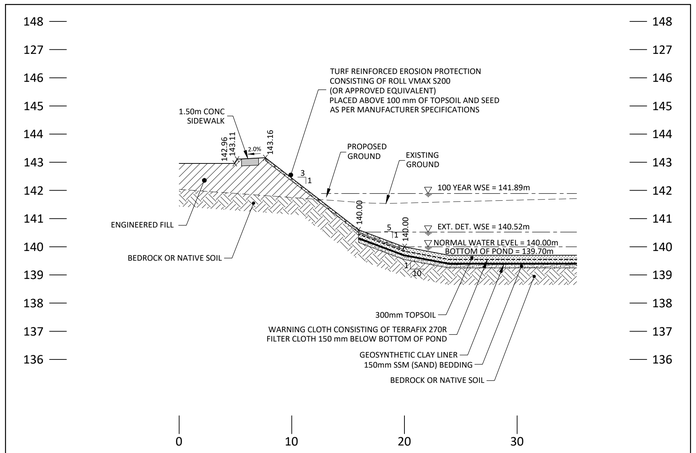
APPROVED AS TO FORM IN RELIANCE UPON THE PROFESSIONAL SKILL AND ABILITY OF SCS CONSULTING GROUP LTD. CONSULTING ENGINEERS AS TO DESIGN AND SPECIFICATION.

Peter Moyer, P.Eng.
Director Of Development Services

Date

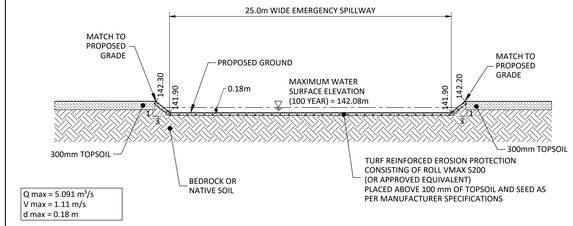
PROJECT No: 2365

DRAWING No: 602



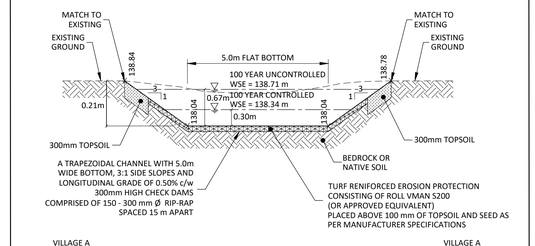
CROSS SECTION E-E

SCALE: H 1:250
V 1:100



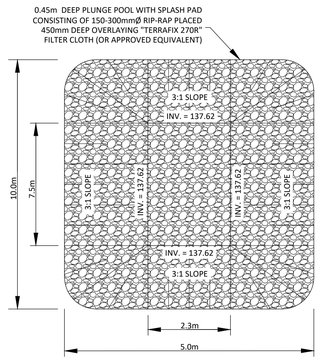
EMERGENCY SPILLWAY - CROSS SECTION F-F

SCALE: H 1:250
V 1:100



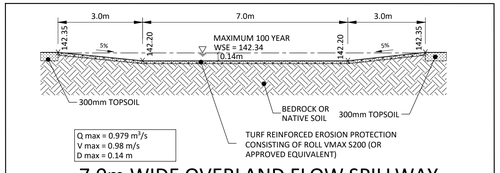
CROSS SECTION G-G (TRAPEZOIDAL CHANNEL)

SCALE: H 1:100
V 1:50



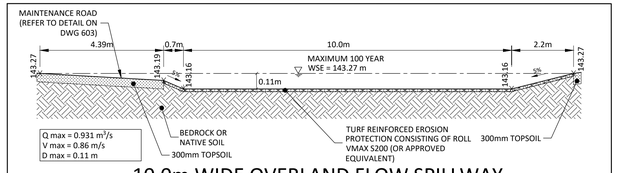
PLUNGE POOL DETAIL

SCALE: N.T.S.



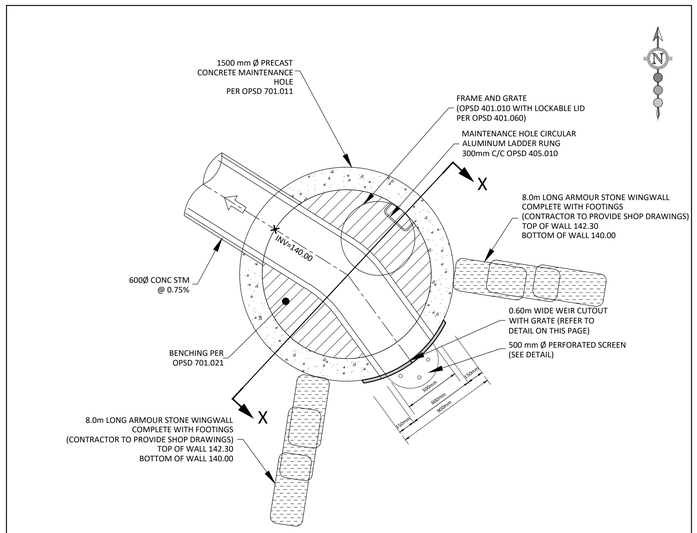
7.0m WIDE OVERLAND FLOW SPILLWAY CROSS SECTION H-H

SCALE: H 1:100
V 1:50



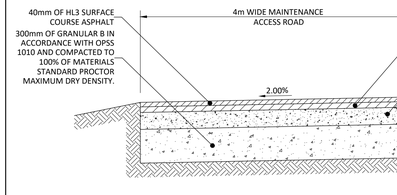
10.0m WIDE OVERLAND FLOW SPILLWAY CROSS SECTION I-I

SCALE: H 1:100
V 1:20



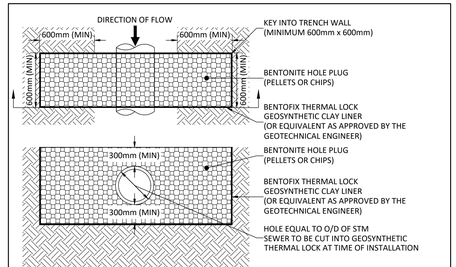
CONTROL MAINTENANCE HOLE (MH81)

SCALE = 1:25



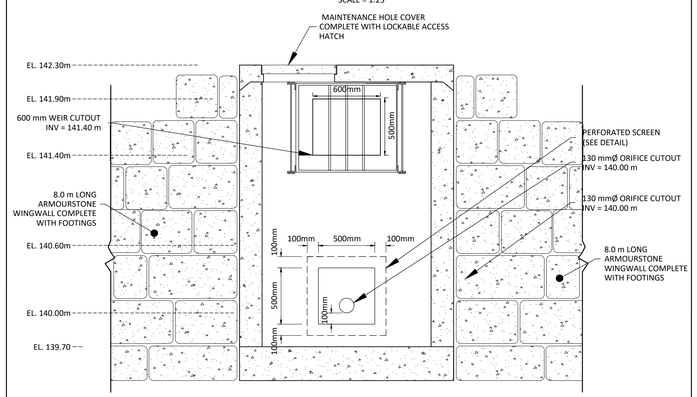
ASPHALT MAINTENANCE ACCESS ROAD DETAIL

SCALE: 1:40



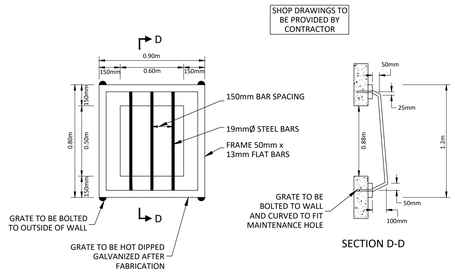
ANTI-SEEPAGE COLLAR DETAIL

SCALE: N.T.S



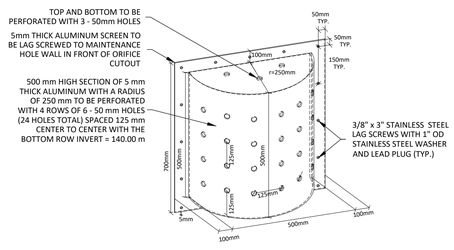
CONTROL MAINTENANCE HOLE (MH81) CROSS SECTION X-X

SCALE = 1:25



MH81 GRATE DETAIL FOR 0.60m LONG x 0.50m HIGH MAINTENANCE HOLE CUTOUT WEIR

SCALE: 1:20



PERFORATED SCREEN DETAIL

SCALE: N.T.S.

REVISIONS				
No.	DESCRIPTION	DATE	BY	APPROVED

SCS consulting group ltd
30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475-1900
FAX: (905) 475-8335

TheCounty
PRINCE EDWARD COUNTY • ONTARIO
332 PICTON MAIN STREET,
PICTON ON, K0K 2T0
TEL: 613.476.2148 EXT. 1023
TEL: 613.962.9108 EXT. 1023

PEC COMMUNITY PARTNERS INC.

BASE31 SUBDIVISION
VILLAGE A - PHASE 1

STORMWATER MANAGEMENT POND CROSS SECTION & DETAILS 2

DATE:	DECEMBER 2025	DESIGNED BY:	R.B.	CHECKED BY:	A.K. / S.E.K.
SCALE:	1:1000	DRAWN BY:	D.M.D.	CHECKED BY:	A.K. / S.E.K.

APPROVED AS TO FORM IN RELIANCE UPON THE PROFESSIONAL SKILL AND ABILITY OF SCS CONSULTING GROUP LTD. CONSULTING ENGINEERS AS TO DESIGN AND SPECIFICATION.

Peter Moyer, P.Eng.
Director Of Development Services

Date

PROJECT No: 2365

DRAWING No: 603

REFER TO DWG 704 FOR GENERAL AND STAGING NOTES

EXISTING BOOSTER PUMPING STATION

EXISTING SILT SOCK WITHIN CR 22 RIGHT OF WAY TO REMAIN IN PLACE

32 m - 450 mm Ø HDPE CULVERT

EXISTING SILT SOCK TO REMAIN IN PLACE FOR STAGE 1 WORKS

EXISTING SILT SOCK WITHIN CR 22 RIGHT OF WAY TO REMAIN IN PLACE, ADJUSTED AS NECESSARY TO ACCOMMODATE TEMPORARY SINGLE ROW FILTER SOCK PERIMETER ESC AND FENCE PANELS

TEMPORARY CONSTRUCTION ACCESS (REFER TO DETAIL ON DRAWING 703)

EROSION AND SEDIMENT CONTROL POND
PERMANENT POOL:
REQUIRED VOLUME = 2545m³
PROVIDED VOLUME = 3234m³
ACTIVE STORAGE:
REQUIRED VOLUME = 2545m³
PROVIDED VOLUME = 4568m³
EXT. DET RELEASE RATE = 41L/s
EXT. DET. WL = 140.48m
NWL = 140.0m
BTM =138.55m

TEMPORARY SINGLE ROW FILTER SOCK PERIMETER ESC WITH TEMPORARY FENCE PANELS (REFER TO DETAIL ON DRAWING 703)

TEMPORARY LINEAR 300 mm dia. FILTER SOCK SPACED 30m APART, WITH LOCATION AND SPACING TO BE FIELD FIT AS REQUIRED. FILTER SOCK TO BE IN CONTACT WITH PERIMETER ESC. (REFER TO DETAIL ON DRAWING 703)

TEMPORARY FENCE PANELS (REFER TO DETAIL ON DRAWING 703)

EXISTING ESC SILT SOCK CHECK DAMS TO BE LEFT IN PLACE

EX. CSP 400Ø CULVERT INV. 139.94

3:1 SLOPING FROM PROPOSED BERM TO MATCH EXISTING GRADE

TOP OF BERM AT 141.20m

EXISTING FILTER SOCK WITHIN CR 22 RIGHT OF WAY TO REMAIN IN PLACE

3:1 SLOPING TO TIE INTO EXISTING BEDROCK LAYER

3:1 SLOPING FROM TOP OF POND TO EXISTING GRADE

SPILLWAY AT 141.00m

TEMPORARY 300mm OUTLET PIPE

TEMPORARY OUTLET STRUCTURE (REFER TO DETAIL ON DWG 703)

300 mm Ø TEMPORARY SINGLE ROW FILTER SOCK TO DIRECT FLOWS TOWARDS POND. FIELD FIT AS REQUIRED. (REFER TO DETAIL ON DRAWING 703)

300mm Ø TEMPORARY SINGLE ROW FILTER SOCK PERIMETER ESC WITH TEMPORARY FENCE PANELS (REFER TO DETAIL ON DRAWING 703)

EXISTING PERIMETER ESC MEASURES TO REMAIN IN PLACE

FUTURE DEVELOPMENT AREA (PEC OWNED)

FUTURE VILLAGE A (PEC OWNED)

300 mm Ø TEMPORARY LINEAR FILTER SOCK WITH LOCATION AND SPACING TO BE FIELD FIT AS REQUIRED. FILTER SOCK TO BE IN CONTACT WITH PERIMETER ESC. (REFER TO DETAIL ON DRAWING 703)

EXISTING SILT SOCK WITHIN CR 22 RIGHT OF WAY TO REMAIN IN PLACE

300 mm Ø TEMPORARY SINGLE ROW FILTER SOCK TO DIRECT FLOWS TOWARDS SEDIMENT TRAP. FIELD FIT AS REQUIRED. (REFER TO DETAIL ON DRAWING 703)

300mm Ø TEMPORARY SINGLE ROW FILTER SOCK PERIMETER ESC WITH TEMPORARY FENCE PANELS (REFER TO DETAIL ON DRAWING 703)

300 mm Ø TEMPORARY SINGLE ROW FILTER SOCK TO DIRECT FLOWS TOWARDS SEDIMENT TRAP. FIELD FIT AS REQUIRED. (REFER TO DETAIL ON DRAWING 703)

300mm Ø TEMPORARY SINGLE ROW FILTER SOCK PERIMETER ESC WITH TEMPORARY FENCE PANELS (REFER TO DETAIL ON DRAWING 703)

300 mm Ø TEMPORARY LINEAR FILTER SOCK SPACED 30m APART, WITH LOCATION AND SPACING TO BE FIELD FIT AS REQUIRED. FILTER SOCK TO BE IN CONTACT WITH PERIMETER ESC. (REFER TO DETAIL ON DRAWING 703)

SEDIMENT TRAP SPILLWAY LOCATION

300mm Ø TEMPORARY SINGLE ROW FILTER SOCK PERIMETER ESC WITH TEMPORARY FENCE PANELS (REFER TO DETAIL ON DRAWING 703)

EXT–1
1.16ha

101
15.18ha

102
2.21ha

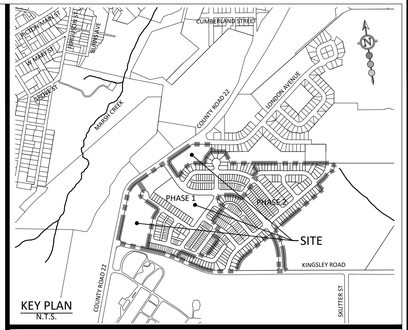
103
0.21ha

104
0.16ha

ST

KINGSLEY ROAD

SEE DWG. 701-B



KEY PLAN
N.T.S.

BENCHMARK: ELEV. 141.477m

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO MNRF BENCHMARK No. 01019820216 HAVING A PUBLISHED ELEVATION OF 141.477 METERS.

LEGEND:

- LIMIT OF DEVELOPMENT/SUBDIVISION
- LIMIT OF PHASE
- LIMIT OF EXTERNAL WORKS
- 168.00 — EXISTING CONTOUR AND ELEVATION
- TEMPORARY 300mm SINGLE ROW FILTER SOCK PERIMETER ESC AND FENCE PANELS (SEE DETAIL ON DWG. 703)
- TEMPORARY 300mm SINGLE ROW FILTER SOCK (SEE DETAIL ON DWG. 703)
- TEMPORARY FENCE PANELS (REFER TO DETAIL ON DRAWING 703)
- EXISTING STORM DRAINAGE BOUNDARY
- 101 / 15.18ha — CATCHMENT ID / DRAINAGE AREA (ha)
- EXISTING OVERLAND FLOW ROUTE
- TEMPORARY 300mm FILTER SOCK CHECK DAM (REFER TO DETAIL ON DWG 703)
- ST — TEMPORARY SEDIMENT TRAP (REFER TO DETAIL ON DWG 703)
- TEMPORARY CONSTRUCTION ACCESS / MUD MAT (SEE DETAIL ON DWG. 703)
- FUTURE PHASE 2 LANDS (NO EARTHWORKS)
- TEMPORARY ESC POND OUTLET STRUCTURE (REFER TO DETAIL ON DWG 703)
- TEMPORARY FLOW DISPERSAL DAM
- × 147.59 — PROPOSED ROAD DESIGN ELEVATION
- ROAD FLAG HIGH POINT
- ROAD FLAG LOW POINT

TOPOGRAPHIC SURVEY PROVIDED BY SCHAEFFER DZALDOV BENNET LTD., OCTOBER 2022

REVISIONS

No.	DESCRIPTION	DATE	BY	APPROVED
1.	FIRST SUBMISSION	DEC 2025	J.S.S.	

SCS consulting group ltd
30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475-1900
FAX: (905) 475-8335

TheCounty
PRINCE EDWARD COUNTY • ONTARIO
332 PICTON MAIN STREET,
PICTON ON, K0K 2T0
TEL: 613.476.2148 EXT. 1023
TEL: 613.962.9108 EXT. 1023

PEC COMMUNITY PARTNERS INC.

VILLAGE A

EROSION & SEDIMENT CONTROL PLAN
STAGE 1 - EARTHWORKS A

DATE:	DECEMBER 2025	DESIGNED BY:	A.T.	CHECKED BY:	J.S.S./C.C.
SCALE:	1:1000	DRAWN BY:	M.T.C.	CHECKED BY:	C.C./M.R.C.

10 5 0 10 20 30 40 50 60 70 80

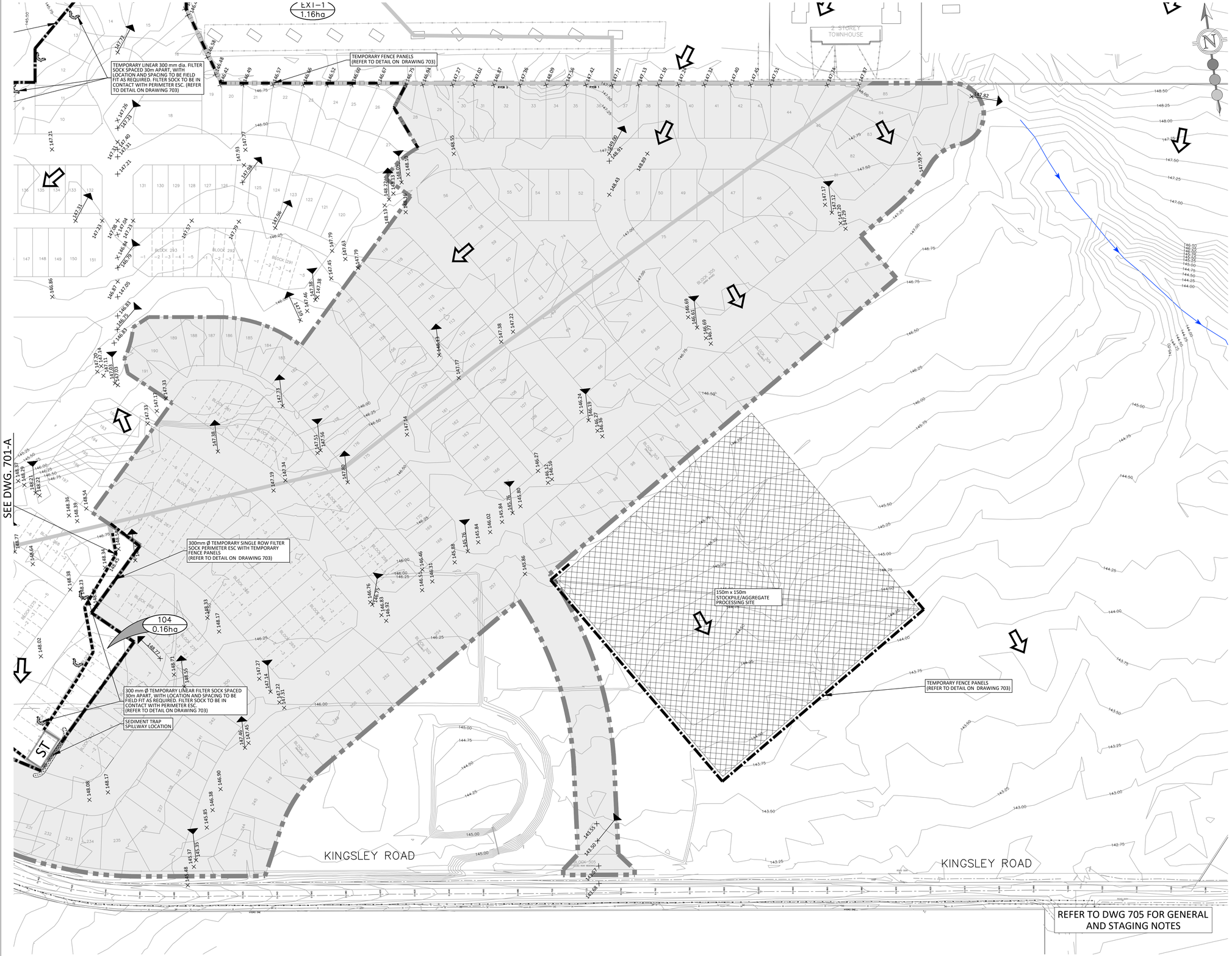
APPROVED AS TO FORM IN RELIANCE UPON THE PROFESSIONAL SKILL AND ABILITY OF SCS CONSULTING GROUP LTD. CONSULTING ENGINEERS AS TO DESIGN AND SPECIFICATION.

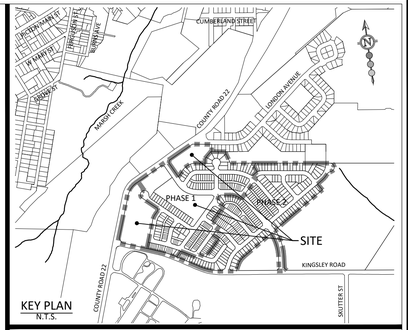
Peter Moyer, P.Eng.
Director Of Development Services

Date

PROJECT No: 2365

DRAWING No: 701-A




CLANCY CRES.
CLANCY CRES.
CLANCY CRES.

REFER TO DWG 704 FOR GENERAL AND STAGING NOTES

EXISTING SILT SOCK WITHIN CR 22 RIGHT OF WAY TO REMAIN IN PLACE

TEMPORARY SINGLE ROW FILTER SOCK PERIMETER ESC AND PAGE WIRE FENCE (REFER TO DETAIL ON DRAWING 703)

300mm Ø TEMPORARY LINEAR FILTER SOCK UNTIL DITCH IS STABILIZED (REFER TO DETAIL ON DWG 703)

300mm Ø TEMPORARY LINEAR FILTER SOCK UNTIL CHANNEL AND SITE ARE STABILIZED (REFER TO DETAIL ON DWG 703)

EXISTING PICTON HEIGHTS WATERMAIN

TEMPORARY CONSTRUCTION ACCESS (REFER TO DETAIL ON DRAWING 703)

EXISTING ESC MEASURES TO BE REMOVED TO ACCOMMODATE CHANNEL CONSTRUCTION

TURF REINFORCED EROSION PROTECTION CONSISTING OF ROLL VMAX S200

EXISTING SILT SOCK TO REMAIN IN PLACE FOR STAGE 1 WORKS

EXISTING SILT SOCK WITHIN CR 22 RIGHT OF WAY TO REMAIN IN PLACE, ADJUSTED AS NECESSARY TO ACCOMMODATE TEMPORARY SINGLE ROW FILTER SOCK PERIMETER ESC AND FENCE PANELS

EXISTING ESC SILT SOCK CHECK DAMS TO BE LEFT IN PLACE

300mm Ø TEMPORARY LINEAR FILTER SOCK UNTIL DITCH IS STABILIZED (REFER TO DETAIL ON DWG 703)

ULTIMATE TRAPEZOIDAL CHANNEL c/w 300mm HIGH CHECK DAMS COMPRISED OF 150 - 300 mm RIP RAP SPACED 15 m APART (REFER TO SECTION A-A ON DWG 602 AND SECTION G-G ON DWG 603)

EX. CSP 400Ø CULVERT INV. 139.94

3:1 SLOPING FROM PROPOSED BERM TO MATCH EXISTING GRADE

TOP OF BERM AT 141.20m

EXISTING FILTER SOCK WITHIN CR 22 RIGHT OF WAY TO REMAIN IN PLACE

TURF REINFORCED EROSION PROTECTION CONSISTING OF ROLL VMAX S200 (OR APPROVED EQUIVALENT)

FUTURE VILLAGE

TEMPORARY 300mm OUTLET PIPE

TEMPORARY OUTLET STRUCTURE (REFER TO DETAIL ON DWG 703)

EXISTING PERIMETER ESC MEASURES TO REMAIN IN PLACE

EROSION AND SEDIMENT CONTROL POND
PERMANENT POOL:
REQUIRED VOLUME = 2545m³
PROVIDED VOLUME = 3234m³
ACTIVE STORAGE:
REQUIRED VOLUME = 2545m³
PROVIDED VOLUME = 4568m³
EXT. DET RELEASE RATE = 41L/s
EXT. DET. WL = 140.48m
NWL = 140.0m
BTM =138.55m

TURF REINFORCED EROSION PROTECTION CONSISTING OF ROLL VMAX S200 (OR APPROVED EQUIVALENT)

3:1 SLOPING TO TIE INTO EXISTING BEDROCK LAYER

ULTIMATE STORMWATER MANAGEMENT POND

POND BLOCK AREA = 0.90 ha
PERMANENT POOL REQUIRED = 1,543 m³
PERMANENT POOL PROVIDED = 1,840 m³
EXTENDED DETENTION STORAGE REQUIRED = 2,406 m³
EXTENDED MAXIMUM WATER LEVEL = 140.52 m
100 YEAR STORAGE REQUIRED = 10,375 m³
100 YEAR MAXIMUM WATER LEVEL = 141.89 m

300 mm Ø TEMPORARY SINGLE ROW FILTER SOCK TO DIRECT FLOWS TOWARDS POND. FIELD FIT AS REQUIRED. (REFER TO DETAIL ON DRAWING 703)

300mm Ø TEMPORARY SINGLE ROW FILTER SOCK PERIMETER ESC WITH TEMPORARY FENCE PANELS (REFER TO DETAIL ON DRAWING 703)

2101
13.31ha

100m x 70m x 3m TOPSOIL STOCKPILE

300 mm Ø TEMPORARY LINEAR FILTER SOCK WITH LOCATION AND SPACING TO BE FIELD FIT AS REQUIRED. FILTER SOCK TO BE IN CONTACT WITH PERIMETER ESC. (REFER TO DETAIL ON DRAWING 703)

300 mm Ø TEMPORARY SINGLE ROW FILTER SOCK TO DIRECT FLOWS TOWARDS SEDIMENT TRAP. FIELD FIT AS REQUIRED. (REFER TO DETAIL ON DRAWING 703)

EXISTING SILT SOCK FROM STAGE 1 TO BE MOVED TO ACCOMMODATE STAGE 2 WORKS

300 mm Ø TEMPORARY SINGLE ROW FILTER SOCK TO DIRECT FLOWS TOWARDS SEDIMENT TRAP. FIELD FIT AS REQUIRED. (REFER TO DETAIL ON DRAWING 703)

2201
####ha

300 mm Ø TEMPORARY LINEAR FILTER SOCK WITH LOCATION AND SPACING TO BE FIELD FIT AS REQUIRED. FILTER SOCK TO BE IN CONTACT WITH PERIMETER ESC. (REFER TO DETAIL ON DRAWING 703)

300mm Ø TEMPORARY SINGLE ROW FILTER SOCK PERIMETER ESC WITH TEMPORARY FENCE PANELS (REFER TO DETAIL ON DRAWING 703)

300 mm dia. TEMPORARY SINGLE ROW FILTER SOCK TO DIRECT FLOWS TOWARDS SEDIMENT TRAP. FIELD FIT AS REQUIRED. (REFER TO DETAIL ON DRAWING 703)

EXT–1
1.16ha

EXISTING MACAULAY VILLAGE

TEMPORARY SINGLE ROW FILTER SOCK PERIMETER ESC WITH TEMPORARY FENCE PANELS (REFER TO DETAIL ON DRAWING 703)

TEMPORARY FENCE PANELS (REFER TO DETAIL ON DRAWING 703)

TEMPORARY LINEAR 300 mm dia. FILTER SOCK SPACED 30m APART, WITH LOCATION AND SPACING TO BE FIELD FIT AS REQUIRED. FILTER SOCK TO BE IN CONTACT WITH PERIMETER ESC. (REFER TO DETAIL ON DRAWING 703)

3103
0.73ha

3102
0.25ha

3101
1.89ha

300mm Ø TEMPORARY SINGLE ROW FILTER SOCK PERIMETER ESC WITH TEMPORARY FENCE PANELS (REFER TO DETAIL ON DRAWING 703)

300 mm Ø TEMPORARY LINEAR FILTER SOCK SPACED 30m APART, WITH LOCATION AND SPACING TO BE FIELD FIT AS REQUIRED. FILTER SOCK TO BE IN CONTACT WITH PERIMETER ESC. (REFER TO DETAIL ON DRAWING 703)

85m x 85m x 3m TOPSOIL STOCKPILE

REVITALIZATION DISTRICT

EX. ARENA BUILDING

EX. ARENA BUILDING

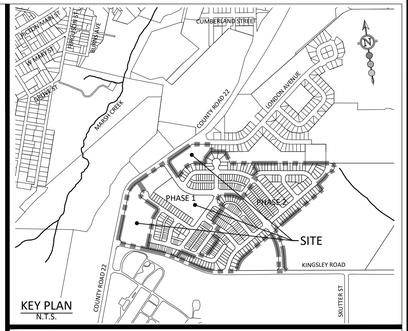
EX. ARENA BUILDING

EX. ARENA BUILDING

EXISTING SILT SOCK WITHIN CR 22 RIGHT OF WAY TO REMAIN IN PLACE

KINGSLEY ROAD

SEE DWG. 702-B



KEY PLAN
N.T.S.

BENCHMARK: ELEV. 141.477m

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO MNRF BENCHMARK No. 01019820216 HAVING A PUBLISHED ELEVATION OF 141.477 METERS.

LEGEND:

- LIMIT OF DEVELOPMENT/SUBDIVISION
- LIMIT OF PHASE
- LIMIT OF EXTERNAL WORKS
- EXISTING CONTOUR AND ELEVATION (168.00)
- STORM SEWER AND MAINTENANCE HOLE
- TEMPORARY 300mm SINGLE ROW FILTER SOCK PERIMETER ESC AND FENCE PANELS (SEE DETAIL ON DWG. 704)
- TEMPORARY 300mm SINGLE ROW FILTER SOCK (SEE DETAIL ON DWG. 704)
- TEMPORARY FENCE PANELS (REFER TO DETAIL ON DRAWING 703)
- TEMPORARY 300mm SINGLE ROW FILTER SO FROM STAGE 1 TO BE REMOVED (SEE DETAIL ON DWG. 704)
- STORM DRAINAGE BOUNDARY
- EXTERNAL STORM DRAINAGE BOUNDARY
- CATCHMENT ID (101) / DRAINAGE AREA (15.18ha)
- EXISTING OVERLAND FLOW ROUTE
- TEMPORARY 300mm FILTER SOCK CHECK DAM (REFER TO DETAIL ON DWG 704)
- TEMPORARY CATCHBASIN SEDIMENT CONTROL DEVICE (SEE DRAWING 704)
- TEMPORARY SEDIMENT TRAP (REFER TO DETAIL ON DWG 704) (ST)
- STOCKPILE/AGGREGATE PROCESSING SITE
- TEMPORARY CONSTRUCTION ACCESS / MUD MAT (SEE DETAIL ON DWG. 703)
- FUTURE PHASE 2 LANDS (NO EARTHWORKS)

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MARKHAM, ONTARIO L3R 8B8
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TheCounty PRINCE EDWARD COUNTY • ONTARIO
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PEC COMMUNITY PARTNERS INC.

VILLAGE A

EROSION AND SEDIMENT CONTROL STAGE 2 - UNDERGROUND SERVICING & ROADWORKS & HOUSE CONSTRUCTION A

DATE:	DECEMBER 2025	DESIGNED BY:	A.T.	CHECKED BY:	J.S.S./C.C.
SCALE:	1:1000	DRAWN BY:	M.T.C.	CHECKED BY:	C.C./M.R.C.

10 5 0 10 20 30 40 50 60 70 80

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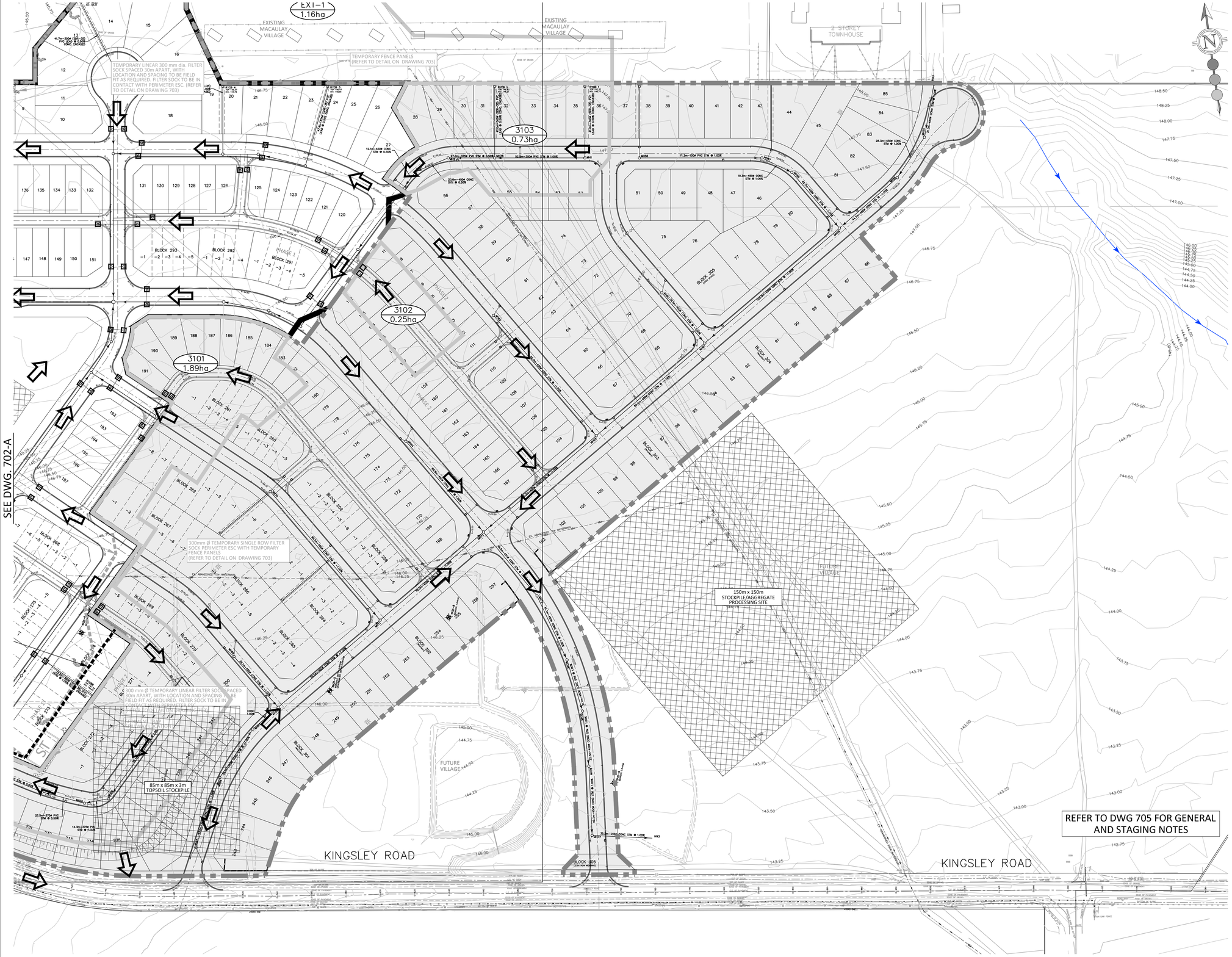
Peter Moyer, P.Eng.
Director Of Development Services

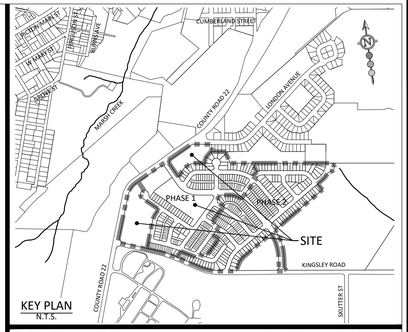
Date

PROJECT No: 2365

DRAWING No: 702-A

File: P:\2365 Picton Airport – Tercot\Drawings\Village A\Phase 1\Esc\2365D–702–VLGA–EROS.dwg – Revised by <SOZDEMIR> : Fri, Dec 19 2025 – 5:15pm





BENCHMARK: ELEV. 141.477m

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LEGEND:

- LIMIT OF DEVELOPMENT/SUBDIVISION
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PEC COMMUNITY PARTNERS INC.

VILLAGE A

EROSION AND SEDIMENT CONTROL STAGE 2 - UNDERGROUND SERVICING & ROADWORKS & HOUSE CONSTRUCTION B

DATE:	DECEMBER 2025	DESIGNED BY:	A.T.	CHECKED BY:	J.S.S./C.C.
SCALE:	1:1000	DRAWN BY:	M.T.C.	CHECKED BY:	C.C./M.R.C.

10 5 0 10 20 30 40 50 60 70 80

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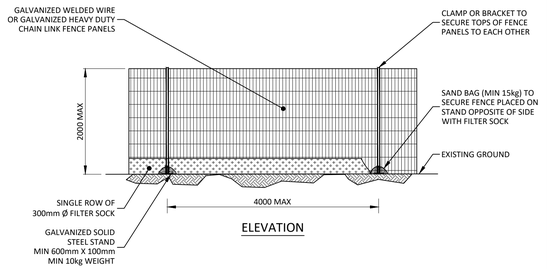
Peter Moyer, P.Eng.
Director Of Development Services

Date

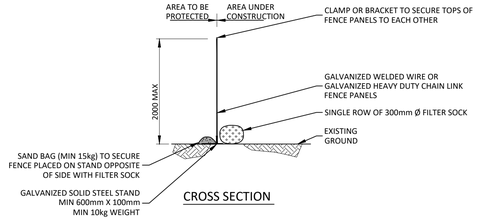
PROJECT No: 2365

DRAWING No: 702-B

File: P:\2365 Picton Airport – Tercot\Drawings\Village A\Phase 1\Esc\2365D-702-VLGA-EROS.dwg – Revised by <SOZDEMIR> : Fri, Dec 19 2025 – 5:15pm



ELEVATION



CROSS SECTION

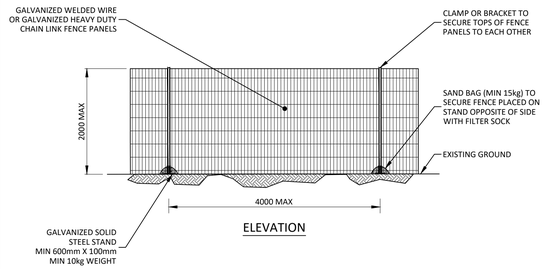
NOTES:

1. FILTER SOCKS INTENDED TO LEAVE PERMANENTLY MUST HAVE 100% BIODEGRADABLE NETTING.
2. SMOOTH OUT OR REMOVE ALL SURFACE OBSTRUCTIONS GREATER THAN 50mm FROM GROUND THE FILTER SOCK IS TO BE INSTALLED UPON.
3. SHOULD STAKE AND/OR FENCE INSTALLATION NOT BE POSSIBLE DUE TO CONDITIONS, WHERE FILTER SOCK IS REQUIRED IT MAY BE SUPPORTED BY BOULDERS (MIN 10kg AND 250mm DIAMETER) OR SAND BAGS PLACED ON DOWNSLOPE SIDE OF SOCK AT 3m SPACING FOR SLOPES <2% AND 1m SPACING FOR SLOPES >2%.
4. WHERE INSTALLED ON HIGHLY ERODIBLE SURFACES THE UPSLOPE SIDE OF THE FILTER SOCK BASE IS TO BE PACKED WITH A MINIMUM 100mm OF NATIVE MULCH SOCK FILL MEDIA TO REDUCE POTENTIAL FOR SOCK UNDERMINING.

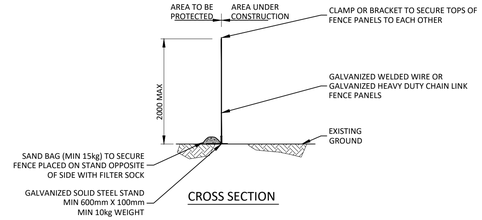
ALL DIMENSIONS ARE SHOWN IN MILLIMETRES UNLESS OTHERWISE SHOWN

TEMPORARY SINGLE ROW FILTER SOCK PERIMETER ESC WITH TEMPORARY FENCE PANELS

SCALE: N.T.S.



ELEVATION



CROSS SECTION

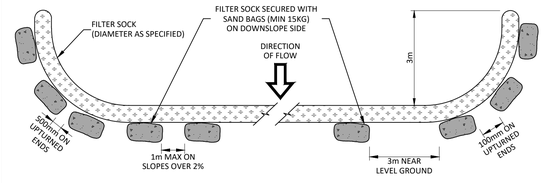
NOTES:

1. SMOOTH OUT OR REMOVE ALL SURFACE OBSTRUCTIONS GREATER THAN 50mm.
2. SHOULD STAKE AND/OR FENCE INSTALLATION NOT BE POSSIBLE DUE TO CONDITIONS, WHERE FENCE IS REQUIRED IT MAY BE SUPPORTED BY BOULDERS (MIN 10kg AND 250mm DIAMETER) OR SAND BAGS PLACED ON DOWNSLOPE SIDE OF SOCK AT 3m SPACING FOR SLOPES <2% AND 1m SPACING FOR SLOPES >2%.
3. WHERE INSTALLED ON HIGHLY ERODIBLE SURFACES THE UPSLOPE SIDE OF THE FILTER SOCK BASE IS TO BE PACKED WITH A MINIMUM 100mm OF NATIVE MULCH SOCK FILL MEDIA TO REDUCE POTENTIAL FOR SOCK UNDERMINING.

ALL DIMENSIONS ARE SHOWN IN MILLIMETRES UNLESS OTHERWISE SHOWN

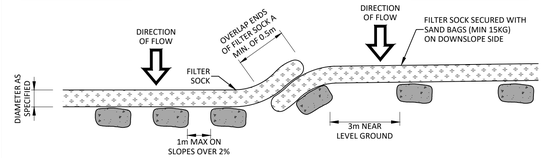
TEMPORARY SINGLE ROW FILTER SOCK PERIMETER ESC WITH TEMPORARY FENCE PANELS

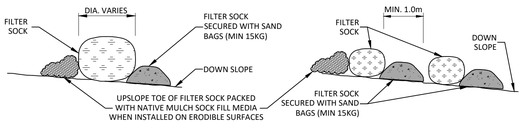
SCALE: N.T.S.



SLOPES GREATER THAN 2% - PLAN VIEWS

SLOPES NEAR LEVEL GROUND - PLAN VIEWS





SINGLE ROW

DOUBLE ROW

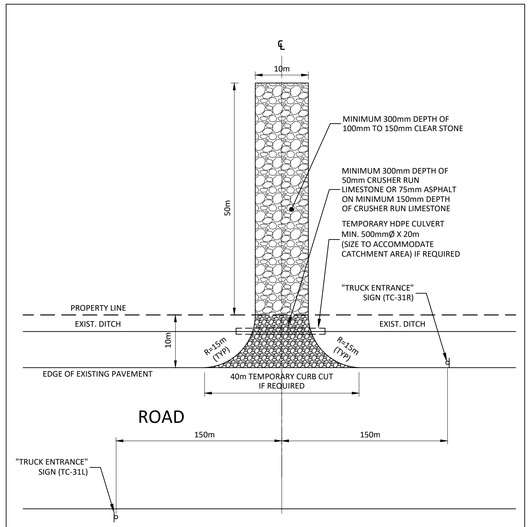
NOTES:

1. SMOOTH OUT OR REMOVE ALL SURFACE OBSTRUCTIONS GREATER THAN 50mm FROM GROUND THE FILTER SOCK IS TO BE INSTALLED UPON.
2. ENDS OF FILTER SOCK SHALL BE OVERLAPPED BY A MINIMUM OF 0.5m
3. ALL FILTER SOCK TO HAVE NATIVE MULCH FILL AND UV STABILIZED POLYPROPYLENE NETTING.
4. WHERE INSTALLED ON HIGHLY ERODIBLE SURFACES THE UPSLOPE SIDE OF THE FILTER SOCK BASE IS TO BE PACKED WITH A MINIMUM 100mm OF NATIVE MULCH SOCK FILL MEDIA TO REDUCE POTENTIAL FOR SOCK UNDERMINING.
5. EXCESS SEDIMENT ACCUMULATED ON THE UPSLOPE SIDE OF THE FILTER SOCK IS TO BE REMOVED ONCE IT REACHES HALF THE TOTAL HEIGHT OF THE SOCK OR THE SOCK IS TO BE RESET.
6. FILTER SOCKS INTENDED TO LEAVE PERMANENTLY MUST HAVE 100% BIODEGRADABLE NETTING.
7. FILTER SOCK ON SURFACES OF <2% SLOPE MAY BE SUPPORTED BY ANGULAR BOULDERS SOURCED FROM ON-SITE BLASTING DEBRIS (MIN 10kg AND 250mm DIAMETER) INSTEAD OF SAND BAGS.

ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS OTHERWISE SHOWN

TEMPORARY LINEAR FILTER SOCK SEDIMENT CONTROL BARRIER ON HARD SURFACE

SCALE: N.T.S.

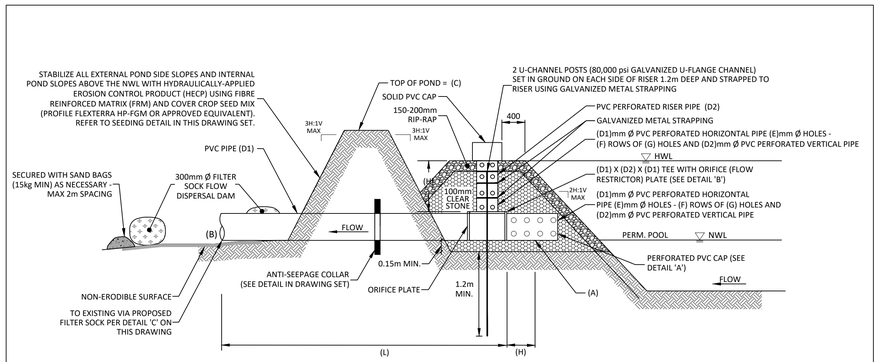


NOTES

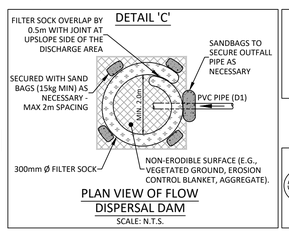
1. TEMPORARY "TRUCK ENTRANCE" SIGNS(TC–31) SHALL BE INSTALLED ON THE SHOULDER, 150M IN ADVANCE OF THE ACCESS (NOTE: SEE DETAILS ON USE OF THESE SIGNS IN THE ONTARIO TRAFFIC MANUAL, BOOK 7.) THE APPLICANT WILL BE RESPONSIBLE FOR THE COST OF OBTAINING, ERECTING AND MAINTAINING THESE SIGNS.
2. TEMPORARY CONSTRUCTION ACCESS SHALL BE REMOVED FROM THE ROAD ALLOWANCE AND ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.

MUD MAT FOR TEMPORARY CONSTRUCTION ACCESS

SCALE: N.T.S.

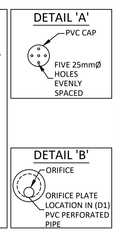


PROFILE



PLAN VIEW OF FLOW DISPERSAL DAM

SCALE: N.T.S.



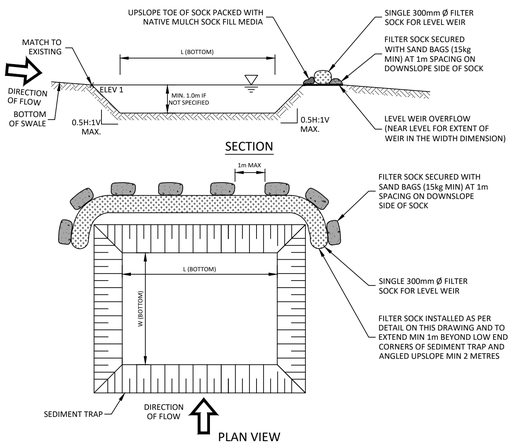
POND	(A)	(B)	(C)	(D1)	(D2)	(E)	(F)	(G)	(H)	(L)	ORIFICE	NWL	HWL
101	140.00m	139.85m	141.20m	300mm	375mm	25	12	13	1m	29m	140mm	140.00m	140.48m

NOTES:

1. SMOOTH OUT OR REMOVE ALL SURFACE OBSTRUCTIONS GREATER THAN 50mm FROM GROUND THE FILTER SOCK IS TO BE INSTALLED UPON.

TEMPORARY ESC POND OUTLET STRUCTURE AND FLOW DISPERSAL DAM

SCALE: H=1:50 V=1:20



SECTION

PLAN VIEW

SEDIMENT TRAP ID	L (m)	W (m)	D (m)	GROUND ELEVATION AT LEVEL WEIR OVERFLOW(m)
101	20	10	2	146.40

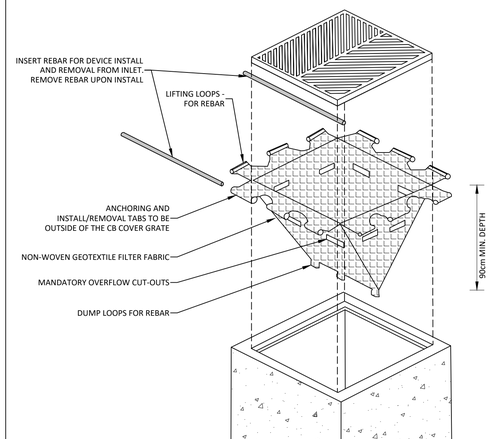
NOTES:

1. COLLECTED SEDIMENT TO BE REMOVED ONCE CAPACITY REACHES 50% OF DESIGNED CAPACITY.
2. FILTER SOCK LEVEL WEIR TO BE PLACED ON SMOOTHED SURFACE THAT IS LEVEL FROM SIDE TO SIDE (L DIMENSION)
3. TWO ROWS OF FILTER SOCK ARE REQUIRED AT LOCATIONS WHERE THE SEDIMENT TRAP DISCHARGES OFF-SITE ALONG SITE PERIMETERS. FILTER SOCK ROWS SEPARATED BY MIN 1 METRE OF OPEN GROUND.
4. SMOOTH OUT OR REMOVE ALL SURFACE OBSTRUCTIONS GREATER THAN 50mm FROM GROUND THE FILTER SOCK IS TO BE INSTALLED UPON.
5. ALL FILTER SOCK TO HAVE NATIVE MULCH FILL AND UV STABILIZED POLYPROPYLENE NETTING.
6. WHERE INSTALLED ON HIGHLY ERODIBLE SURFACES THE UPSLOPE SIDE OF THE FILTER SOCK BASE IS TO BE PACKED WITH A MIN 100mm OF NATIVE MULCH SOCK FILL MEDIA TO REDUCE POTENTIAL FOR SOCK UNDERMINING.

ALL DIMENSIONS ARE SHOWN IN MILLIMETRES UNLESS OTHERWISE SHOWN

TEMPORARY SEDIMENT TRAP WITH FILTER SOCK LEVEL WEIR ON HARD SURFACES

SCALE: N.T.S.



NOTES:

1. CATCHBASIN SEDIMENT CONTROL SILT SACK TO BE INSPECTED ONCE EVERY TWO WEEKS AND IMMEDIATELY AFTER EVERY RAINFALL EVENT >10mm WITHIN 24 HRS. AND CLEANED-OUT WHEN THE CATCHBASIN INSERT IS 50% FULL OF SEDIMENT OR WHEN EXPANSION RESTRAINT CORD IS NO LONGER VISIBLE. REPLACE SILT SACK WHEN DAMAGED.
2. STANDARD SIZE IS FOR 600MM X 600MM CATCHBASINS BUT AVAILABLE IN DIFFERENT AND CUSTOM SIZES (E.G., SUPER CATCHBASINS, LARGER DITCH INLET CB).
3. INSTALLATION TO OCCUR IMMEDIATELY (WITHIN 24 HRS) UPON CB GRATE BEING INSTALLED.
4. SUITABLE PRODUCTS: FERGUSON WATERWORKS ACF SILT SACK WITH OVERFLOW PRODUCT CODE: ACFSSRF2X2YOF (OR APPROVED EQUIVALENT)
5. CATCHBASIN SEDIMENT CONTROL SILT SACK TO BE EQUIPED WITH EXPANSION RESTRAINT CORD AND OVERFLOW CUT-OUTS/PORTS.
6. HINGED CB COVER GRATES MUST BE FULLY REMOVED TO INSTALL SILT SACK AND FILTER FABRIC UNDER THE HINGE PINS.

ALL DIMENSIONS ARE SHOWN IN MILLIMETRES UNLESS OTHERWISE SHOWN

CATCHBASIN TEMPORARY SEDIMENT CONTROL SILT SACK

SCALE: N.T.S.

REVISIONS				
No.	DESCRIPTION	DATE	BY	APPROVED

SCS consulting group ltd
30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475-1900
FAX: (905) 475-8335

TheCounty PRINCE EDWARD COUNTY • ONTARIO
332 PICTON MAIN STREET,
PICTON ON, K0K 2T0
TEL: 613.476.2148 EXT. 1023
TEL: 613.962.9108 EXT. 1023

PEC COMMUNITY PARTNERS INC.

BASE31 SUBDIVISION VILLAGE A - PHASE 1

EROSION & SEDIMENT CONTROL DETAILS

DATE:	DECEMBER 2025	DESIGNED BY:	A.T.	CHECKED BY:	J.S.S./C.C.
SCALE:	1:1000	DRAWN BY:	M.T.C.	CHECKED BY:	C.C./M.R.C.

APPROVED AS TO FORM IN RELIANCE UPON THE PROFESSIONAL SKILL AND ABILITY OF SCS CONSULTING GROUP LTD. CONSULTING ENGINEERS AS TO DESIGN AND SPECIFICATION.

Peter Moyer, P.Eng.
Director Of Development Services

Date

PROJECT No: 2365

DRAWING No: 703

GENERAL NOTES

1. THE OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY APPROVALS FROM THE MUNICIPALITY AND ANY REQUIRED EXTERNAL AGENCIES PRIOR TO ANY SITE ALTERATION ACTIVITY.

2. PRIOR TO COMMENCEMENT OF ANY SITE ALTERATION ACTIVITY, PERIMETER EROSION AND SEDIMENT CONTROL (ESC) MEASURES AND CONSTRUCTION ACCESS MAT(S) MUST BE INSTALLED, AS PER APPROVED SITE ALTERATION/EROSION AND SEDIMENT CONTROL PLAN. ADDITIONAL ESC MEASURES, IF REQUIRED, SHALL BE INSTALLED AS DIRECTED BY THE MUNICIPALITY. THE ESC MEASURES SHALL REMAIN IN PLACE UNTIL DIRECTED BY THE MUNICIPALITY/APPLICABLE AGENCIES/CIVIL CONSULTANT FOR THEIR REMOVAL.

3. PRIOR TO COMMENCEMENT OF OVERBURDEN REMOVAL AND EARTHWORKS, ALL PERIMETER EROSION AND SEDIMENT CONTROL (ESC) MEASURES (SUCH AS PERIMETER SEDIMENT CONTROL, CONSTRUCTION ACCESS MATS, MUST BE INSTALLED AND FUNCTIONING.

4. PRIOR TO EARTHWORKS OPERATIONS AND/OR AS DIRECTED BY THE CIVIL CONSULTANT, ALL SEDIMENT CONTROL MEASURES REQUIRED (SUCH AS ESC PONDS, SEDIMENT TRAPS, SWALES, AND CHECK DAMS, ETC.) MUST BE INSTALLED AND FUNCTIONING.

5. ALL TEMPORARY STOCKPILES TO BE LOCATED A MINIMUM OF 10m FROM ANY PROPERTY LINE AND A MINIMUM OF 30m FROM ANY WATERCOURSE.

6. CHECK DAMS ARE TO BE INSTALLED IN ALL SWALES AND DITCHES IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL DRAWINGS AND DETAILS DRAWING.

7. THE EROSION AND SEDIMENT CONTROL STRATEGIES OUTLINED ON THIS PLAN ARE NOT STATIC AND MAY NEED TO BE UPGRADED/AMENDED TO MINIMIZE RUN-OFF, EROSION, AND SEDIMENT FROM BREACHING THE PERIMETER OF THE SITE, AS A RESULT OF THE DYNAMIC NATURE OF CONSTRUCTION.

8. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL ESC MEASURES IN WORKING CONDITIONS AT ALL TIMES.

   a. THE CONTRACTOR AND/OR CIVIL CONSULTANT SHALL ROUTINELY INSPECT ALL ESC DEVICES AT A MINIMUM OF ONCE A WEEK AND AFTER EACH SIGNIFICANT SNOW MELT AND RAINFALL GREATER THAN 10mm TO ENSURE THAT ESC MEASURES ARE IN PROPER WORKING CONDITION. DURING INACTIVE PERIODS, WHERE THE SITE HAS LITTLE OR NO CONSTRUCTION ACTIVITY FOR 30 DAYS OR LONGER, A MONTHLY INSPECTION WILL BE CONDUCTED.

   b. ESC PERIMETER MEASURES THAT HAVE OR ARE LIKELY TO CAUSE A SEDIMENT BREACH ARE TO BE REPAIRED WITHIN 48 HOURS OF IDENTIFICATION. ALL OTHER DAMAGED OR MISSING ESC MEASURES WILL BE REPAIRED AS IDENTIFIED AS PER ESC INSPECTION REPORTS.

   c. CONTRACTOR TO ENSURE THAT ADDITIONAL EROSION AND SEDIMENT CONTROL MATERIALS (SUCH AS CLEAR STONE, FILTER FABRIC, PUMPS, HOSES, FILTER SOCKS, STAKES, SEDIMENT FILTER BAGS, CATCHBASIN SILT SACKS) ARE READILY AVAILABLE WITHIN 24 HOURS FROM OFF-SITE SECURE STORAGE TO FACILITATE THE COMPLETION OF REPAIRS WITHIN 48 HOURS.

   d. CONTRACTOR WILL BE RESPONSIBLE FOR CLEAN-UP AND RESTORATION, INCLUDING ALL COSTS, DUE TO THE RELEASE OF SEDIMENT FROM THE SITE CAUSED BY INCORRECTLY INSTALLED OR UN-REPLACED ESC MEASURES.

11. NO CONSTRUCTION ACTIVITY OR MACHINERY SHALL BE ALLOWED BEYOND THE PERIMETER SEDIMENT CONTROL MEASURES OR LIMITS OF THE LANDS OWNED BY THE APPLICANT WITHOUT WRITTEN AUTHORIZATION.

12. THE CONTRACTOR IS RESPONSIBLE TO IMPLEMENT DUST CONTROL MEASURES AS APPROVED BY THE APPLICABLE AGENCIES.

13. ALL CONSTRUCTION VEHICLES MUST ENTER AND EXIT THE SITE ONLY FROM THE APPROVED CONSTRUCTION ACCESS ROUTE(S) AS SHOWN. TEMPORARY CONSTRUCTION ACCESS(ES) WILL BE MAINTAINED TO THE SATISFACTION OF THE APPLICABLE AGENCIES. STREET SWEEPING TO BE COMPLETED AS REQUIRED.

14. SURFACE ROUGHENING TO TAKE PLACE ON ALL EXPOSED SOIL SLOPES (WHEN POSSIBLE), AND ON ANY OTHER INACTIVE DISTURBED SURFACES THAT WILL BE LEFT EXPOSED ON A TEMPORARY BASIS. SURFACE ROUGHENING TO BE ACHIEVED BY TRACKWALKING PARALLEL TO THE DIRECTION OF FLOW OR PREFERABLY WITH A SHEEPSFOOT PACKER.

15. ALL DISTURBED GROUND LEFT INACTIVE, OR TO BE LEFT INACTIVE WHICH IS NOT DIRECTED TO A TEMPORARY EROSION AND SEDIMENT CONTROL MEASURE SHALL BE STABILIZED WITHIN 72 HOURS, SUBJECT TO WEATHER CONDITIONS..

16. CONTRACTOR TO CONFIRM THE LOCATION OF THE EXISTING UTILITIES PRIOR TO INITIATING ANY ON-SITE WORKS.

17. TREES ARE TO BE PRESERVED OR REMOVED AS PER THE APPROVED TREE PRESERVATION PLAN.TREE RELOCATIONS WILL TAKE PLACE BEFORE STRIPPING COMMENCES.

18. CONTRACTOR TO ENSURE THAT SEDIMENT LADEN RUNOFF IS DIRECTED TO APPROPRIATE ESC CONTROLS THROUGHOUT THE STAGED CONSTRUCTION PROCESS, INCLUDING TRANSITIONAL WORKS BETWEEN STAGES.

19. ALL ACTIVITIES, INCLUDING MAINTENANCE PROCEDURES, WILL BE CONTROLLED TO PREVENT THE ENTRY OF PETROLEUM PRODUCTS, DEBRIS, RUBBLE, CONCRETE OR OTHER DELETERIOUS SUBSTANCES INTO THE DOWNSTREAM WATERCOURSE/WATERBODY/ENVIRONMENT/STORM SEWER/ETC. REFUELING AND MAINTENANCE WILL BE CONDUCTED 30 m FROM ANY WATERCOURSE/WATERBODY/NATURAL FEATURE/SENSITIVE HABITAT/STORM SEWER/ETC.

20. ANY DEWATERING / UNWATERING OCCURRING ON-SITE MUST BE IN ACCORDANCE WITH AN APPROVED PLAN. PUMPING MUST BE TO SEDIMENT FILTER BAGS PLACED ON NON-ERODIBLE SURFACE OR VEGETATED GROUND. FILTER SOCK TO SURROUND FILTER BAG. ADDITIONAL DEWATERING / UNWATERING REQUIREMENTS MAY BE DEEMED NECESSARY AND SHALL BE IMPLEMENTED AS DIRECTED TO THE SATISFACTION OF THE APPLICABLE AGENCIES.

21. AN APPROVED SPILLS MANAGEMENT PLAN IS TO BE KEPT ON-SITE. SPILL CLEANUP EQUIPMENT, SUCH AS ABSORPTIVE MEDIA, IS TO BE MAINTAINED ON-SITE FOR IMMEDIATE USE IN THE EVENT OF A SPILL. SPILLS ARE TO BE REPORTED IMMEDIATELY TO THE MECP SPILLS ACTION CENTRE (SAC) AT 1-800-268-6060.

22. FOR EROSION AND SEDIMENT CONTROL RELATED QUESTIONS AND CONCERNS CONTACT SCS CONSULTING GROUP AT (905) 475-1900.

ESC STAGE 1 - TOPSOIL STRIPPING/SITE PREPARATION/ETC. NOTES

1. SEDIMENT COLLECTED IN THE TEMPORARY SEDIMENT TRAP(S) SHALL BE REMOVED WHEN 50% OF THE STORAGE CAPACITY IS FILLED. THE TRAP(S) SHALL BE KEPT IN OPERATION UNTIL THE DRAINAGE AREA IS REDUCED TO 0.5 ha OR LESS.

2. SEDIMENT COLLECTED / ACCUMULATED AGAINST FILTER SOCKS AND CHECK DAMS MUST BE REMOVED AND/OR THE ESC MEASURE RESET ONCE SEDIMENT REACHES 50% OF THE FILTER SOCK OR CHECK DAM HEIGHT.

3. SEDIMENT COLLECTED / ACCUMULATED AGAINST SILT FENCE MUST BE REMOVED ONCE SEDIMENT REACHES 30% OF THE GEOTEXTILE HEIGHT. CLOGGED AND HEAVILY SEDIMENT-STAINED SILT FENCE GEOTEXTILE MUST BE REPLACED ONCE THE LOWER HALF OF THE GEOTEXTILE IS NO LONGER ABLE TO ALLOW RUNOFF TO FILTER THROUGH THE FABRIC.

4. SEDIMENT COLLECTED IN THE ESC POND(S) SHALL BE REMOVED WHEN 50% OF THE STORAGE CAPACITY IS FILLED.

5. STABILIZE ALL EXTERNAL POND SIDE SLOPES AND INTERNAL POND SLOPES ABOVE THE NORMAL WATER LEVEL WITH HYDRAULICALLY-APPLIED EROSION CONTROL PRODUCT (HECP) USING FIBRE REINFORCED MATRIX (FRM) (PROFILE FLEXTERRA HP-FGM OR APPROVED EQUIVALENT) AND COVER CROP SEED MIX WITHIN 48 HOURS FOLLOWING ESC POND CONSTRUCTION.

6. CONTRACTOR TO COORDINATE WITH CIVIL CONSULTANT TO EXPLORE THE POSSIBILITY OF A STAGED STRIPPING AND EARTHWORKS APPROACH TO MINIMIZE THE AREA DISTURBED AT ONE TIME.

ESC STAGE 1 - OOVERBURDEN REMOVAL AND EARTHWORKS

1. SEDIMENT COLLECTED IN THE TEMPORARY SEDIMENT TRAP(S) SHALL BE REMOVED WHEN 50% OF THE STORAGE CAPACITY IS FILLED. THE TRAP(S) SHALL BE KEPT IN OPERATION UNTIL THE DRAINAGE AREA IS REDUCED TO 0.5 ha OR LESS.

2. SEDIMENT COLLECTED / ACCUMULATED AGAINST FILTER SOCKS AND CHECK DAMS MUST BE REMOVED AND/OR THE ESC MEASURE RESET ONCE SEDIMENT REACHES 50% OF THE FILTER SOCK OR CHECK DAM HEIGHT.

3. SEDIMENT COLLECTED / ACCUMULATED AGAINST SILT FENCE MUST BE REMOVED ONCE SEDIMENT REACHES 30% OF THE GEOTEXTILE HEIGHT. CLOGGED AND HEAVILY SEDIMENT-STAINED SILT FENCE GEOTEXTILE MUST BE REPLACED ONCE THE LOWER HALF OF THE GEOTEXTILE IS NO LONGER ABLE TO ALLOW RUNOFF TO FILTER THROUGH THE FABRIC.

4. SEDIMENT COLLECTED IN THE ESC PONDS SHALL BE REMOVED WHEN 50% OF THE STORAGE CAPACITY IS FILLED.

5. STABILIZE ALL EXTERNAL POND SIDE SLOPES AND INTERNAL POND SLOPES ABOVE THE NORMAL WATER LEVEL WITH HYDRAULICALLY-APPLIED EROSION CONTROL PRODUCT (HECP) USING FIBRE REINFORCED MATRIX (FRM) (PROFILE FLEXTERRA HP-FGM OR APPROVED EQUIVALENT) AND COVER CROP SEED MIX WITHIN 48 HOURS FOLLOWING ESC POND CONSTRUCTION.

6. CONTRACTOR TO COORDINATE WITH CIVIL CONSULTANT TO EXPLORE THE POSSIBILITY OF A STAGED STRIPPING AND EARTHWORKS APPROACH TO MINIMIZE THE AREA DISTURBED AT ONE TIME.

7. CROP SEED MIXTURE IS TO BE APPLIED AT A MINIMUM RATE OF 60 kg/ha.

ESC STAGE 2 - UNDERGROUND SERVICING, ROADWORS AND HOUSE CONSTRUCTION

1. CATCHBASIN SEDIMENT CONTROL DEVICES (SILT SACKS AND/OR FILTER SOCKS). FOR STREET CATCHBASINS TO BE INSTALLED IMMEDIATELY AFTER BASE ASPHALT (REFER TO ESC DETAILS DRAWING.

2. SEDIMENT COLLECTED IN THE TEMPORARY ESC POND(S) SHALL BE REMOVED WHEN 50% OF THE STORAGE CAPACITY IS FILLED.

2. STABILIZE ALL EXTERNAL POND SIDE SLOPES AND INTERNAL POND SLOPES ABOVE THE NORMAL WATER LEVEL WITH HYDRAULICALLY-APPLIED EROSION CONTROL PRODUCT (HECP) USING FIBRE REINFORCED MATRIX (FRM) (PROFILE FLEXTERRA HP-FGM OR APPROVED EQUIVALENT) AND COVER CROP SEED MIX WITHIN 48 HOURS FOLLOWING ESC POND CONSTRUCTION.

3. SEDIMENT COLLECTED IN THE TEMPORARY SEDIMENT TRAP(S) SHALL BE REMOVED WHEN 50% OF THE STORAGE CAPACITY IS FILLED. THE TRAP(S) SHALL BE KEPT IN OPERATION UNTIL THE DRAINAGE AREA IS REDUCED TO 0.5 ha OR LESS.

4. REAR LOT CATCHBASIN (RLCB) SEDIMENT CONTROLS (SILT SACKS AND/OR FILTER SOCKS) TO BE INSTALLED IMMEDIATELY FOLLOWING RLCB INSTALLATION. REFER TO ESC DETAILS DRAWING.

5. EXTRA CATCHBASIN SILT SACKS AND FILTER CLOTH ARE TO BE AVAILABLE ON-SITE OR FROM AN OFF-SITE SECURE STORAGE AREA, AS REQUIRED.

6. ALL PERFORATED STORM SEWER MH COVERS TO HAVE FILTER CLOTH INSTALLED UNDERNEATH THE COVER.

7. STREET SWEEPING/CATCHBASIN CLEANING PROGRAM SHALL BE IMPLEMENTED TO THE SATISFACTION OF THE MUNICIPALITY. THIS SHALL BE THE RESPONSIBILITY OF THE DEVELOPER UNTIL ASSUMPTION.

8. TEMPORARY ESC POND(S) TO REMAIN IN PLACE UNTIL AFTER THE MAJORITY OF SEWERS AND ROADS ARE COMPLETE OR UPSTREAM DRAINAGE AREA IS STABILIZED OR REDUCED TO 0.5 ha OR SMALLER. AFTER WHICH TIME ESC POND(S) TO BE DECOMMISSIONED IN THE FOLLOWING MANNER:

FOR CONVERSION TO ULTIMATE SWM POND:

A. CONFIRM WEATHER FORECAST TO ENSURE DRY CONDITIONS.
B. CONFIRM PUMP DISCHARGE LOCATION AND PUMPING SCHEDULE WITH CIVIL CONSULTANT PRIOR TO INITIATING PUMPING.
C. PUMP WATER FROM TEMPORARY ESC POND(S) TO SEDIMENT FILTER BAGS PLACED WITHIN VEGETATED AREA, ENCIRCLED WITH FILTER SOCKS, AND AS FAR FROM OUTLET TO MARSH CREEK AS POSSIBLE, WHILE STILL ENSURING POSITIVE DRAINAGE AWAY FROM SITE.
D. CONTRACTOR TO MONITOR DISCHARGE THROUGHOUT PUMPING OPERATION.
E. CONTRACTOR TO ENSURE ADEQUATE AMOUNT OF SPARE FILTER BAGS ARE STORED ON-SITE OR FROM AN OFF-SITE SECURE STORAGE AREA.
F. FINALIZE GRADING OF ULTIMATE SWM POND AND INSTALL ULTIMATE INFRASTRUCTURE.
G. POND BANKS ABOVE NORMAL WATER LEVEL TO BE STABILIZED AS PER SWM POND LANDSCAPE DRAWINGS AND DETAILS.

FOR FULL REMOVAL:

A. CONFIRM WEATHER FORECAST TO ENSURE DRY CONDITIONS.

B. CONFIRM PUMP DISCHARGE LOCATION AND PUMPING SCHEDULE WITH CIVIL CONSULTANT PRIOR TO INITIATING PUMPING.
C. PUMP WATER FROM TEMPORARY ESC POND(S) TO SEDIMENT FILTER BAGS PLACED WITHIN VEGETATED AREA, ENCIRCLED WITH FILTER SOCKS, AND AS FAR FROM MARSH CREEK AS POSSIBLE, WHILE STILL ENSURING POSITIVE DRAINAGE AWAY FROM SITE.
D. CONTRACTOR TO MONITOR DISCHARGE THROUGHOUT PUMPING OPERATION.
E. CONTRACTOR TO ENSURE ADEQUATE AMOUNT OF SPARE FILTER BAGS ARE STORED ON-SITE OR FROM AN OFF-SITE SECURE STORAGE AREA.
F. BACKFILL TEMPORARY ESC POND(S) WITH ENGINEERED FILL PER GEOTECHTECHNICAL RECOMMENDATION.
G. AREA TO BE STABILIZED.

7. TEMPORARY SEDIMENT TRAP TO REMAIN UNTIL SEWERS ARE INSTALLED AND/OR DRAINAGE AREA TO TEMPORARY SEDIMENT TRAP SIGNIFICANTLY REDUCED, AND/OR STABILIZED. TEMPORARY SEDIMENT CONTROL MEASURES (E.G., FILTER SOCK, CHECK DAMS) TO BE INSTALLED FOLLOWING REMOVAL OF SEDIMENT TRAP AS REQUIRED. TEMPORARY SEDIMENT TRAP(S) TO BE DECOMMISSIONED IN THE FOLLOWING MANNER:

A. CONFIRM WEATHER FORECAST TO ENSURE DRY CONDITIONS.
B. CONFIRM PUMP DISCHARGE LOCATION AND PUMPING SCHEDULE WITH CIVIL CONSULTANT PRIOR TO INITIATING PUMPING.
C. PUMP WATER FROM TEMPORARY SEDIMENT TRAP(S) TO SEDIMENT FILTER BAGS PLACED WITHIN VEGETATED AREA, ENCIRCLED WITH FILTER SOCKS, AND AS FAR FROM WATERCOURSE AS POSSIBLE, WHILE STILL ENSURING POSITIVE DRAINAGE AWAY FROM SITE.
D. CONTRACTOR TO MONITOR DISCHARGE THROUGHOUT PUMPING OPERATION.
E. CONTRACTOR TO ENSURE ADEQUATE AMOUNT OF SPARE FILTER BAGS ARE STORED ON-SITE OR FROM AN OFF-SITE SECURE STORAGE AREA.
F. BACKFILL TEMPORARY ESC POND(S) WITH ENGINEERED FILL PER GEOTECHTECHNICAL RECOMMENDATION.
G. AREA TO BE STABILIZED.

8. EXTRA CATCHBASIN SILT SACKS AND FILTER CLOTH ARE TO BE AVAILABLE ON-SITE OR FROM AN OFF-SITE SECURE STORAGE AREA, AS REQUIRED.

REVISIONS

No.	DESCRIPTION	DATE	BY	APPROVED

SCS consulting group ltd
30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475-1900
FAX: (905) 475-8335

TheCounty
PRINCE EDWARD COUNTY • ONTARIO
332 PICTON MAIN STREET,
PICTON ON, K0K 2T0
TEL: 613.476.2148 EXT. 1023
TEL: 613.962.9108 EXT. 1023

PEC COMMUNITY PARTNERS INC.

BASE31 SUBDIVISION VILLAGE A - PHASE 1

EROSION & SEDIMENT CONTROL NOTES

DATE:	DECEMBER 2025	DESIGNED BY:	A.T.	CHECKED BY:	J.S.S./C.C.
SCALE:	1:1000	DRAWN BY:	M.T.C.	CHECKED BY:	C.C./M.R.C.

APPROVED AS TO FORM IN RELIANCE UPON THE PROFESSIONAL SKILL AND ABILITY OF SCS CONSULTING GROUP LTD. CONSULTING ENGINEERS AS TO DESIGN AND SPECIFICATION.

Peter Moyer, P.Eng.
Director Of Development Services

Date

PROJECT No: 2365

DRAWING No: 704

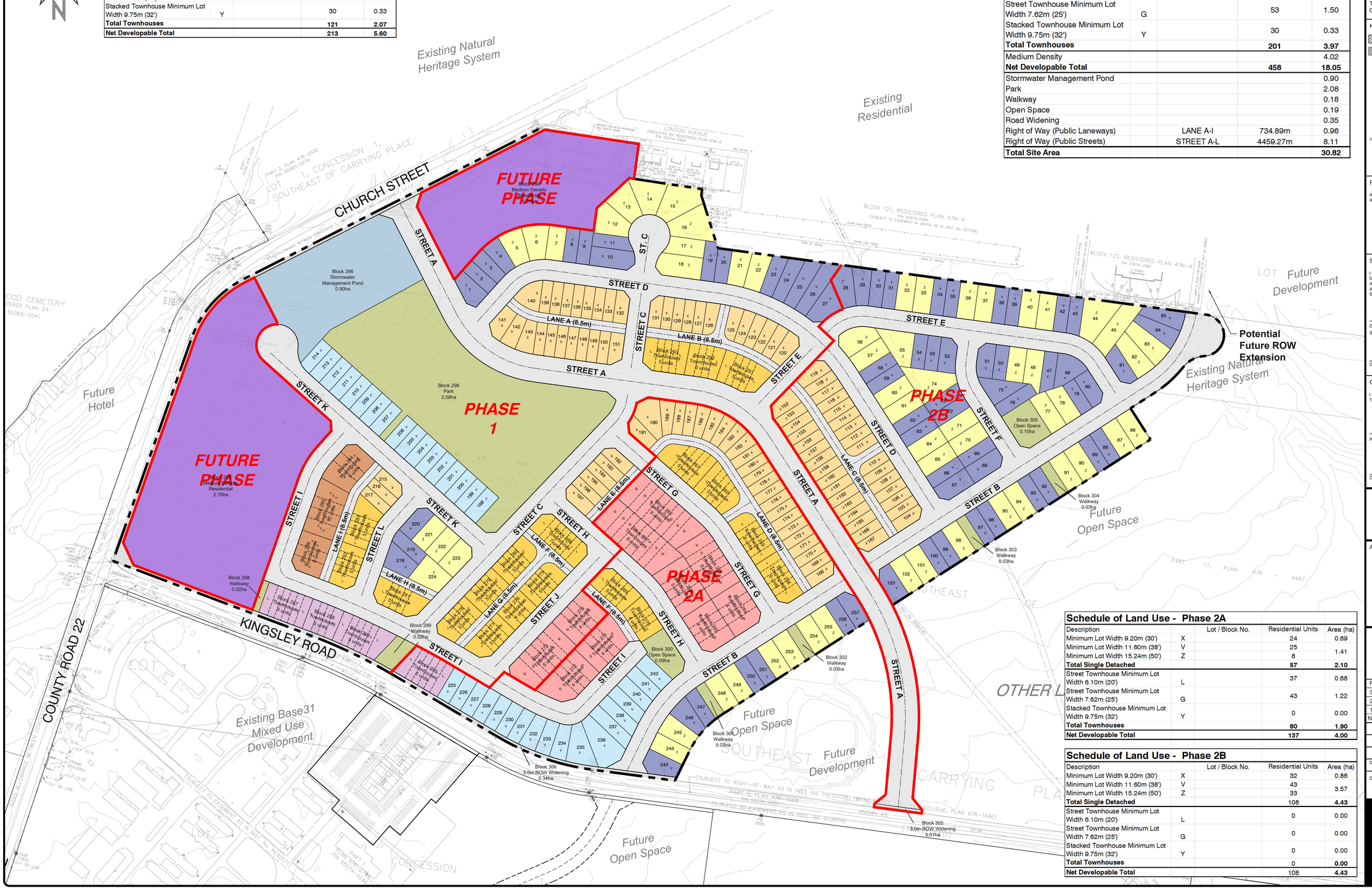
Appendix A Draft Plan

Schedule of Land Use - Phase 1

Description		Lot / Block No.	Residential Units	Area (ha)
Minimum Lot Width 9.20m (30')	X		41	1.18
Minimum Lot Width 11.60m (38')	V		35	2.35
Minimum Lot Width 15.24m (50')	Z		16	
Total Single Detached			**92**	**3.53**
Street Townhouse Minimum Lot Width 6.10m (20')	L		81	1.46
Street Townhouse Minimum Lot Width 7.62m (25')	G		10	0.28
Stacked Townhouse Minimum Lot Width 9.75m (32')	Y		30	0.33
Total Townhouses			**121**	**2.07**
Net Developable Total			**213**	**5.60**

Schedule of Land Use

Description		Lot / Block No.	Residential Units	Area (ha)
Minimum Lot Width 9.20m (30')	X		97	2.73
Minimum Lot Width 11.60m (38')	V		103	7.33
Minimum Lot Width 15.24m (50')	Z		57	
Total Single Detached			**257**	**10.06**
Street Townhouse Minimum Lot Width 6.10m (20')	L		118	2.14
Street Townhouse Minimum Lot Width 7.62m (25')	G		53	1.50
Stacked Townhouse Minimum Lot Width 9.75m (32')	Y		30	0.33
Total Townhouses			**201**	**3.97**
Medium Density				4.02
Net Developable Total			**458**	**18.05**
Stormwater Management Pond				0.90
Park				2.08
Walkway				0.18
Open Space				0.19
Road Widening				0.35
Right of Way (Public Laneways)		LANE A-I	734.89m	0.96
Right of Way (Public Streets)		STREET A-L	4459.27m	8.11
Total Site Area				**30.82**



Schedule of Land Use - Phase 2A

Description		Lot / Block No.	Residential Units	Area (ha)
Minimum Lot Width 9.20m (30')	X		24	0.69
Minimum Lot Width 11.60m (38')	V		25	1.41
Minimum Lot Width 15.24m (50')	Z		8	
Total Single Detached			**57**	**2.10**
Street Townhouse Minimum Lot Width 6.10m (20')	L		37	0.68
Street Townhouse Minimum Lot Width 7.62m (25')	G		43	1.22
Stacked Townhouse Minimum Lot Width 9.75m (32')	Y		0	0.00
Total Townhouses			**80**	**1.90**
Net Developable Total			**137**	**4.00**

Schedule of Land Use - Phase 2B

Description		Lot / Block No.	Residential Units	Area (ha)
Minimum Lot Width 9.20m (30')	X		32	0.86
Minimum Lot Width 11.60m (38')	V		43	3.57
Minimum Lot Width 15.24m (50')	Z		33	
Total Single Detached			108	**4.43**
Street Townhouse Minimum Lot Width 6.10m (20')	L		0	0.00
Street Townhouse Minimum Lot Width 7.62m (25')	G		0	0.00
Stacked Townhouse Minimum Lot Width 9.75m (32')	Y		0	0.00
Total Townhouses			0	**0.00**
Net Developable Total			108	**4.43**

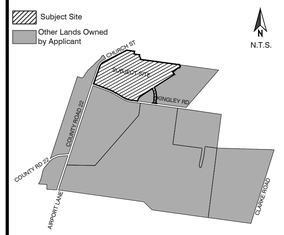
TITLE:

DRAFT PLAN OF SUBDIVISION

LEGAL DESCRIPTION:

PART OF LOTS 1 AND 2
CONCESSION 1
SOUTHEAST OF CARRYING PLACE
TOWNSHIP OF HALLOWELL
COUNTY OF PRINCE EDWARD

KEY PLAN:



REQUIRED INFORMATION:

AS REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT R.S.O. 1990.

(a) SEE PLAN
(b) SEE PLAN
(c) SEE KEY MAP
(d) SEE SCHEDULE OF LAND USE
(e) SEE PLAN
(f) SEE PLAN
(g) SEE PLAN
(h) PIPED WATER TO BE PROVIDED
(i) SILTY SAND, GRAVEL, SAND
(j) SEE PLAN
(k) SANITARY & STORM SEWERS TO BE PROVIDED
(l) SEE PLAN
NOTE: CONTOURS RELATE TO CANADIAN GEODETIC DATUM

SURVEYOR'S CERTIFICATE:

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATE AND CORRECTLY SHOWN IN ACCORDANCE WITH A PLAN OF SURVEY PREPARED BY SCHAEFFER DZALDOV BENNETT LTD.

DAN DZALDOV O.L.S.
SCHAEFFER DZALDOV BENNETT LTD.

DATE

OWNER'S CERTIFICATE:

I HEREBY AUTHORIZE THE BIGLIERI GROUP LTD. TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE COUNTY OF PRINCE EDWARD

PEC COMMUNITY PARTNERS INC

DATE

BASE31-VILLAGE A

APPROVAL STAMP:

PEC COMMUNITY PARTNERS INC.

REVISIONS

No.	Description	Date	Int.
3			
2			
1	REVISED PER 1ST SUBMISSION COMMENTS	25/08/12	MP

PROJECT No.: 21730
DATE: August 15, 2024
SCALE: 1:1500
DRAFTED BY: MP
CHECKED BY: MP
DRAWING No.: **DP-01**

BIGLIERI GROUP
2472 Kingston Rd, Scarborough
21 King Street W, Suite 1502, Hamilton
(416) 693-9155
thebiglierigroup.com

C:\Users\MPetitjean\The Biglieri Group\TBG Project - 2022-2024\2021\21730-2 TBG Working Drawings\1 - AutoCAD\2025-08\21730_DP_Village A_2025.08.12

Appendix B Background Information and Relevant Excerpts



Appendix B1 Geotechnical & Hydrogeological Studies

SCS consulting group ltd

Brockie, Ryan

From: Rafael Abdulla <rafael.abdulla@gemtec.ca>
Sent: October 31, 2025 10:58 AM
To: Brockie, Ryan
Cc: Susan Vodden; Dale Edwards; Timi Olumuyiwa; Risi, Julia; Alexandra De Gasperis; Christopher Marchese; Keeping, Andrea; Costa, Cosimo
Subject: RE: 103306.002 Village A, Picton - SWM Facility Recommendations
Attachments: 2365P-6.1-VLGA-POND.pdf

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Hi Ryan,

Based on our review of the SWM Pond 1 drawing provided, the SWM pond invert will be at Elevation 139.7m and in the forebay the invert will be Elevation 139.0m. The normal water level is indicated at Elevation 140m.

The groundwater levels in the monitoring well at BH24-17 ranged from Elevations 137.0m to 138.1m (provided in the Hydrogeological Report dated September 12, 2025, showing that the groundwater table level drops to the southeast).

Based on the groundwater levels measured at BH24-17, the invert of the pond will be above the ground water level by about 1.6 m to 2.7 m. As indicated in the geotechnical report, the face of the SWM pond slope will consist of bedrock and engineered fill for the berm constructions. As a result, a pond liner is not needed.

Please note:

- If interaction between the water stored in the pond and the ground water is acceptable, the SWM pond design should account for loss of stormwater through the bedrock fractures.
- If interaction between the water stored in the pond and the ground water is not permitted, a GCL would have to be considered to cover the exposed bedrock and up to 0.3 m above the normal water level.

The side slopes of 10H:1V below the NWL, 5H:1V and 3H:1V above the NWL are acceptable. The side slope should be in accordance with MECP's Stormwater Management Planning and Design Manual, Table 4.6.
https://www.ontario.ca/document/stormwater-management-planning-and-design-manual-0/stormwater-management-plan-and-swmp

Regards,
Rafael

GEMTEC
Consulting Engineers and Scientists
Rafael Abdulla, M.Eng., P.Eng., PMP
Senior Geotechnical Engineer
Oshawa, ON
T: (289)-274-8476 | **M:** (647)-637-7480
www.gemtec.ca

From: Brockie, Ryan <rbrockie@scsconsultinggroup.com>
Sent: Thursday, October 30, 2025 10:53 AM
To: Dale Edwards <dale.edwards@gemtec.ca>
Cc: Risi, Julia <jlrisi@scsconsultinggroup.com>; alexandra@decocommunities.ca; Susan Vodden <susan.vodden@gemtec.ca>; Alysha Finigan <alysha.finigan@gemtec.ca>; Rafael Abdulla <rafael.abdulla@gemtec.ca>; cmarchese@decocommunities.ca; Keeping, Andrea <akeeping@scsconsultinggroup.com>; Costa, Cosimo <ccosta@scsconsultinggroup.com>
Subject: RE: 103306.002 Village A, Picton - SWM Facility Recommendations

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Hi Dale,

As we move into the detailed design of the SWM Facility servicing Village A in Picton, we wanted to coordinate our SWM Facility design and your geotechnical recommendations as they relate to liners, side slopes, bed rock etc.

See attached the figure illustrating the SWM Facility design prepared through the FSSR.

The design will be refined through detailed design but inverts and pond configuration should stay generally the same, are you able to update your recommendations accordingly?

Let me know if a meeting to discuss further would be helpful!

Thanks,
Ryan

Ryan Brockie, P.Eng.

SCS consulting group ltd
Land Development Consultants

905 475 1900 *x2483*

30 Centurian Drive, Suite 100,
Markham, ON, L3R 8B8

rbrockie@scsconsultinggroup.com

CELEBRATING 20 YEARS

From: Dale Edwards <dale.edwards@gemtec.ca>
Sent: September 5, 2024 3:24 PM
To: cmarchese@decocommunities.ca
Cc: Shepherd, Emma <eshepherd@scsconsultinggroup.com>; Risi, Julia <jlrisi@scsconsultinggroup.com>; alexandra@decocommunities.ca; Susan Vodden <susan.vodden@gemtec.ca>; Alysha Finigan

<alysha.finigan@gemtec.ca>; Rafael Abdulla <rafael.abdulla@gemtec.ca>
Subject: 103306.002 Village A, Picton - Draft Geotechnical Report

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Chris

As requested, please see the attached DRAFT Geotechnical report. Note that I am copying in the SCS Team for their reference as well.

Please review and if you have any questions let Rafael (copied) or me know. We are happy to finalize once review and comments (if any) are received.

Cheers,

GEMTEC
Consulting Engineers and Scientists

Dale Edwards, C.Tech.
Branch Manager - Oshawa
Oshawa, ON
905.260.0851 | www.gemtec.ca

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Brockie, Ryan

From: Rafael Abdulla <rafael.abdulla@gemtec.ca>
Sent: November 24, 2025 2:15 PM
To: Brockie, Ryan
Cc: Susan Vodden; Dale Edwards; Timi Olumuyiwa; Risi, Julia; Alexandra De Gasperis; Christopher Marchese; Keeping, Andrea; Costa, Cosimo
Subject: RE: 103306.002 Village A, Picton - SWM Facility Recommendations

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Hi Ryan,

From subgrade up:

- About 150mm SSM (sand) bedding – levelling and to protect the GCL from puncture from anything in the subgrade
- GCL
- 300mm engineered fill, native soil or granular material (19mm or less). I am not sure about the cover material being topsoil if it will be underwater. Ideally a warning blanket should be placed at the midpoint of the cover to provide warning in case of excavation during pond cleaning or sometimes the cover depth can be increased to 600mm. This is a decision that is based on protection of the GCL during maintenance work.

Thanks
Rafael

GEMTEC
Consulting Engineers and Scientists

Rafael Abdulla, M.Eng., P.Eng., PMP
Senior Geotechnical Engineer
1100 Bennett Road, Unit 4
Bowmanville, ON, L1C 0Y7
T: (289)-274-8476 | **M:** (647)-637-7480
www.gemtec.ca

From: Brockie, Ryan <rbrockie@scsconsultinggroup.com>
Sent: November 21, 2025 11:17 AM
To: Rafael Abdulla <rafael.abdulla@gemtec.ca>
Cc: Susan Vodden <susan.vodden@gemtec.ca>; Dale Edwards <dale.edwards@gemtec.ca>; Timi Olumuyiwa <timi.olumuyiwa@gemtec.ca>; Risi, Julia <jlrisi@scsconsultinggroup.com>; Alexandra De Gasperis <alexandra@decocommunities.ca>; Christopher Marchese <cmarchese@decocommunities.ca>; Keeping, Andrea <akeeping@scsconsultinggroup.com>; Costa, Cosimo <ccosta@scsconsultinggroup.com>
Subject: RE: 103306.002 Village A, Picton - SWM Facility Recommendations

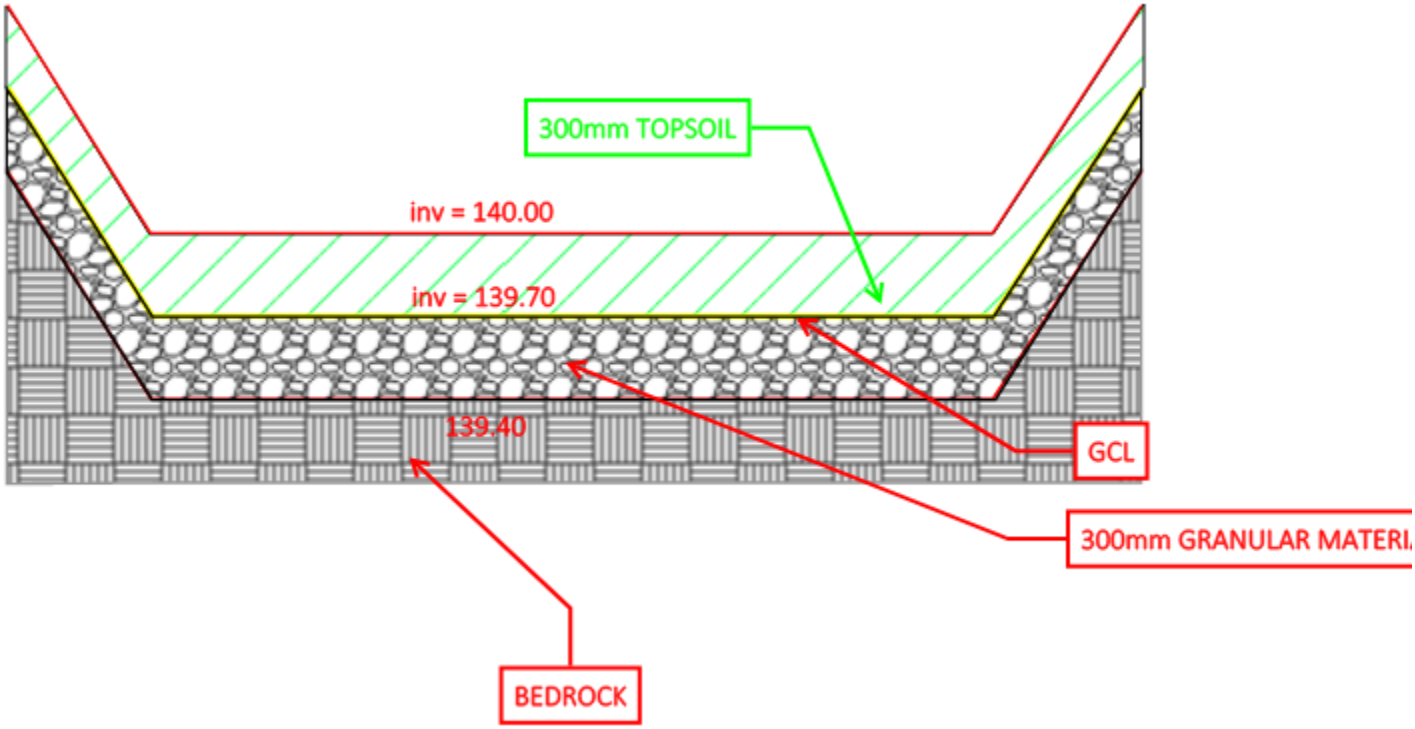
Hi Rafael,

Yes, that would be much appreciated, we will continue to provide the updated SWM Pond drawings as they become available to coordinate with your memo.

I will keep you posted with any updates we may have.

And just to make sure I understand the recommendations, I have prepared a quick sketch below showing:

- 300 mm of topsoil
- The GCL
- 300 mm of granular to protect the liner from potential puncture from the jagged bedrock, is there anyway to reduce this?



Let me know!

Thanks,
Ryan

Ryan Brockie, P.Eng.

SCS consulting group ltd
Land Development Consultants

905 475 1900 *x2483*

30 Centurian Drive, Suite 100,
Markham, ON, L3R 8B8

rbrockie@scsconsultinggroup.com

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From: Rafael Abdulla <rafael.abdulla@gemtec.ca>
Sent: November 18, 2025 7:34 AM
To: Brockie, Ryan <rbrockie@scsconsultinggroup.com>
Cc: Susan Vodden <susan.vodden@gemtec.ca>; Dale Edwards <dale.edwards@gemtec.ca>; Timi Olumuyiwa <timi.olumuyiwa@gemtec.ca>; Risi, Julia <jlrisi@scsconsultinggroup.com>; Alexandra De Gasperis <alexandra@decocommunities.ca>; Christopher Marchese <cmarchese@decocommunities.ca>; Keeping, Andrea <akeeping@scsconsultinggroup.com>; Costa, Cosimo <ccosta@scsconsultinggroup.com>
Subject: RE: 103306.002 Village A, Picton - SWM Facility Recommendations

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Hi Ryan,

Further to our call yesterday and the email from Stefania, it seems that any vegetation will be limited to shrubs and other small plants. In that case as we discussed, the GCL will just need a minimum 300m of soil cover. Some manufactures also recommend min 600mm to protect the GCL from damage during maintenance.

Let me know if you would like us to prepare the memo while you are working on the final design.

Thanks
Rafael

GEMTEC
Consulting Engineers and Scientists

Rafael Abdulla, M.Eng., P.Eng., PMP
Senior Geotechnical Engineer
1100 Bennett Road, Unit 4
Bowmanville, ON, L1C 0Y7
T: (289)-274-8476 | **M:** (647)-637-7480
www.gemtec.ca

From: Brockie, Ryan <rbrockie@scsconsultinggroup.com>
Sent: November 17, 2025 8:05 AM
To: Rafael Abdulla <rafael.abdulla@gemtec.ca>
Cc: Susan Vodden <susan.vodden@gemtec.ca>; Dale Edwards <dale.edwards@gemtec.ca>; Timi Olumuyiwa <timi.olumuyiwa@gemtec.ca>; Risi, Julia <jlrisi@scsconsultinggroup.com>; Alexandra De Gasperis <alexandra@decocommunities.ca>; Christopher Marchese <cmarchese@decocommunities.ca>; Keeping, Andrea <akeeping@scsconsultinggroup.com>; Costa, Cosimo <ccosta@scsconsultinggroup.com>
Subject: RE: 103306.002 Village A, Picton - SWM Facility Recommendations

Hi Rafael,

What would the required protection depths for the GCL with reinforced HDPE be?

With respect to the root depths, we would have to coordinate with the landscape architect.

Thanks,
Ryan

Ryan Brockie, P.Eng.

SCS consulting group ltd
Land Development Consultants

905 475 1900 *x2483*

30 Centurian Drive, Suite 100,
Markham, ON, L3R 8B8

rbrockie@scsconsultinggroup.com

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From: Rafael Abdulla <rafael.abdulla@gemtec.ca>
Sent: November 11, 2025 9:41 AM
To: Brockie, Ryan <rbrockie@scsconsultinggroup.com>
Cc: Susan Vodden <susan.vodden@gemtec.ca>; Dale Edwards <dale.edwards@gemtec.ca>; Timi Olumuyiwa <timi.olumuyiwa@gemtec.ca>; Risi, Julia <jlrisi@scsconsultinggroup.com>; Alexandra De Gasperis <alexandra@decocommunities.ca>; Christopher Marchese <cmarchese@decocommunities.ca>; Keeping, Andrea <akeeping@scsconsultinggroup.com>; Costa, Cosimo <ccosta@scsconsultinggroup.com>
Subject: RE: 103306.002 Village A, Picton - SWM Facility Recommendations

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It seems there are also GCL reinforced with HDPE membranes or laminated geofilms, as well.

Rafael

GEMTEC
Consulting Engineers and Scientists

Rafael Abdulla, M.Eng., P.Eng., PMP
Senior Geotechnical Engineer
1100 Bennett Road, Unit 4
Bowmanville, ON, L1C 0Y7
T: (289)-274-8476 | **M:** (647)-637-7480
www.gemtec.ca

From: Rafael Abdulla
Sent: November 11, 2025 9:39 AM
To: 'Brockie, Ryan' <rbrockie@scsconsultinggroup.com>
Cc: Susan Vodden <susan.vodden@gemtec.ca>; Dale Edwards <dale.edwards@gemtec.ca>; Timi Olumuyiwa <timi.olumuyiwa@gemtec.ca>; Risi, Julia <jlrisi@scsconsultinggroup.com>; Alexandra De Gasperis <alexandra@decocommunities.ca>; Christopher Marchese <cmarchese@decocommunities.ca>; Keeping, Andrea <akeeping@scsconsultinggroup.com>; Costa, Cosimo <ccosta@scsconsultinggroup.com>
Subject: RE: 103306.002 Village A, Picton - SWM Facility Recommendations

Hi Ryan,

Yes, the plan roots can puncture the GCL, so it would have to be a clay liner instead. Alternatively, a GCL with a certain thickness of clay above it to protect it can work. Depends on the root penetration.

Do you have any idea what kind of vegetation will be promoted and the root penetration depths?

Let me ask around to get a second opinion.

Thanks
Rafael

GEMTEC
Consulting Engineers and Scientists

Rafael Abdulla, M.Eng., P.Eng., PMP
Senior Geotechnical Engineer
1100 Bennett Road, Unit 4
Bowmanville, ON, L1C 0Y7
T: (289)-274-8476 | **M:** (647)-637-7480
www.gemtec.ca

From: Brockie, Ryan <rbrockie@scsconsultinggroup.com>
Sent: November 11, 2025 9:25 AM
To: Rafael Abdulla <rafael.abdulla@gemtec.ca>
Cc: Susan Vodden <susan.vodden@gemtec.ca>; Dale Edwards <dale.edwards@gemtec.ca>; Timi Olumuyiwa <timi.olumuyiwa@gemtec.ca>; Risi, Julia <jlrisi@scsconsultinggroup.com>; Alexandra De Gasperis <alexandra@decocommunities.ca>; Christopher Marchese <cmarchese@decocommunities.ca>; Keeping, Andrea <akeeping@scsconsultinggroup.com>; Costa, Cosimo <ccosta@scsconsultinggroup.com>
Subject: RE: 103306.002 Village A, Picton - SWM Facility Recommendations

Hi Rafael,

Agreed, that is probably the easiest way to move forward.

And yes, that is correct, plantings and vegetation are provided as part of the quality control treatment within the wetland.

Will that impact the recommendation for the granular protection of the GCL? We are trying to minimize the amount we need to sub excavate the pond.

Thanks,
Ryan

Ryan Brockie, P.Eng.

SCS consulting group ltd
Land Development Consultants

905 475 1900 *x2483*
30 Centurian Drive, Suite 100,
Markham, ON, L3R 8B8
rbrockie@scsconsultinggroup.com

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From: Rafael Abdulla <rafael.abdulla@gemtec.ca>
Sent: November 4, 2025 8:35 AM
To: Brockie, Ryan <rbrockie@scsconsultinggroup.com>
Cc: Susan Vodden <susan.vodden@gemtec.ca>; Dale Edwards <dale.edwards@gemtec.ca>; Timi Olumuyiwa <timi.olumuyiwa@gemtec.ca>; Risi, Julia <jlrisi@scsconsultinggroup.com>; Alexandra De Gasperis <alexandra@decocommunities.ca>; Christopher Marchese <cmarchese@decocommunities.ca>; Keeping, Andrea <akeeping@scsconsultinggroup.com>; Costa, Cosimo <ccosta@scsconsultinggroup.com>
Subject: RE: 103306.002 Village A, Picton - SWM Facility Recommendations

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Hi Ryan,

I will get back to you. It might be easier to just issue technical memorandum rather than update the report once the final details are available.

Just to clarify, as a wetland facility, I assume that you will encourage vegetation along the permitter and also inside the pond?

Thanks
Rafael

GEMTEC
Consulting Engineers and Scientists
Rafael Abdulla, M.Eng., P.Eng., PMP
Senior Geotechnical Engineer
Oshawa, ON
T: (289)-274-8476 | **M:** (647)-637-7480
www.gemtec.ca

From: Brockie, Ryan <rbrockie@scsconsultinggroup.com>
Sent: November 3, 2025 10:26 AM
To: Rafael Abdulla <rafael.abdulla@gemtec.ca>
Cc: Susan Vodden <susan.vodden@gemtec.ca>; Dale Edwards <dale.edwards@gemtec.ca>; Timi Olumuyiwa <timi.olumuyiwa@gemtec.ca>; Risi, Julia <jlrisi@scsconsultinggroup.com>; Alexandra De Gasperis <alexandra@decocommunities.ca>; Christopher Marchese <cmarchese@decocommunities.ca>; Keeping, Andrea <akeeping@scsconsultinggroup.com>; Costa, Cosimo <ccosta@scsconsultinggroup.com>
Subject: RE: 103306.002 Village A, Picton - SWM Facility Recommendations

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Hi Rafael,

Thank you for the update.

We will need to maintain the permanent pool volume, so we will need a liner. Are you able to update the geotechnical analysis to include the recommendations you noted below and the required details for the liner.

Also, please note that the SWM Facility will be a constructed wetland facility, not a typical wet pond.

Let me know if you have any further questions.

We will provide the detailed design drawings as they become available, and keep you posted on any design changes.

Thanks,
Ryan

Ryan Brockie, P.Eng.

SCS consulting group ltd
Land Development Consultants

905 475 1900 *x2483*

30 Centurian Drive, Suite 100,
Markham, ON, L3R 8B8

rbrockie@scsconsultinggroup.com

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slope will consist of bedrock and engineered fill for the berm constructions. As a result, a pond liner is not needed.

Please note:

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https://www.ontario.ca/document/stormwater-management-planning-and-design-manual-0/stormwater-management-plan-and-swmp

Regards,
Rafael

GEMTEC
Consulting Engineers and Scientists
Rafael Abdulla, M.Eng., P.Eng., PMP
Senior Geotechnical Engineer
Oshawa, ON
T: (289)-274-8476 | **M:** (647)-637-7480
www.gemtec.ca

From: Brockie, Ryan <rbrockie@scsconsultinggroup.com>
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To: Dale Edwards <dale.edwards@gemtec.ca>
Cc: Risi, Julia <jlrisi@scsconsultinggroup.com>; alexandra@decocommunities.ca; Susan Vodden <susan.vodden@gemtec.ca>; Alysha Finigan <alysha.finigan@gemtec.ca>; Rafael Abdulla <rafael.abdulla@gemtec.ca>; cmarchese@decocommunities.ca; Keeping, Andrea <akeeping@scsconsultinggroup.com>; Costa, Cosimo <ccosta@scsconsultinggroup.com>
Subject: RE: 103306.002 Village A, Picton - SWM Facility Recommendations

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Hi Dale,

As we move into the detailed design of the SWM Facility servicing Village A in Picton, we wanted to coordinate our SWM Facility design and your geotechnical recommendations as they relate to liners, side slopes, bed rock etc.

See attached the figure illustrating the SWM Facility design prepared through the FSSR.

The design will be refined through detailed design but inverts and pond configuration should stay generally the same, are you able to update your recommendations accordingly?

Let me know if a meeting to discuss further would be helpful!

Thanks,
Ryan

Ryan Brockie, P.Eng.

SCS consulting group ltd
Land Development Consultants

905 475 1900 *x2483*

30 Centurian Drive, Suite 100,
Markham, ON, L3R 8B8

rbrockie@scsconsultinggroup.com



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Subject: 103306.002 Village A, Picton - Draft Geotechnical Report

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Chris

As requested, please see the attached DRAFT Geotechnical report. Note that I am copying in the SCS Team for their reference as well.

Please review and if you have any questions let Rafael (copied) or me know. We are happy to finalize once review and comments (if any) are received.

Cheers,

GEMTEC
Consulting Engineers and Scientists

Dale Edwards, C.Tech.
Branch Manager - Oshawa
Oshawa, ON
905.260.0851 | www.gemtec.ca

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Preliminary Geotechnical Site Investigation
Village A - Base 31 Residential Subdivision
Picton, Prince Edward County, Ontario

GEMTEC Project: 103306.002

GEMTEC
www.gemtec.ca

Submitted to:

PEC Community Partners Inc.
570 Applewood Crescent
Vaughan, Ontario
L4K 4B4

Preliminary Geotechnical Site Investigation
Village A - Base 31 Residential Subdivision
Picton, Prince Edward County, Ontario

September 20, 2024
GEMTEC Project: 103306.002

experience • knowledge • integrity

GEMTEC Consulting Engineers and Scientists Limited
850 Champlain Avenue, Unit 101
Oshawa, ON, Canada
L1J 8C3

September 20, 2024 Project: 103306.002 – Rev0

PEC Community Partners Inc.
570 Applewood Crescent
Vaughan, Ontario
L4K 4B4

Attention: Chris Marchese, Development Manager

Re: Preliminary Geotechnical Site Investigation
Village A – Base 31 Residential Subdivision, Picton, Prince Edward County, Ontario

Enclosed is our geotechnical site investigation report in support of the proposed residential development located at the northeast quadrant of Kingsley Road and Church Street (County Road 22) in Picton, Prince Edward County, Ontario. The report presented herein is based on the scope of work summarized in the proposal dated June 25, 2024, and authorization to proceed was provided by PEC Community Partners Inc. on July 11, 2024. This report was prepared by Rafael Abdulla, M.Eng., P.Eng., PMP and reviewed by Timi Olumuyiwa, M.Sc., P.Eng., PMP.



Rafael Abdulla, M.Eng., P.Eng., PMP
Senior Geotechnical Engineer



Timi Olumuyiwa, M.Sc., P.Eng., PMP
Senior Geotechnical Engineer

RA/TO/af/mk

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1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) has been retained by PEC Community Partners Inc. (PECCPI) to carry out a preliminary geotechnical site investigation in support of the design of the proposed residential development to be located at the northeast quadrant of the intersection of Kingsley Road and Church Street (County Road 22) in Picton, Prince Edward County, Ontario (herein referred to as the “Site” – Village A).

The purpose of the geotechnical site investigation was to characterize the general subsurface and groundwater conditions at the Site by means of a limited number of boreholes, laboratory tests and monitoring wells. Based on an interpretation of the information obtained, this report provides geotechnical recommendations for the proposed construction and other aspects of the project, including construction considerations, that could influence design decisions. It should be noted that this report addresses only the geotechnical (physical) aspects of the subsurface conditions at the site. The geo-environmental (chemical) aspects, including the consequences of possible surface and/or subsurface contamination resulting from previous activities or uses of the site and/or resulting from the introduction onto the site of materials from off-site sources, are beyond the terms of reference for this assignment and are not addressed herein.

This report is subject to the *Conditions and Limitations of This Report*, which follows the text of the report, and are considered an integral part of the report (Appendix A).

2.0 PROJECT AND SITE DESCRIPTION

2.1 Background Information

The following reports and project documents have been provided to and considered by GEMTEC in the preparation of the geotechnical recommendations:

- Site Concept Plan, Drawing No. DP-01 titled "*Draft Plan of Subdivision*” prepared by Biglieri Group, dated August 15, 2024.
- “Functional Servicing & Stormwater Management Report,” prepared by SCS Consulting Group Ltd. (SCS) dated September 2024.
- Geotechnical Report titled “*Preliminary Geotechnical Investigation, Main Parcel, North parcel, West Parcel, and Southwest parcel, Picton Airport, Prince Edward County, Ontario,*” prepared by Palmer dated July 9, 2021 (Palmer 2021); and,
- Report titled “*Test Pit Observation, Picton Airport/Base 31,*” prepared by Palmer dated November 27, 2023 (Palmer 2023).

2.2 Project Location and Site Description

The Site is located northeast of the intersection of Kingsley Road and Church Street in Picton, Prince Edward County, Ontario as shown on the Site Location Plan (Figure 1 in Appendix B).

The Site occupies an area of approximately 29 hectares (ha) and is vacant and predominantly wooded. The Site is bounded by a residential district to the north, Church Street to the west, Kingsley Road and commercial block to the south and wooded vacant land to the east. An unpaved roadway was observed at the east side of the property.

The topographic information provided by SCS indicates that the Site gently slopes downwards from east to west with elevations (Elev.) ranging from approximately Elev. 140.5 metres (m) to Elev. 147.2 m. The southern portion of the Site was an open area and was generally flat. A tributary of Marsh Creek is located west of Church Street and east of the Site, generally flowing in the north to south direction. It should be noted that Site activities (i.e., earthworks operations) was on-going and the existing grades may be different from those provided in the topographical survey information.

At the time of preparing this report, the information available indicated that the Site will be developed as follows:

- A stormwater management (SWM) pond is proposed for Block 281 (SWM Pond 1) located in the western area of the site adjacent to Church Street. Based on discussions with SCS, it is understood that a second SWM pond is proposed east of Street A, adjacent to Kingsley Road, within Village C (SWM Pond 2). This facility is proposed as a temporary facility SWM pond to service a portion of Village A as well as Street C ahead of the development of Village C.
- Two high-density blocks are proposed northeast and southwest of the proposed SWM Pond 2 adjacent to Church Street.
- Parks and open spaces are planned at different locations within the development.
- The remainder of the Site will be occupied by townhouses and detached houses with the associated access roads. It is understood that the buildings on-Site will be slab-on-grade buildings without a basement level.

Based on the drawings provided by SCS, it is understood that the underground infrastructure will consist of 375 millimetres (mm), 450 mm, 525 mm, and 600 mm diameter storm sewers, 250 mm, 300 mm, 375 mm, 525 mm and 600 mm diameter sanitary sewers, and watermain. A 1050 mm diameter storm sewer will be used to connect Village A to Village C along the southern limit of Street A. The servicing depth will range from about 2.0 m to 3.5 m below finished grades. The proposed sanitary sewers will have inverts ranging from approximately Elev. 139.1 m to Elev. 145.4 m, while the proposed storm sewer will have inverts ranging from approximately Elev. 138.5 m to Elev. 146.2 m.

2.3 Regional Geology

The surficial geology aspects of the general site area were reviewed from the following publications:

- Chapman, L.J., and Putnam, D.F., 2007, "*The Physiography of Southern Ontario*"; 4th Edition, Ontario Geological Survey; and,
- The Ontario Geological Survey, 2003, "*Surficial Geology of Southern Ontario*".

Physiographic mapping in the area according to the above-noted reference indicates that the Site lies within the physiographic region of southern Ontario known as the Prince Edward Peninsula. Prince Edward County is a plain or low plateau of limestone projecting in the eastern part of Lake Ontario and separated from the mainland by the Bay of Quinte. The Prince Edward Peninsula consists of clays, sands/silty sands, and till deposits and is underlain by the Lindsay Formation (Upper Ordovician) / Shadow Lake Formation (Middle Ordovician) bedrock. The surficial geology mapping indicates that the Site lies within an area of Palaeozoic bedrock.

Although not shown on the geology maps, reworked native material associated with the previous land use may be present at the Site. In general, the subsurface conditions encountered during the previous and current investigations were generally consistent with the physiographic and surficial geological mapping.

3.0 PREVIOUS INVESTIGATIONS

As noted above, a preliminary geotechnical investigation and test pit investigation were previously conducted for a larger property and findings are provided in reports provided in Appendix C.

Within the Village A property, the geotechnical report Palmer 2021 involved drilling two boreholes (Boreholes BH21-4 and BH21-5) and four test pits (Test Pits TP21-6 to TP21-9) in the southeastern area of Village A. The subsurface conditions at the boreholes and test pits consisted of topsoil (0.1 m to 0.3 m thick) overlying native sandy silt and gravelly silty clay overlying the bedrock. The upper portion of the overburden may have been disturbed due to past activities. The depth to bedrock at the locations of the test pits and boreholes ranged from about 0.5 metres below ground surface (mbgs) to 1.2 mbgs. Palmer 2021 indicated that the weathered zone in the bedrock observed in the boreholes ranged to depths of approximately 1.2 mbgs and 1.5 mbgs and the RQD ranged from 38 percent to 91 percent.

Palmer 2023 included three test pits (Test Pits TP10, TP11 and TP12) which were excavated in Village A. The subsurface conditions recorded at these locations indicated that the topsoil thickness was about 0.4 m underlain by sandy silt (extending to depths ranging from 0.5 mbgs and 0.8 mbgs) underlain by bedrock.

4.0 CURRENT SITE INVESTIGATION METHODOLOGY

The field work for this current site investigation was carried out from July 22 to 30, 2024 during which time eighteen boreholes, designated as Boreholes BH24-1 to BH24-18, were advanced to depths ranging from approximately 4.6 m to 7.7 mbgs (between Elev. 135.2 m and Elev. 142.5 m). It should be noted that two boreholes (i.e., Boreholes BH24-14 and BH24-15) were advanced within Village C, as requested by SCS. A total of forty-seven test pits, designated as Test Pits TP1 to TP47 were carried out on August 26, 2024, at the southern portion of the Site with thicknesses ranging from approximately 165 mm to 510 mm.

The borehole and test pit locations are shown on the Borehole and Test Pit Location Plan in Appendix B. Descriptions of the subsurface conditions observed in the boreholes are provided on the Record of Borehole Sheets in Appendix D. The results of the geotechnical laboratory tests are provided on the Record of Boreholes and in Appendix E.

The boreholes were advanced using a track mounted drill rig operated by Pontil Drilling of Mount Albert, Ontario, who is a MECP-licensed Water Well Contractor. The field work was observed throughout by a member of our geotechnical engineering staff who directed the drilling operations and logged the samples and boreholes.

The boreholes through the overburden were advanced to the sampling depths by means of continuous flight hollow stem augers using conventional 50-millimetre (mm) external diameter split spoon sampling equipment driven by an automatic hammer in accordance with the SPT procedures outlined in ASTM International standard D1586: "*Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils*". 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 split-spoon samplers used in the investigation limit the maximum particle size that can be sampled and tested to about 40 mm. Therefore, particles or objects that may exist within the soils that are larger than this dimension were not sampled and are not represented in the grain size distributions contained herein. The results of the field tests (i.e., SPT "N" -values) as presented on the Record of Borehole sheets and in subsequent sections of this report are the values measured directly in the field and are unfactored.

The bedrock was cored using rotary wet coring techniques with HQ core size (63.5 mm outside diameter) at all borehole locations and the results are presented on the Record of Borehole Sheets in Appendix D.

Monitoring wells were installed in seven boreholes. The monitoring wells were constructed using nominal 50 mm diameter, Schedule 40 polyvinyl chloride (PVC) pipe with a No. 10 machine slotted screen (0.01-inch slot). The annular space between the monitoring well screen and surrounding soils was backfilled with a silica sand filter to a maximum of 0.3 m above the top of the screen, and the remainder of the annular space was sealed with bentonite. All monitoring wells were

completed with above-ground steel casing. The monitoring well installation details are provided in the Record of Borehole Sheets (Appendix D).

The field work for this investigation was observed by members of GEMTEC's technical staff, who located the boreholes in the field, arranged for the clearance of underground utilities, observed the borehole drilling, sampling and in situ testing operations, logged the boreholes as well as examined and took custody of the recovered soil and rock samples. The samples were identified in the field, placed in appropriate containers, labelled, and transported to our Oshawa geotechnical laboratory for further visual examination by the project engineer and for laboratory testing.

Groundwater conditions were noted in the open boreholes during and upon completion of drilling and monitoring wells were installed in the bedrock, following the completion of drilling to allow for subsequent groundwater measurements. All other boreholes were backfilled and sealed in accordance with Ontario Regulation (O.Reg.) 903, as amended.

Following completion of the drilling, the soil and rock core samples were returned to our laboratory for examination by a geotechnical engineer. Selected samples were submitted for grain size distribution, uniaxial compressive strength (UCS), and moisture content testing.

The borehole locations were selected by GEMTEC and positioned on-site relative to existing features, including underground and above ground utility constraints. The ground surface elevations and coordinates at the borehole and monitoring well locations were surveyed by SCS in August 2024 and provided to GEMTEC.

A summary of the borehole information (including ground surface elevations and monitoring well locations) are provided in Table 4.1.

Table 4.1 – Summary of Borehole Information

Location	Borehole ID	Ground Surface Geodetic Elevation (m)	Borehole Depth (m)	Notes
Block 280 High Density	BH24-1	145.4	4.7	
Block 281 SWM Pond	BH24-2	143.6	7.7	
Block 279 High Density	BH24-3	142.5	6.2	
Block 281 SWM Pond	BH24-4	143.6	4.7	50-mm diameter monitoring well
Within Development Area	BH24-5	146.6	4.6	
	BH24-6	146.5	4.7	50-mm diameter monitoring well
	BH24-7	146.6	4.7	
	BH24-8	147.0	4.6	
	BH24-9	146.9	4.7	
Along Street A	BH24-10	145.4	6.2	50-mm diameter monitoring well
	BH24-11	143.7	6.2	
	BH24-12	146.0	6.2	
	BH24-13	145.8	6.2	50-mm diameter monitoring well
Block 281 SWM Pond	BH24-14	143.6	6.2	
SWM Pond 2 (Village C)	BH24-15	143.5	4.7	50-mm diameter monitoring well
	BH24-16	143.0	6.2	

Location	Borehole ID	Ground Surface Geodetic Elevation (m)	Borehole Depth (m)	Notes
Block 281 SWMP	BH24-17	141.5	6.2	50-mm diameter monitoring well
Within Development Area	BH24-18	147.2	4.6	50-mm diameter monitoring well

Notes: 1. Bedrock cored in all boreholes (HQ size)

5.0 SUBSURFACE AND GROUNDWATER CONDITIONS

5.1 Subsurface Conditions

The detailed soil profiles encountered in the boreholes are indicated on the Record of Borehole Sheets in Appendix D. The Record of Boreholes indicate the subsurface conditions at the specific borehole locations only. Boundaries between the different soils on the Records are often not distinct, but rather are transitional and have been interpreted. The precision with which subsurface conditions are indicated depends on the method of drilling, the frequency and recovery of samples, the method of sampling, and the uniformity of the subsurface conditions. Subsurface conditions at locations other than the boreholes may vary from the conditions encountered in the boreholes, both laterally and with depth. In addition to soil variability, fill of variable physical and chemical composition can be present over portions of the site or on adjacent properties.

The soil descriptions in this report are based on commonly accepted methods of classification and identification employed in geotechnical practice. Classification and identification of soil involves judgement and GEMTEC does not guarantee descriptions as exact but infers accuracy to the extent that is common in current geotechnical practice.

Based on the results of the geotechnical investigation, subsurface conditions at the Site generally consist of topsoil overlying silty sand to silty sand and gravel (probably disturbed native soils) overlying the limestone bedrock. The weathered bedrock was encountered at depths ranging from about 0.3 mbgs to 0.8 mbgs.

5.1.1 Topsoil

Topsoil was encountered at all borehole locations and ranged in thickness from about 50 mm to 130 mm. In the test pit locations, topsoil thicknesses ranged from approximately 165 mm to 510 mm. The topsoil thicknesses in the boreholes and test pits and provided in Table 5.1.

Table 5.1 – Approximate Thicknesses of Topsoil

TP/BH ID	Topsoil Thickness (mm)	Test Pit ID	Topsoil Thickness (mm)	Test Pit ID	Topsoil Thickness (mm)	Test Pit ID	Topsoil Thickness (mm)
TP1	229	TP13	203	TP25	279	TP37	267
TP2	267	TP14	203	TP26	216	TP38	343
TP3	279	TP15	508	TP27	178	TP39	279
TP4	191	TP16	229	TP28	229	TP40	483
TP5	229	TP17	508	TP29	241	TP41	216
TP6	406	TP18	406	TP30	165	TP42	381
TP7	394	TP19	318	TP31	305	TP43	203
TP8	343	TP20	241	TP32	292	TP44	254
TP9	406	TP21	229	TP33	267	TP45	191
TP10	305	TP22	267	TP34	381	TP46	203
TP11	330	TP23	241	TP35	356	TP47	254
TP12	254	TP24	203	TP36	394		
BH24-1	75	BH24-6	100	BH24-11	130	BH24-16	130
BH24-2	50	BH24-7	180	BH24-12	50	BH24-17	50
BH24-3	75	BH24-8	75	BH24-13	50	BH24-18	75
BH24-4	125	BH24-9	75	BH24-14	75		
BH24-5	125	BH24-10	130	BH24-15	75		

5.1.2 Overburden

The subsurface conditions of the overburden encountered in the boreholes drilled at the Site are described in the following sections.

Please note that:

- Depths given in the table describing the subsurface conditions are measured from ground surface;
- The SPT “N”-values given are blows for 0.3 m of penetration unless otherwise indicated; and,
- Top of the weathered bedrock was inferred at the depth where the grinding of the augers commenced. However, bedrock coring commenced at a depth of about 1.6 mbgs.

A summary of the encountered soil conditions of the site is presented below in Table 5.2.

Table 5.2 – Summary of Overburden Conditions

Soil Type	Depth (m)		Elevation (m)		SPT “N” Values	Compactness Condition	Approximate Water Content (%)
	From	To	From	To			
Topsoil	0	0.05 – 0.51			-	-	-
Silty Sand with some gravel, Silty Sand and Gravel, and Gravel with some sand and fines	0.05 – 0.51	0.3 – 0.8	141.4 to 147.1	142.2 to 146.7	17 to 50/25 mm	Compact to very dense	1 to 5

The overburden was present in all boreholes near surface, and contained oxidation stains, and rock fragments. Further, the overburden appears to be completely weathered bedrock and has been treated as soil.

5.1.3 Bedrock

Bedrock was encountered at the following depths and elevations at each borehole location as summarized below in Table 5.3. Photographs taken of the rock cores are provided in Appendix F.

Table 5.3 – Approximate Depth and Elevations of Bedrock

Borehole ID	Depth (mbgs)	Geodetic Elevation (m)
BH24-1	0.3	145.1
BH24-2	0.3	143.3
BH24-3	0.3	142.2
BH24-4	0.3	143.3
BH24-5	0.5	146.1
BH24-6	0.3	146.2
BH24-7	0.8	145.8
BH24-8	0.3	146.7
BH24-9	0.4	146.5
BH24-10	0.6	144.8
BH24-11	0.6	143.1
BH24-12	0.3	145.7
BH24-13	0.3	145.5
BH24-14	0.3	143.3
BH24-15	0.3	143.2
BH24-16	0.5	142.5
BH24-17	0.3	141.2
BH24-18	0.3	146.9

The upper 1 m to 1.5 m of overburden overlying the fresh bedrock is anticipated to be completely weathered to highly weathered bedrock.

The fresh bedrock encountered can be described as fine to medium grained, dark grey to black, strong to very strong fresh limestone with shale/siltstone interbeds of the Lindsay Formation. The recovery and quality parameters measured during the rock coring are summarized in Table 5.4.

Table 5.4 – Summary of Rock Quality at Borehole Location

Borehole ID	Run	Total Core Recovery (TCR) %	Solid Core Recovery (SCR) %	Rock Quality Designation (RQD) %
BH24-1	Run 1	100	91	87
	Run 2	100	83	90
BH24-2	Run 1	100	17	0
	Run 2	100	38	0
	Run 3	100	83	22
	Run 4	100	98	93
BH24-3	Run 1	100	97	83
	Run 2	100	92	85
	Run 3	100	97	90
BH24-4	Run 1	100	100	100
	Run 2	100	100	95
BH24-5	Run 1	95	83	83
	Run 2	100	97	87
BH24-6	Run 1	100	100	88
	Run 2	100	100	100
BH24-7	Run 1	100	97	90
	Run 2	100	97	85
BH24-8	Run 1	100	97	97
	Run 2	100	97	88
BH24-9	Run 1	100	90	72
	Run 2	100	97	83
BH24-10	Run 1	100	100	100
	Run 2	100	100	93
	Run 3	100	93	80

Borehole ID	Run	Total Core Recovery (TCR) %	Solid Core Recovery (SCR) %	Rock Quality Designation (RQD) %
BH24-11	Run 1	100	100	95
	Run 2	100	100	90
	Run 3	100	97	92
BH24-12	Run 1	100	98	98
	Run 2	100	97	93
	Run 3	100	100	100
BH24-13	Run 1	100	97	92
	Run 2	100	90	70
	Run 3	100	97	93
BH24-14	Run 1	100	75	60
	Run 2	100	77	67
	Run 3	100	82	75
BH24-15	Run 1	100	100	100
	Run 2	100	100	95
BH24-16	Run 1	100	97	92
	Run 2	100	97	93
	Run 3	100	95	85
BH24-17	Run 1	100	98	97
	Run 2	100	98	98
	Run 3	100	98	97
BH24-18	Run 1	100	95	83
	Run 2	100	97	87
	Average	***100***	***92***	***84***
	Minimum	***95***	***17***	***0***
	Maximum	***100***	***100***	***100***

5.1.4 Geotechnical Laboratory Tests

Grain size distribution testing was undertaken on three samples of the overburden and the results are provided in Appendix E and summarized in Table 5.5.

Table 5.5 – Summary of Grain Size Distribution Tests (Overburden)

Borehole	Sample Depth (m)	Gravel (%)	Sand (%)	Silt / Clay (%)	USCS Soil Description
BH24-4	0.8	30.4	44.0	25.6	Gravelly Silty Sand
BH24-11	0.8 – 1.4	34.6	42.8	22.6	Silty Sand and Gravel
BH24-13	0.8	28.0	46.4	25.6	Gravelly Silty Sand

Three uniaxial compressive strength (UCS) tests were carried out on the HQ size cores and the detailed laboratory results are presented in Appendix E. A summary of the laboratory results is presented in Table 5.6 below:

Table 5.6 – Bedrock UCS Test Results

Borehole	Sample Depth (m)	UCS (MPa)
BH24-4	3.5 – 3.8	105
BH24-6	4.2 – 4.5	53
BH24-9	2.7 – 2.9	88

5.2 Groundwater Levels

Un-stabilized groundwater levels were measured in the open boreholes upon completion of drilling and the details are provided in Record of Borehole Sheets in Appendix D. Groundwater level measured in seven monitoring wells on August 13, 2024, are provided in Table 5.7.

Table 5.7 – Approximate Groundwater Depths and Elevations

Monitoring Wells	Groundwater Depth (mbgs)	Groundwater Elevations (m)
BH24-4	2.8	140.8
BH24-6	1.3	145.1
BH24-10	1.7	143.7
BH24-13	1.2	144.7
BH24-15	1.0	142.5

Monitoring Wells	Groundwater Depth (mbgs)	Groundwater Elevations (m)
BH24-17	3.9	137.6
BH24-18	1.7	145.4

The measured groundwater levels reflect the groundwater conditions in the boreholes at the time of the field work. Groundwater levels at the site are anticipated to vary between and beyond the borehole locations and to fluctuate on a seasonal basis and in response to significant precipitation or snowmelt events.

6.0 DISCUSSION AND RECOMMENDATIONS

This section of the report provides guidance on the geotechnical engineering design aspects of the project based on our interpretation of the boreholes and test pits advanced as part of the site investigation by GEMTEC. It is stressed that the information in the following sections is provided for the guidance of the designers and is intended for this project only. Contractors bidding on or undertaking the works should examine the factual results of the investigation, satisfy themselves as to the adequacy of the information for construction, and make their own interpretation of the factual data as it affects their construction techniques, schedule, safety, and equipment capabilities.

The professional services retained for this project include only the geotechnical engineering aspects of the subsurface and groundwater conditions at this site. The presence or implications of possible surface and/or subsurface contamination resulting from previous uses or activities of this site or adjacent properties, and/or resulting from the introduction onto the site from materials from off-site sources are outside the terms of reference for this report and have not been investigated or addressed.

6.1 Topsoil Stripping and Reuse

The following geotechnical comments are provided regarding organic and topsoil stripping and reuse at the Site:

- Surficial vegetation and topsoil should be stripped from the proposed development area.
- Consideration may be given to selective stripping operations, consisting of road allowances, and building footprints (including driveways).
- Outside of road allowances and building footprints, topsoil, if encountered, may be buried and/or reused as general lot fill to raise grades. The primary factor controlling methane generation is the organic carbon content of the topsoil. The loss on ignition (LOI) test provides an indication of the organic carbon content of the sample. If topsoil is to be reused as general lot fill to raise grades, then LOI testing should be carried out and further recommendations provided by the geotechnical engineer in regard to the reuse of topsoil

and the potential for methane generation. Stripping of organically stained layers would not be required in any site area from a geotechnical perspective. However, from a construction viewpoint, it may not be practical (or possible) for the contractor to distinguish between this zone and the overlying topsoil, if encountered, especially if cuts of less than 150 mm are required. Where topsoil is to be reused for landscaping, fertility testing should be carried out.

- Where low organic content topsoil is used as general lot fill, its thickness should be limited to about 1.5 m. The topsoil fill should be placed in maximum 300-mm thick loose lifts and uniformly compacted to at least 95 percent of standard Proctor maximum dry density (SPMDD). To have any success in placing topsoil as lot grading fill, it must be placed at or very close to its optimum water content to achieve workability and adequate compaction, in order to reduce post-construction settlements and/or lateral movements (e.g., of fences, etc.).
- It should be noted that the topsoil thicknesses vary within the site. As such, it is recommended that a topsoil test pit program should be carried out once the trees within the site has been completely removed to confirm the topsoil thickness within the northern half of the site.

6.2 Site Preparation

At the time of preparing this report the preliminary drawings indicate that the Site will be developed in three phases. The preliminary grading plan indicates that design grades will include some cut and fill for site grading operations which will be required to establish final grade levels throughout the Site and will not exceed 2 m.

In Palmer's test pits and boreholes, disturbed native soils were observed near surface at the southern portion of the Site (i.e., the open area outside of the woodlots). However, the in situ test completed in the boreholes indicate a very dense compactness condition which is representative of a competent soil unit. As such, it is recommended that this area be compacted and proofrolled upon topsoil stripping. During detailed design, additional boreholes should be positioned at the southern portion of the Site to confirm the competency and presence of disturbed materials.

The exposed subgrades (soil or bedrock) should be proofrolled and/or visually inspected by a qualified geotechnical engineer prior to placement of engineered fill. Any loose/soft soils identified at the time of proofrolling that are unable to uniformly be 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.

It is strongly recommended that construction should be carried out under dry conditions. If construction is required during freezing temperatures, the subgrade should be protected immediately from freezing using straw, propane heaters and insulated tarpaulins, or other suitable means. Backfilling during the winter is not recommended, but recommendations can be provided if required.

6.3 Engineered Fill

As noted above, grade raise of up to 2 m is anticipated within the Site. As such, engineered fill will be required to achieve final grades and support structural elements such as foundations and / or floor slabs depending on the Cut and Fill Plan. The following is recommended for the construction of engineered fill:

- Prior to placing engineered fill, topsoil and any disturbed native soil, or deleterious materials should be removed from the Site. The disturbed native soil (if encountered) can be re-used as engineered fill. Ponded water and sloughed soil due to erosion during rainfall event should be cleaned and/or re-compacted.
- Based on the soil classification and frost group described in Table 14.1 of the *Canadian Foundation Engineering Manual* (CFEM, 2023), the non-cohesive deposits encountered on the Site are regarded as being of low to moderate frost susceptibility. This should be considered for any design elements exposed to freezing temperatures (concrete flatworks, exterior concrete slabs, and the like).
- The subgrade or base of the engineered fill area must be approved by GEMTEC prior to placement of any new fill, to ensure that suitability of subgrade condition. The area(s) should then be proofrolled in conjunction with an inspection by GEMTEC to confirm that the exposed soils are native, undisturbed, and competent, and have been adequately cleaned of ponded water and all disturbed, loosened, softened, organic and other deleterious material. Any of the localized near-surface soils containing organic matter or loose soils will also need to be removed prior to placement of engineered fill as directed by GEMTEC during proofrolling.
- Materials for reuse as engineered fill must be approved by GEMTEC prior to placement and should be free of organic, and deleterious materials. In this regard, the native non-cohesive soil which are near their optimum water contents and do not contain topsoil or organics or any other deleterious materials can be reused on site as engineered fill. The materials for use as engineered fill must be maintained within about 2 percent of optimum water content for compaction. The natural water contents of the native non-cohesive soil are below their optimum water contents and wetting of these soils will be required during fill placement to achieve compaction.
- If native soils from the site are not used as engineered fill, imported material for engineered fill should consist of clean, non-organic soils, free of chemical contamination or deleterious material. Imported materials to be used for engineered fill must be approved by GEMTEC at the source(s), prior to hauling to the Site. In this regard, imported materials which meet the requirements for OPSS 1010.MUNI Select Subgrade Material (SSM) placed in maximum 300 mm thick loose lifts and uniformly compacted to 98 percent of SPMDD throughout. The water contents at the time of placement should be within +/- 2 percent of its optimum moisture content to achieve the required compaction. Placement of fill is not recommended in the winter season, if unavoidable, any frost penetration into the fill

material must be removed prior to placement of subsequent lifts of fill and reviewed by GEMTEC. Additional recommendations will need to be provided at detailed design.

- Excavated bedrock maybe crushed and reused on site as granular fill for backfilling purposes. Depending on the gradation, a bulk up factor of 25 percent to 50 percent is typical for this rock type, and a 40% value maybe be used as an average for the bedrock. It should be noted that the completely weathered rock will have its engineering behaviour similar to a soil while highly weathered rock will be easier to breakdown (in comparison with moderately weathered to fresh bedrock) and re-compact due to the material being a combination of soil and rock. Equipment should be selected based on the encountered material.
- Cobbles and boulders exceeding 150 mm in diameter should be removed from the engineered fill prior to compaction. It is recommended that the contractor consider the possible presence of cobbles / boulders and bedrock or other obstructions when developing their excavation and engineered fill construction methodology.
- Full time testing and inspection during fill placement is required as outlined in Section 4.2.2.2 of the 2012 Ontario Building Code (OBC).

6.4 Shallow Foundations

At the time of writing this report, information available indicated that the residential buildings will be slab-on-grade without any basements. Proposed building foundations, floor slabs, pavements or other settlement-sensitive structures may be supported on approved native undisturbed compact soils that are free of organics and other deleterious materials, on approved engineered fill materials or on the bedrock.

Based on the subsurface information, the proposed residential structures can be supported by conventional strip and/or spread footing foundations founded on engineered fill, compact to very dense native soils (potentially completely to highly weathered bedrock), or on the fresh bedrock.

The spread/strip footings may be designed using the factored geotechnical resistance at Ultimate Limit States (ULS) and the unfactored geotechnical reaction at Serviceability Limit States (SLS) for 25 mm total settlement and 19 mm differential settlement provided below in Table 6.1.

Table 6.1 – Recommended ULS and SLS for Shallow Foundations

Footings Dimensions	Factored Geotechnical Resistance at ULS	Geotechnical Reaction at SLS (for 25 mm of settlement)	Founding Soils
1 m x 1 m to 3 m x 3 m spread footings Strip footings 0.9 m wide	225 kPa	150 kPa	Engineered Fill or undisturbed compact native soils.

Footings Dimensions	Factored Geotechnical Resistance at ULS	Geotechnical Reaction at SLS (for 25 mm of settlement)	Founding Soils
1 m x 1 m to 3 m x 3 m spread footings Strip footings 0.9 m wide	375 kPa	250 kPa	Dense to Very Dense undisturbed native non-cohesive soils.
5 m x 5 m spread footings, maximum. Strip footings up to 1.2 m wide	5 MPa	ULS capacity govern	Slightly weathered bedrock.
5 m x 5 m spread footings Strip footings up to 1 m wide	10 MPa	ULS capacity govern	Fresh bedrock at depths of greater than 2.5 mbgs adjacent to Church Street.*

Note: *Please note that at Borehole BH24-2 competent bedrock was encountered at 5 mbgs (Elevation 138.6 m) and foundation base should be inspected and approved by GEMTEC to confirm the presence of the competent bedrock.

The factored ULS bearing resistance for the bedrock was assessed based on the required bearing resistance factor of 0.5 for shallow spread/strip footings. The SLS reaction values for less than 25 mm of settlement were also assessed for the various sizes of footings. At the calculated ULS values settlements were below the SLS value of 25 mm for strip footings up to 1 m wide and for spread footings up to 5 m x 5 m (i.e., the SLS reaction for 25 mm of settlement would exceed the factored ULS resistance, and hence, the ULS resistance value will govern the design).

As the actual soil bearing resistances are related to the actual footing sizes and founding depths, the foundation recommendations must be reviewed by GEMTEC once the building details are finalized and, as such, the recommendation provided above should be considered preliminary.

To mitigate differential settlement, as much as possible, foundations should not be supported by different materials, that is, the foundations should entirely be founded on the bedrock, competent native materials or engineered fill.

If stepped spread footings are constructed at different founding levels, the difference in elevation between individual footings should not be greater than one half the clear distance between the footings (2H:1V or gentler). Should this not be possible, GEMTEC should be consulted to provide field inspection to ensure that the footings exceeding the above requirement are stable and the bearing and lateral support for the upper footing is not compromised. In addition, the lower footings should be constructed first so that if it is necessary to construct the lower footings at a greater depth than anticipated, the elevations of the upper footings can be adjusted accordingly.

Stepped strip footings, if required, should be constructed in accordance with the latest edition of the Ontario Building Code (2015 OBC), Section 9.15.3.9.

The founding materials are susceptible to disturbance by construction activities especially during wet weather and care should be taken to preserve the integrity of the materials as bearing strata. Prior to placing concrete for the footings, the foundation excavations must be inspected by GEMTEC to confirm that the footings are located in a native, undisturbed, and competent bearing stratum which has been cleaned of ponded water and loosened or softened material. If the concrete for the footings on the native soil cannot be placed immediately after excavation and inspection (i.e., within 24 hours of excavation and inspection), it is recommended that a working mat of lean concrete be placed in the excavation to protect the integrity of the bearing stratum. The bearing soil and fresh concrete must be protected from freezing during cold weather construction.

For shallow foundations in bedrock, it is recommended that the footings be founded on a flat lying surface to convey loads vertically to the bedrock. All footing excavations must be inspected prior to placing concrete to ensure that the base has been adequately cleaned, and that the bedrock conditions as exposed at the founding level are consistent with the design assumptions. Where possible, the footing foundations should be excavated to provide a flat bearing surface at right angles to the axis of the loads. Rock protrusions, cavities, or large open joints should be avoided to provide a uniform bearing pressure across the full area of the footing. All loose, shattered or highly weathered rock within the footprint of the footings and at the footing level should be removed and replaced with concrete with a 28-day compressive strength of at least 15 MPa. All footing foundations should be cleaned of deleterious material. Also, all footings must be inspected by a geotechnical engineer prior to placing any concrete for the footings.

6.4.1 Frost Penetration

Based on the Ontario Provincial Standard Drawing (OPSD) 3090.101, the typical frost penetration depth is expected to be approximately 1.4 mbgs. All exterior footings and footings in unheated areas should be provided with at least 1.4 m of earth cover after final grading or a thermally equivalent thickness of insulation, in order to address the potential for damage due to frost action.

6.4.2 Foundation Walls and Isolated Piers

To avoid ad-freeze and possible jacking (heaving) of the foundations, the interior and exterior of the foundation walls should be backfilled with free draining, non-frost susceptible material that meets OPSS requirements for Granular B Type I or II. The backfill should be compacted in maximum 300 mm thick lifts to at least 95 percent SPMDD using suitable vibratory compaction equipment. Alternatively, where the native soils are used as backfill at the building exterior, appropriate external insulation (e.g., a semi-rigid glass fibre/SM Styrofoam) should be installed to help absorb the adfreezing forces. The insulation should extend to the footing depth. Where the backfill will ultimately support areas of hard surfacing (pavement, sidewalks, or other similar

surfaces), the backfill should be placed in maximum 200 mm thick lifts and compacted to 95 percent SPMDD using suitable compaction equipment.

Backfilling against isolated (unheated) walls or piers should consist of free draining, non-frost susceptible material meeting OPSS Granular B Type I or II requirements. Other measures to prevent frost jacking of foundation elements can be provided if required.

Where areas of hard surfacing (pavement etc.) abut the proposed structures, a gradual transition should be provided between those areas of hard surfacing underlain by non-frost susceptible granular wall backfill and those areas underlain by existing frost susceptible material to reduce the effects of differential frost heaving. It is suggested that granular frost tapers be constructed from 1.4 m below finished grade to the underside of the granular subbase material for the hard surfaced areas. The frost tapers should be sloped at 1H:1V or flatter.

In general, for any structure placed wholly or in part on engineered fill, it is recommended that the foundation walls be provided with nominal reinforcement with reinforcing steel at the top and bottom of the foundation walls. This could typically consist of two 10 M bars in the top and two 10 M bars in the bottom of the walls. The bars should be placed as close as possible allowing for at least 50 mm of cover. Corner bars should have proper factory bends and all tied steel should have at least 600 mm of overlap. At window well locations, two 10 M bars should be placed in the foundation wall as close to the sill as possible (allowing for 50 mm of cover). The bars should extend laterally at least 600 mm beyond the edge of the window opening. The actual design should be approved by the home builder's structural engineer.

A perforated perimeter drain should be provided at the level of the bottom of the footings where the floor slab is at or above the exterior final grade. The drain should outlet by gravity to a storm sewer or to a sump pit from which the water is pumped to a suitable outlet.

6.4.3 Seismic Site Classification

Seismic hazard is defined in the 2012 OBC (as amended) by uniform hazard spectra (UHS) at spectral coordinates of 0.2 second, 0.5 second, 1.0 second and 2.0 seconds and a probability of exceedance of 2 percent in 50 years. The OBC method uses a site classification system defined by the average soil/bedrock properties (e.g., shear wave velocity, Standard Penetration Test (SPT) resistance, undrained soil shear strength, etc.) in the 30 m of the soil profile extending below the foundation level. There are six site classes from A to F, decreasing in ground stiffness from A, hard rock, to E, soft soil; with site class F used to denote problematic soils (e.g., sites underlain by thick peat deposits and/or liquefiable/collapsible soils). The site class is then used to obtain acceleration and velocity-based site coefficients F_a and F_v, respectively, used to modify the UHS to account for the effects of site-specific soil conditions in design.

The site classification recommendation is based on the available information as well as our interpretation of conditions below the boreholes and our knowledge of the soil/bedrock conditions

in the area. In accordance with Table 4.1.8.4.A of the OBC (2012), it is recommended that Site Class “C” (very dense soils and soft rock) be applied for structural design at the Site. The site classification may be improved by site-specific testing such as seismic cone penetration testing or multi-channel analysis of surface waves (MASW) testing.

6.4.4 Slab-on-Grade (Heated Areas Only) Floor

It is anticipated that the floor slab can be designed as a concrete slab-on-grade. Based on the existing borehole information, the subgrade will consist of engineered fill or compact to very dense native soils, and limestone bedrock. The final rock surface should be cleared of any loose or shattered rock and debris for slab in the bedrock.

Any low areas may be brought up to within at least 200 mm of the underside of the floor slabs, as required, using Ontario Provincial Standard Specification (OPSS) Granular ‘B’, Type I material or other approved material, placed in maximum 200-mm thick loose lifts and uniformly compacted to at least 98 percent of the material’s SPMDD.

The final lift of granular fill beneath floor slabs should consist of a minimum thickness of 200 mm of OPSS 1010 Granular A compacted to 100 percent of its SPMDD in order to create a stable working surface, to distribute loadings, and for drainage purposes.

The floor slabs should be structurally separate from the foundation walls and columns. Sawcut control joints should be provided at regular intervals and along column lines to control shrinkage cracking and to allow for differential settlement of the floor slabs.

6.5 Temporary Excavation

Depending on the finished grades, finished floor elevations, and pipe inverts, it is anticipated that excavations for the construction of the shallow foundations, SWM ponds, site services and structures will extend into engineered fill, and the compact to very dense non-cohesive deposits and the underlying bedrock.

6.5.1 Overburden Excavation

The sides of the excavations should be sloped in accordance with the requirements in Ontario Regulation 213/91 under the Occupational Health and Safety Act (OHSA). It is anticipated that temporary excavations in engineered fill can be classified as Type 3 soils with unsupported side slopes no steeper than 3 horizontal to 1 vertical (3H:1V). Where excavation is mostly carried out within the dense to very dense native soils, these soils can be generally classified as Type 2 and, accordingly, allowance should be made for excavation side slopes of 1H:1V sloped to a depth of 1.2 m or less from the base of the excavation.

Where the side slopes consist of more than one soil type, the soil shall be classified as the type with the highest number among the soil types present. Please note that if the excavation extends below the groundwater table without adequate dewatering, the soil at the face of the excavation

would be classified as Type 4. The soil type classifications indicated above are provisional and are subject to change based on field observations of the actual conditions at the time of exposure.

Flattening and / or blanketing of the side slopes may be required in the non-cohesive materials depending on the weather conditions and construction procedure adopted by the contractor. Further, excavations should be left open for as short a duration as possible and completely backfilled at the end of each working day.

All excavated material should be stockpiled well away (i.e., minimum 2 m) from the sides / crest of the excavation. In general, stockpiles of excavated materials should be kept at least the same horizontal distance from the top edge of the excavation as the depth to not negatively impact excavation slope stability, subject to confirmation by a geotechnical engineer in the field during construction.

6.5.2 Bedrock Excavation

All excavations should be carried out in accordance with Ontario Regulation 213 (Ontario Occupational Health and Safety Act, OHSA, for Construction projects).

The measured UCS of the selected rock samples ranged from about 53 MPa to 105 MPa and it is anticipated that the rock excavation in the Lindsay Formation will require the use of hydraulic rock breakers (i.e., hoe ramming) and large hydraulic excavators may not be able to penetrate the shale or limestone encountered in the boreholes.

A hydraulic excavator equipped with rock teeth may be able to excavate fractured bedrock horizons, but will need to be supplemented with equipment such as a road header or hydraulic rock breaker in the more competent bedrock at depth. The rate of excavation through the bedrock is highly dependent on the method and equipment chosen by the contractor. Any excavations into a minimum of moderately fractured bedrock (150 mm to 300 mm bedding planes) can have vertical side slopes; excavations in closely fractured bedrock (20 mm to 150 mm bedding planes) should be benched or sloped back with side slopes no steeper than 1H:1V, provided that all loosened rock fragments are removed from the excavated rock faces.

Alternatively, blasting may be considered for excavation into the fresh strong to very strong limestone bedrock. Blasting would be carried out by a specialist contractor.

Noise, vibration and dust would be a significant issue during excavation of the bedrock. Pre- and post-construction condition surveys are recommended on structures (if any within the zone of influence) that could be impacted by the construction activities.

6.6 Temporary Groundwater Control

The groundwater levels measured in the monitoring wells installed were about 1.0 mbgs to 3.9 mbgs (or Elev. 137.6 m to 145.4 m) at the time of the investigation in August 2024. It is anticipated that excavations will be generally extend below the groundwater level. Based on these

observations, it is assumed that the groundwater table will be within the bedrock; however, it should be noted that the groundwater table is influenced by seasonal fluctuations and major precipitation events. Large open excavations or excavations extending into the bedrock may experience groundwater seepage during heavy precipitation events. Therefore, minor groundwater seepage may be anticipated during typical excavations but should be controllable with filtered sumps and pumps. In any event, groundwater levels should be lowered to at least 1 m below the excavation invert.

The rate and volume required for dewatering will be dependent on the depth of the required excavations, the groundwater levels at the time of construction and the construction methods and staging chosen by the Contractor.

Water takings in excess of 50 cubic metres per day (m^3/day) are regulated by the Ministry of the Environment, Conservation and Parks (MECP). Certain takings of groundwater and storm water for construction site dewatering purposes with a combined total less than 400 m^3/day qualify for self-registration on the MECP's Environmental Activity and Sector Registry ("EASR"). Registration on the EASR replaces the need to obtain a PTTW and a Section 53 approval. A Category 3 PTTW is required where the proposed water taking is greater than 400 m^3/day.

The dewatering system is the Contractor's responsibility and the rate and volume required for dewatering is dependent on the construction methods and staging chosen by the contractor. Further, the contractor will be responsible for obtaining any required discharge approvals.

6.7 Site Servicing

Preliminary details of the proposed watermain, sanitary and storm sewers for the proposed development have been provided and are shown on the preliminary servicing plan provided by SCS.

As noted above, it is understood that the underground infrastructure will consist of storm sewers, sanitary sewers, and watermain. The servicing depth will range from about 2.0 m to 3.5 m below finished grades. The proposed sanitary sewers will have inverts ranging from approximately Elev. 139.1 m to Elev.145.4 m, while the proposed storm sewer will have inverts ranging from approximately Elev. 138.5 m to Elev. 146.2 m.

Based on the pipe inverts and the subsurface conditions within the Site, the proposed services are anticipated to be founded on the dense to very dense native non-cohesive deposits, and in the limestone bedrock which are considered suitable for supporting sewers and watermains, provided that the integrity of the base can be maintained during construction. As such, excavation for the underground utilities will be challenging due to the presence of bedrock.

Based on the final grade as shown on the preliminary grading plan, the invert of the proposed underground services within the site will have a soil cover of at least 1.4 m below finished grade for frost protection.

6.7.1 Pipe Bedding and Cover

The bedding for watermains and sewers should be compatible with the size, type, and class of pipe, surrounding soil and loading conditions and should be designed in accordance with provincial and municipal standards.

Where granular bedding is deemed to be acceptable, it should consist of at least 200 mm of well graded crushed stone meeting OPSS gradation requirements for Granular A or 19 mm Crusher Run limestone material. Crushed rock mined from the Site can be used as bedding meeting the gradation of OPSS 1010 Granular A. The physical properties as per OPS standards must be confirmed and met prior to use on-Site.

Cover material, from pipe spring line to at least 300 mm above the top of the pipe, should consist of granular material, such as OPSS Granular A or sand. The use of ‘high-performance bedding' as the bedding or cover material should not be permitted.

The bedding and cover materials should be compacted in maximum 200 mm loose lift thickness to at least 98 percent SPMDD.

6.7.2 Trench Backfill

Most of the excavated materials will consist of engineered fill, native non-cohesive soils and bedrock. Excavated bedrock from Site may be crushed and reused for backfilling of utility trenches. The excavated material from the Site may be used as trench backfill, provided they are free of significant amounts of topsoil, organics or other deleterious material and are placed and compacted as outlined below. All topsoil, if encountered, and organic materials should be wasted or used for landscaping purposes. All oversized cobbles and boulders (i.e., greater than 150 mm in size) should be removed from the backfill.

All trench backfill, from the top of the cover material to subgrade elevation should be placed in maximum 300-mm thick loose lifts and uniformly compacted to at least 95 percent of the material’s SPMDD.

Alternatively, the trench may be backfilled with imported free draining, non-frost susceptible granular or sandy material. The material should meet OPSS gradation requirements for SSM or Granular A. To minimize future settlement of the backfill and achieve an acceptable subgrade for the roadways, curbs, driveways, etc., the backfill material should be compacted in maximum 300 mm loose lift thickness to a minimum 95 percent SPMDD from the top of the cover material to 1.0 m below the subgrade elevation. The upper 1 m of the backfill should consist of granular material and compacted to at least 98 percent SPMDD to support the pavement structure. Oversized cobbles and boulders (i.e., greater than 150 mm in size) should be removed from the backfill.

Normal post-construction settlement of the compacted trench backfill should be expected. As such, consideration could be given to implementing one or a combination of the following measures to reduce post construction settlement above the trenches, depending on the weather conditions encountered during the construction:

- Allow the overburden materials to dry prior to compaction; and / or,
- Make provision to defer final paving of the surface course asphalt in the roadway for 3 months, or longer, to allow the trench backfill settlement to occur and thereby improve the final roadway appearance.

6.7.3 Trench Cut-Offs

Where the invert levels of the services are located below the measured groundwater levels, consideration should be given to installation of low hydraulic conductivity water-stops or cut-offs (trench plugs) at strategic locations in accordance with OPSD 802.095. This should be done, as appropriate, to reduce the potential for preferential groundwater flow through the granular bedding and trench backfill where the trench is within the bedrock or along steep grades. The need for and frequency of trench plugs should be evaluated during the detailed design phase and should be considered at the construction limits, and equally spaced at a maximum 100 m spacing (depending on pipe length, may be less).

6.8 Stormwater Management Ponds

Based on the preliminary grading plan provided by SCS, the base of the SWM Pond 1 and SWM Pond 2 will be at approximately Elev. 138 m and Elev. 139 m, respectively. Boreholes BH24-2, BH24-4, BH24-14 and BH24-17 were advanced at the location of SWM Pond 2. Boreholes BH24-15 and BH24-16 were advanced at the location of SWM Pond 4 which is located in Village C.

The normal water level in the SWM Pond 1 and SWM Pond 2 are anticipated to be at approximately Elev. 138 m and Elev. 141 m. Design details of the SWM ponds were not available at the time of preparing this report. Additional geotechnical comments can be provided once the design details have been finalized. Excavations for the SWM ponds are anticipated to extend about 2.5 mbgs to 4.6 mbgs.

- Based on the subsurface conditions encountered within the SWM ponds, the subsurface soil conditions below the topsoil are expected to generally consist of compact to very dense non-cohesive deposits (silty sand to silty sand and gravel) overlying the bedrock. The inverts of the SWM ponds are anticipated to be within the bedrock.
- The measured shallow groundwater level in the monitoring wells installed in Boreholes BH24-4 and BH24-17 were at 2.8 mbgs and 3.9 mbgs on August 13, 2024 (Elev. 140.8 m and Elev. 137.6 m, respectively). At Borehole BH24-15 the groundwater level was measured at a depth of about 1.0 mbgs (Elev. 142.5 m). Considering that the

groundwater elevations are higher than the water level in the pond, groundwater inflow into the pond should be anticipated.

- If the potential mixing of the stormwater and groundwater is of no concern, a pond liner would not be required. If separation of groundwater and pond water is a requirement, a geosynthetic clay liner (GCL).
- Riprap, 50 mm Crusher Run Limestone or similar materials (crushed bedrock) are recommended to protect the geosynthetic clay liner (GCL) and at the pond bottom and up the side slopes to prevent damage by backhoes at the time of pond cleanout and servicing. A minimum thickness of 600 mm is recommended.
- Further, considering that excavation will be in bedrock, effort should be made to ensure the SWM pond base is free of sharp and protruding rock faces, which could puncture the proposed GCL. Alternatively, a 300 mm thick layer of soil should be placed at the bottom of the bedrock face prior to placement of the GCL.
- Groundwater flow is expected from the non-cohesive deposits during precipitation events and also from within the bedrock. Excavation of the SWM pond within these non-cohesive deposits is recommended to be carried out when groundwater levels are expected to be the lowest (i.e., late summer and fall). It is recommended that long-term monitoring of the groundwater levels be carried out to determine the lowest groundwater levels.
- Access roads are recommended to be compacted to 100 percent SPMDD.
- Any constructed berms around the pond should have a top width of at least 3 m to allow access by maintenance vehicles. The material used to construct the berms should be approved by the geotechnical engineer prior to placement. The approved material used to construct berms should be placed in maximum 300 mm thick loose lifts and uniformly compacted to at least 98 percent of the material's SPMDD.
- Further to the above, care should be taken to ensure homogeneity of the constructed berm (i.e., no erodible layers). The prepared foundation for the berm should be inspected by the geotechnical engineer prior to placement of berm fill material. Additional recommendations can be provided once design has been advanced.
- The pond should be equipped with an emergency spillway or similar structure(s) designed to eliminate the possibility of over-topping of the berms.
- Where pipes enter or exit the pond, they should be provided with a concrete collar and be backfilled with a relatively impermeable material (e.g., imported clayey soil) to reduce preferential flow through the pipe bedding and backfill and possible loss of ground. Pipes entering or exiting the pond should be sized and designed to allow for cleaning. The exposed end of the riser portion should be provided with a protective wire mesh or the like to prevent unauthorized access (e.g., by children).
- Alternatively, a trench plug (i.e., a clay seal or unshrinkable fill) at least 1 m long as per OPSD 802.095 can be placed along the inlet and outlet pipes where they pass through the pond slopes. The clay should be placed at water contents of +/- 2 percent of the standard Proctor optimum water content.
- All exposed surfaces should be covered with topsoil and seeded upon completion.

- The monitoring wells installed in the boreholes drilled as a part of the geotechnical investigations could provide a conduit for groundwater flow. It will be important that following the construction of the pond, all monitoring wells, piezometers, well points and the like be properly abandoned in strict accordance with Ontario Regulation (O. Reg.) 903 amended by O.Reg. 128/03 of the Ontario Water Resources Act.
- Regular inspections by the geotechnical engineer should be carried out during the pond construction. The final pond side slopes should be sodded or otherwise similarly treated to reduce erosion. Maintenance will be required over the first several years until the vegetative mat has taken root.

Further comments and revisions on the above recommendation and construction of the SWM ponds may be provided once the design drawings have been finalized.

6.9 Asphalt Pavement Construction

6.9.1 Pavement Structure

Based on the results of the geotechnical investigation and on review of the preliminary grading plan provided, it is our understanding that the roads within the development will be used for residential use and classified as a Local Road.

Traffic information was not available at the time of this report preparation, as such, the recommended minimum pavement structure design has been developed for two traffic loading scenarios, light duty and heavy duty and provided in Table 6.2.

Table 6.2 – Flexible Pavement Design Recommendations

Pavement Layer	Light Duty Pavements / Local Roadways	Heavy Duty Pavements / Collectors / Fire Route
Surface Course Asphalt	40 mm HL3	50 mm HL3
Binder Course Asphalt	50 mm HL8	70 mm HL8
Granular Base	150 mm Granular A	150 mm Granular A
Granular Subbase	300 mm Granular B Type I or II	400 mm Granular B Type I or II

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.

GEMTEC should be allowed to review the drawings and provide additional recommendations if the design differs from our assumptions. In general, heavy-duty pavement should be provided for access roads and where trucks will be present.

6.9.2 Effects of Subgrade Disturbance

If the road subgrade surface becomes disturbed or wetted due to construction operations or precipitation, or the granular pavement materials are to be used by construction traffic, the Granular B thicknesses provided above may not be adequate and it may be necessary to increase the thickness of the Granular B subbase or exclusively use Granular B, Type II subbase. The contractor should be responsible for providing suitable access for construction equipment.

The required thickness of the subbase materials will depend on a number of factors, including contractor workmanship and schedule, contractor methodology, soil types, and weather conditions, and should be assessed by geotechnical personnel at the time of construction. In our opinion, the recommended approach for subgrade preparation from a geotechnical point of view is to:

- Proofroll the subgrade conditions at the time of construction under the supervision of experienced geotechnical personnel; and,
- Adjust the thickness or type of the subbase material and include a woven geotextile separator, as required. Unit rate allowances should be made in the contract for sub-excavation and replacement with OPSS Granular B, Type II (as required).

6.9.3 Asphaltic Cement

Performance graded PG 58-28 asphaltic cement is recommended for the road construction. The final asphalt surface should be sloped at a minimum of 2 percent to shed runoff.

6.9.4 Granular and Asphalt Material Placement

The pavement granular materials should be compacted in maximum 300 mm thick loose lifts to the 100 percent SPMDD using suitable vibratory compaction equipment. Crushed rock mined from the Site can be used as granular subbase meeting the requirements of OPSS 1010 Granular B, Type II. However, the physical properties as per OPS standards must be confirmed and met prior to use on-Site.

The asphalt materials should be compacted to at least 92 percent of their Marshall Maximum Relative Density according to OPSS 310, as measured in the field using a nuclear density gauge.

6.9.5 Transition Treatments

In areas where the new pavement structure will abut existing pavements, the depths of the granular materials should taper up or down at 5H:1V, or flatter, to match the depths of the granular material(s) exposed in the existing pavement. Any undermining or broken edges resulting from the construction activities should be removed by saw cut. All milled surfaces and butt joints should be properly tack coated prior to asphalt placement.

6.9.6 Pavement Drainage

In order to provide drainage of the granular base and subbase, the granular material should extend to ditches or drainage outlets. The bottom of the granular subbase layer should be at least 0.3 m above the bottom of the ditch or drainage outlet and should have positive drainage away from the site.

If storm sewers and catch basins are installed, it is suggested that continuous subdrains connected to catch basins be provided along the perimeter of both sides of all roadways to assist with drainage of the pavement structure. These drains should be installed at the bottom of the subbase layer.

7.0 ADDITIONAL CONSIDERATIONS

7.1 Monitoring Well Abandonment

All monitoring wells installed as part of this investigation should be decommissioned when no longer required by a licensed Water Well Contractor in accordance with applicable legislation. The well abandonment could be carried out in advance of or during construction.

7.2 Corrosion Considerations

The potential for the subsurface soil and groundwater conditions to corrode concrete and steel elements, or the like, should be considered in the final design. Additional sampling and / or testing may be required, or suitable protection measures (i.e., sulphate resistance concrete, sacrificial thickness, cathodic protection, etc.) should be considered by the designer.

7.3 Management of Excess Soil

It is noted that the professional services retained for this project include only the geotechnical aspects of the subsurface conditions at this Site. The presence or implications of possible surface and/or subsurface contamination, including naturally occurring sources of contamination, are outside the terms of reference for this report. This report does not constitute a Phase II Environmental Site Assessment (ESA), nor does it constitute a contaminated material management plan. It is recommended that soil samples be collected prior to and/or during construction to support the disposal or re-use of excess soil generated from the site.

7.4 Effects of Construction Induced Vibration

Some of the construction operations (such as excavation, granular material compaction, depth foundation installation, etc.) will cause ground vibration on and off the Site. The vibrations will attenuate with distance from the source but may be felt at nearby structures. Assuming that excavation is carried out in accordance with the guidelines in this report, the magnitude of the vibrations may be less than that which could cause damage to the nearby structures or infrastructure in good condition but are anticipated to be felt at and within the adjacent nearby structures. Construction planning / scheduling and vibration monitoring should be considered,

especially if work within the underlying bedrock is to be undertaken and given the proximity to the existing residential development to the north.

7.5 Design Review and Construction Observation

The engagement of the services of the geotechnical consultant during construction is recommended to confirm that the subsurface conditions throughout the proposed site development and excavations do not materially differ from those given in the report, and that the construction activities do not adversely affect the intent of the design. The subgrade surfaces for the services and pavement construction should be inspected by experienced geotechnical personnel to ensure that suitable materials have been reached and properly prepared. The placing and compaction of earth fill and imported granular materials should be inspected to ensure that the materials used conform to the grading and compaction specifications.

8.0 CLOSURE

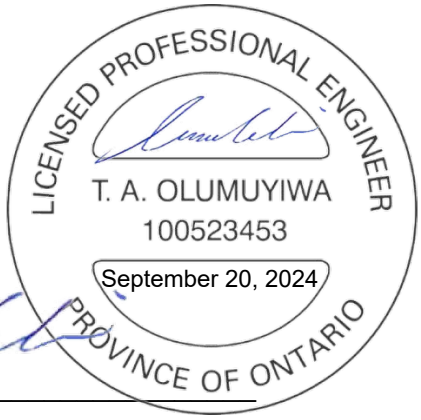
We trust that this report meets your immediate requirements. If conditions that differ from those assumed in this preliminary geotechnical investigation report are encountered during construction, GEMTEC should be given the opportunity to review the recommendations presented herein.

If you have any questions or require additional information, please contact the undersigned.

Regards,

GEMTEC Consulting Engineers and Scientists Limited





Rafael Abdulla, M.Eng., P.Eng., PMP
Senior Geotechnical Engineer

Timi Olumuyiwa, M.Sc., P.Eng., PMP
Senior Geotechnical Engineer

APPENDIX A

Conditions and Limitations of This Report

GEMTEC
Consulting Engineers and Scientists

Conditions and Limitations of This Report

1. **Standard of Care:** GEMTEC has prepared this report in a manner consistent with generally accepted engineering or environmental consulting practice in the jurisdiction in which the services are provided at the time of the report. No other warranty, expressed or implied is made.
2. **Copyright:** The contents of this report are subject to copyright owned by GEMTEC, save to the extent that copyright has been legally assigned by us to another party or is used by GEMTEC under license. To the extent that GEMTEC owns the copyright in this report, it may not be copied without our prior written agreement for any purpose other than the purpose indicated in this report. The methodology (if any) contained in this report is provided to the Client in confidence and must not be disclosed or copied to third parties without the prior written agreement of GEMTEC. Disclosure of that information may constitute an actionable breach of confidence or may otherwise prejudice our commercial interests.
3. **Complete Report:** This report is of a summary nature and is not intended to stand alone without reference to the instructions given to GEMTEC by the Client, communications between GEMTEC and the Client and to any other reports prepared by GEMTEC for the Client relative to the specific site described in the report. In order to properly understand the suggestions, recommendations and opinions expressed in this report, reference must be made to the whole of the report. GEMTEC can not be responsible for use of portions of the report without reference to the entire report.
4. **Basis of Report:** This Report has been prepared for the specific site, development, design objectives and purposes that were described to GEMTEC by the Client. The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the document, subject to the limitations provided herein, are only valid to the extent that this report expressly addresses the proposed development, design objectives and purposes. Any change of site conditions, purpose or development plans may alter the validity of the report and GEMTEC cannot be responsible for use of this report, or portions thereof, unless GEMTEC is requested to review any changes and, if necessary, revise the report.
5. **Time Dependence:** If the proposed project is not undertaken by the Client within 18 months following the issuance of this report, or within the timeframe understood by GEMTEC to be contemplated by the Client, the guidance and recommendations within the report should not be considered valid unless reviewed and amended or validated by GEMTEC in writing.
6. **Use of This Report:** The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without GEMTEC's express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the client, GEMTEC may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process.

   Contractors bidding on, or undertaking the work, should rely on their own investigations, as well as their own interpretations of the factual data presented in the report, as to how subsurface conditions may affect their work, including but not limited to proposed construction techniques, schedule, safety and equipment capabilities.
7. **No Legal Representations:** GEMTEC makes no representations whatsoever concerning the legal significance of its findings, or as to other legal matters touched on in this report, including but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and change. Such interpretations and regulatory changes should be reviewed with legal counsel.

8. **Decrease in property value:** GEMTEC shall not be responsible for any decrease, real or perceived, of the property or site's value or failure to complete a transaction, as a consequence of the information contained in this report.
9. **Reliance on Provided Information:** The evaluation and conclusions contained in this report have been prepared on the basis of conditions in evidence at the time of site inspections and on the basis of information provided to us. We have relied in good faith upon representations. information and instructions provided by the Client and others concerning the site. Accordingly, we cannot accept responsibility for any deficiency, misstatement or inaccuracy contained in this report as a result of misstatements, omissions, misrepresentations. or fraudulent acts of the Client or other persons providing information relied on by us. We are entitled to rely on such representations, information and instructions and are not required to carry out investigations to determine the truth or accuracy of such representations, information and instructions.
10. **Investigation Limitations:** Site investigation programs are a professional estimate of the scope of investigation required to provide a general profile of subsurface conditions but even a comprehensive investigation, sampling and testing program may fail to detect all or certain subsurface conditions.

    The data derived from the site investigation program and subsequent laboratory testing are interpreted by trained personnel and extrapolated across the site to form an inferred geological representation and an engineering opinion is rendered about overall subsurface conditions and their likely behaviour with regard to the proposed development. Conditions between and beyond the borehole/test hole locations may differ from those encountered at the borehole/test hole locations and the actual conditions at the site might differ from those inferred to exist, since no subsurface exploration program, no matter how comprehensive, can reveal all subsurface details and anomalies. Accordingly, GEMTEC does not warrant or guarantee the exactness of of the subsurface descriptions.

    Soil and groundwater conditions shown in the factual data and described in the report are the observed conditions at the time of their determination-or measurement. Unless otherwise noted, those conditions form the basis of the recommendations in the report. Groundwater conditions may vary between and beyond reported locations and can be affected by annual, seasonal and meteorological conditions. The condition of the soil, rock and groundwater may be significantly altered by construction activities (traffic, excavation, groundwater level lowering, pile driving, blasting, etc.) on the site or on adjacent sites. Excavation may expose the soils to changes due to wetting, drying or frost. Unless otherwise indicated the soil must be protected from these changes during construction.

    In addition, fill of variable physical and chemical composition can be present over portions of the site or on adjacent properties. The professional services retained for this project include only the geotechnical aspects of the subsurface conditions at the site, unless otherwise specifically stated and identified in the report. The presence or implication(s) of possible surface and/or subsurface contamination resulting from previous activities or uses of the site and/or resulting from the introduction onto the site of materials from off-site sources are outside the terms of reference for this project and have not been investigated or addressed.
11. **Sample Disposal:** GEMTEC will dispose of all uncontaminated soil and/or rock samples 60 days following issue of this report or, upon written request of the Client, will store uncontaminated samples and materials at the Client's expense. In the event that actual contaminated soils, fills or groundwater are encountered or are inferred to be present, all contaminated samples shall remain the property and responsibility of the Client for proper disposal.
12. **Follow-Up and Construction Services:** All details of the design were not known at the time of submission of GEMTEC's report. GEMTEC should be retained to review the final design, project plans and documents prior to construction, to confirm that they are consistent with the intent of GEMTEC's report.

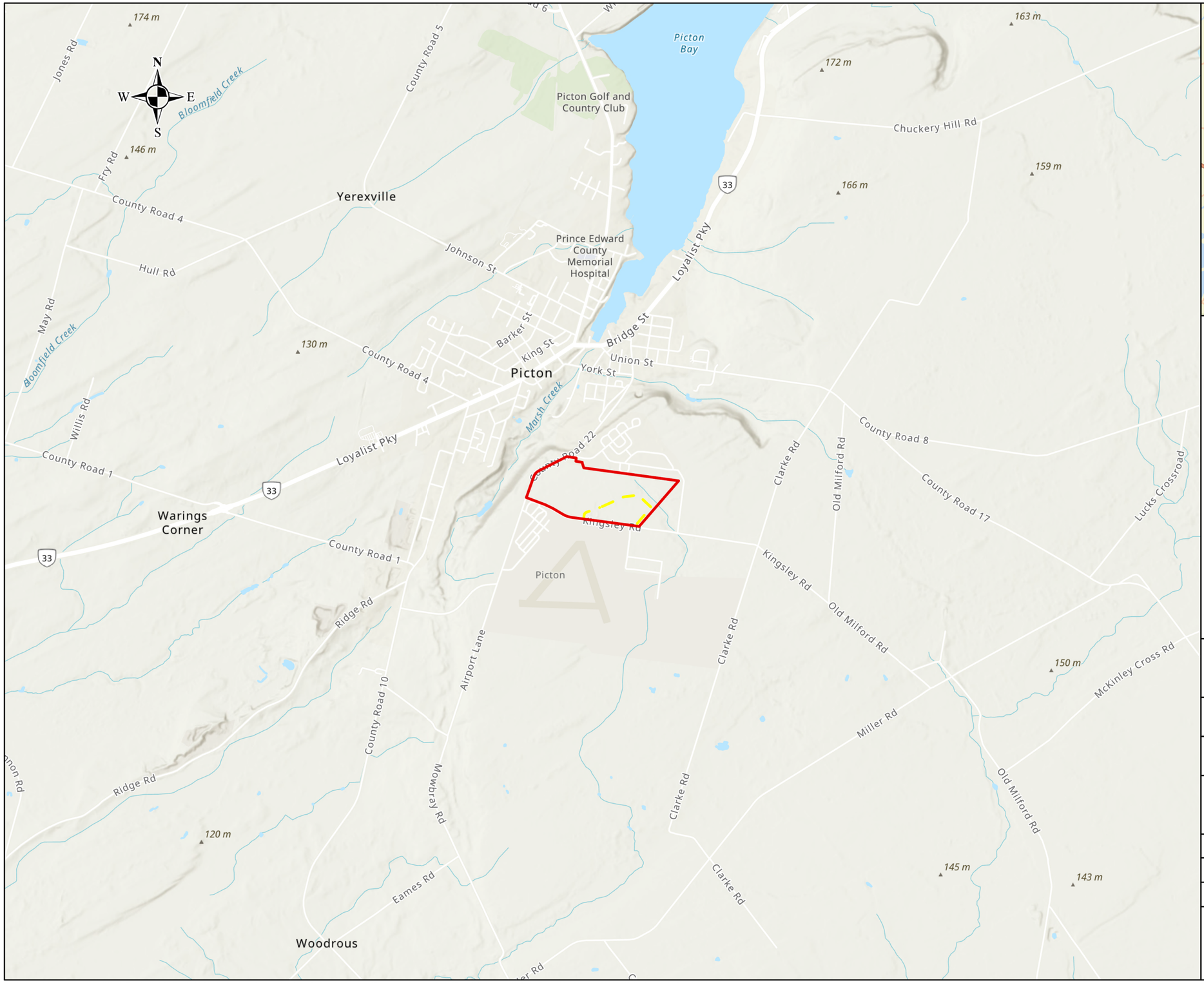
    During construction, GEMTEC should be retained to perform sufficient and timely observations of encountered conditions to confirm and document that the subsurface conditions do not

materially differ from those interpreted conditions considered in the preparation of GEMTEC's report and to confirm and document that construction activities do not adversely affect the suggestions, recommendations and opinions contained in GEMTEC's report. Adequate field review, observation and testing during construction are necessary for GEMTEC to be able to provide letters of assurance, in accordance with the requirements of many regulatory authorities. In cases where this recommendation is not followed, GEMTEC's responsibility is limited to interpreting accurately the information encountered at the borehole locations, at the time of their initial determination or measurement during the preparation of the Report.

13. **Changed Conditions:** Where conditions encountered at the site differ significantly from those anticipated in this report, either due to natural variability of subsurface conditions or construction activities, it is a condition of this report that GEMTEC be notified of any changes and be provided with an opportunity to review or revise the recommendations within this report. Recognition of changed soil and rock conditions requires experience and it is recommended that GEMTEC be employed to visit the site with sufficient frequency to detect if conditions have changed significantly.
14. **Drainage:** Drainage of subsurface water is commonly required either for temporary or permanent installations for the project. Improper design or construction of drainage or dewatering can have serious consequences. GEMTEC takes no responsibility for the effects of drainage unless specifically involved in the detailed design and construction monitoring of the system.

APPENDIX B

Site Location Plan
Borehole and Test Pit Location Plan





Legend

- APPROXIMATE VILLAGE C PROPERTY LINE
- APPROXIMATE SITE BOUNDARY

NOTES:

1. All locations approximate
2. Coordinate system: NAD 1983 UTM Zone 18N
3. Geographic dataset source: Ontario GeoHub.
4. Contains information licensed under the Open Government Licence – Ontario.
5. Service Layer Credits: World Topographic Map: Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, NRCan, Parks Canada
World Street Map Background (Community Map of Canada): Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, NRCan, Parks Canada
World Hillshade: Esri, NASA, NGA, USGS, FEMA

Scale: 1:35,000

0 250 500 1,000 1,500 2,000 2,500 Meters

Drawing: SITE LOCATION PLAN

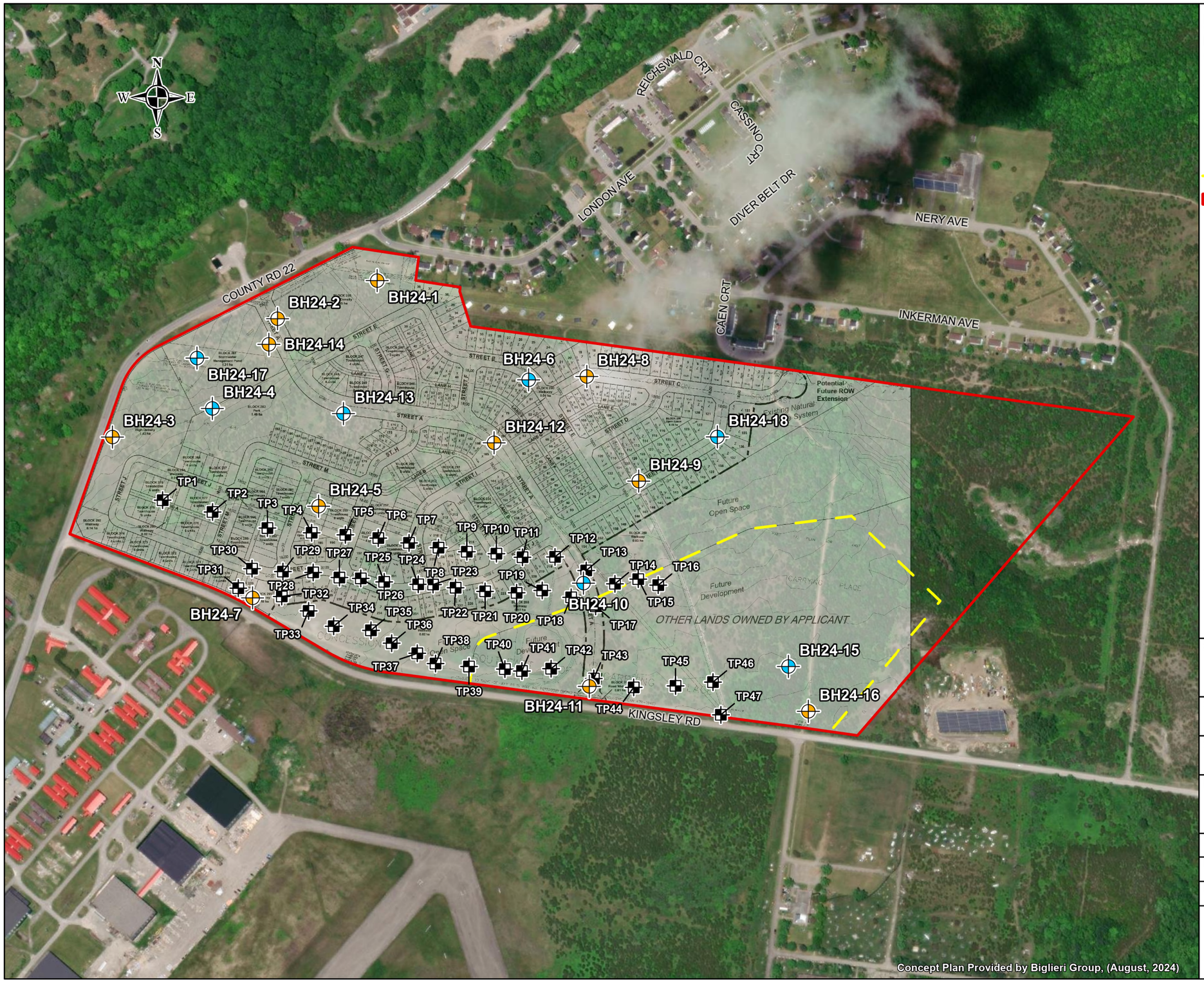
Client: PEC COMMUNITY PARTNERS INC.

Project: PRELIMINARY GEOTECHNICAL INVESTIGATION
VILLAGE A- BASE 31 AREA, PICTON,
COUNTY OF PRINCE EDWARD, ONTARIO

Drwn By:	S.J.	Chkd By:	R.A.
Project No.	103306.002	Revision No.	0
Date	SEPTEMBER 2024		**FIGURE 1**

GEMTEC
Consulting Engineers and Scientists
850 Champlain Ave Suite 101,
Oshawa, ON L1J 8C3
T: (289) 274-8476
www.gemtec.ca

Folder: N:\Projects\103300\103306.002\06_Civil Drafting\Sheets\Drawings\PrelimGeoTech\103306_002_PrelimGeoTech_Base31Area_R0_2024_08_30\



Legend

BH # BOREHOLE ID

TP # TEST PIT ID

APPROXIMATE BOREHOLE LOCATION

APPROXIMATE MONITORING WELL LOCATION

APPROXIMATE TEST PIT LOCATION

APPROXIMATE VILLAGE C PROPERTY LINE

APPROXIMATE SITE BOUNDARY

NOTES:

1. All locations approximate
2. Coordinate system: NAD 1983 UTM Zone 18N
3. Geographic dataset source: Ontario GeoHub.
4. Contains information licensed under the Open Government Licence – Ontario.
5. Service Layer Credits: World Imagery: Maxar

Scale: 1:5,000

0 50 100 200 300 400 Meters

Drawing: BOREHOLE AND TEST PIT LOCATION PLAN

Client: PEC COMMUNITY PARTNERS INC.

Project: PRELIMINARY GEOTECHNICAL INVESTIGATION
VILLAGE A- BASE 31 AREA, PICTON,
COUNTY OF PRINCE EDWARD, ONTARIO

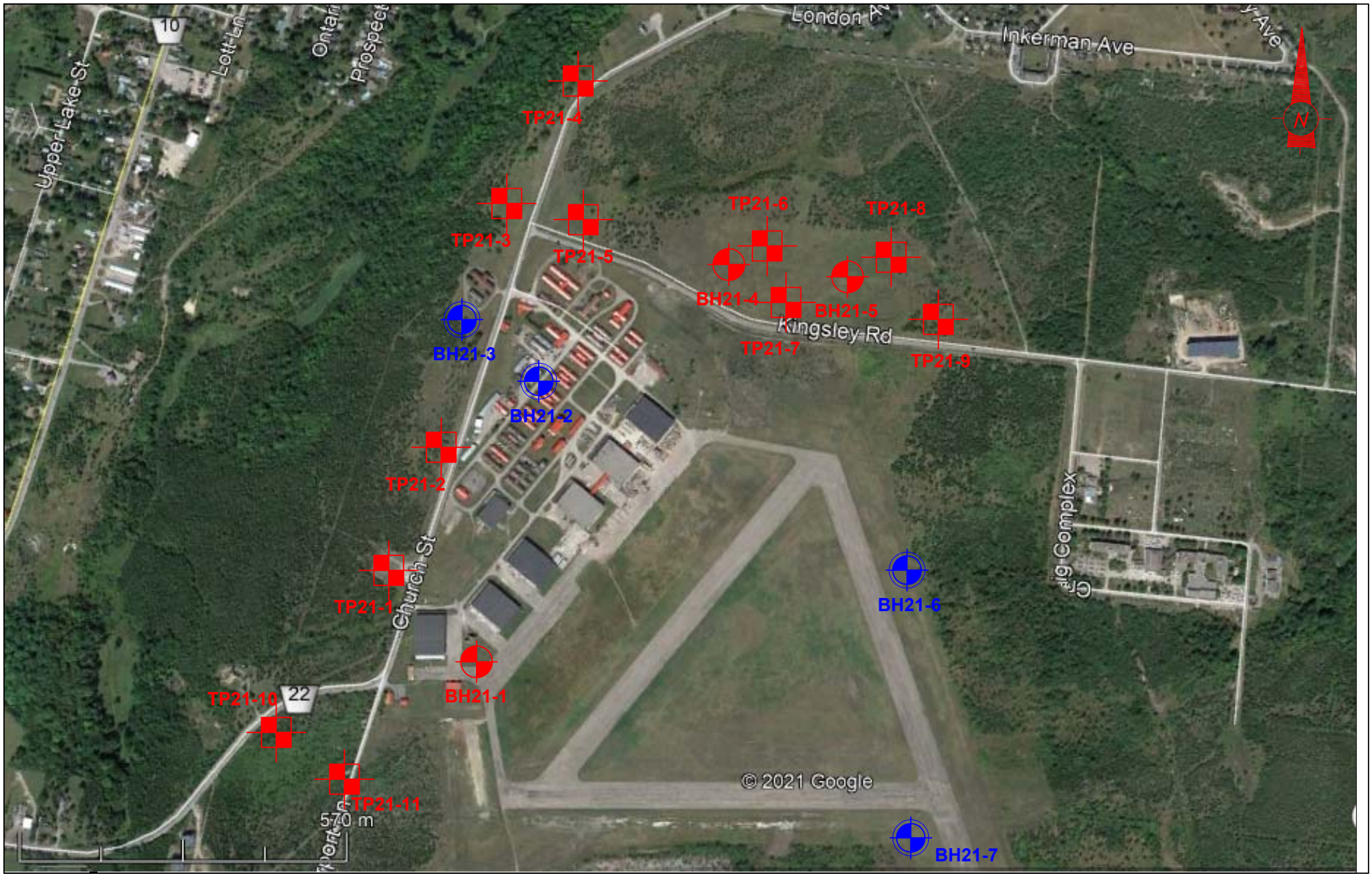
Drwn By:	S.J.	Chkd By:	R.A.
Project No.	103306.002	Revision No.	0
Date	SEPTEMBER 2024		**FIGURE 2**

GEMTEC
Consulting Engineers and Scientists
850 Champlain Ave Suite 101,
Oshawa, ON L1J 8C3
T: (289) 274-8476
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Folder: N:\Projects\103300\103306.002\06_Civil Drafting\Sheets\Drawings\PrelimGeoTech\103306_002_PrelimGeoTech_Base31Area_R0_2024_08_30\

APPENDIX C

Previous Geotechnical Reports
Palmer 2021 & Palmer 2023



LEGEND

- Test Pit Locations
- Borehole Locations
- Borehole/Monitoring Well Locations

Client:	**Tercot Acquisitions Limited**			Project No.: **1510436**	Drawing No.: **1**
Drawn:	**TP**	Approved:	**DT**	Title:	**Test Pit/Borehle/Monitoring Well Location Plan**
Date:	**July, 2021**	Scale:	**As Shown**	Project:	**Preliminary Geotechnical Investigation** **Picton Airport, Prince Edward County, ON**
Original Size:	**Letter**	Rev:	**N/A**	Palmer™	74 Berkeley Street Toronto, Ontario M5A 2W7

Palmer

LOG OF TEST PIT TP21-5

PROJECT: Preliminary Geotechnical Investigation - Picton Airport

CLIENT: Tercot Development Group

PROJECT LOCATION: 343 County Road 22, Picton, Prince Edward County, ON

DATUM: N/A

TP LOCATION: See Test Pit Location Plan

Method: Backhoe Excavation

Diameter:

Date: Feb/17/2021

REF. NO.: 1510436

ENCL NO.: 5

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	Ground Surface										
0.0	**TOPSOIL:** 50 mm										
0.1	**DISTURBED NATIVE (FILL):** organic clayey silt, trace sand, trace gravel, some rootlets, brown, wet		1	GS					55	5	
0.6	**FRAGMENTED BEDROCK:** limestone, grey		2	GS							
0.7	**END OF TEST PIT UPON REFUSAL ON LIMESTONE BEDROCK** 1. No groundwater accumulation upon completion of excavation.										

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

Palmer

LOG OF TEST PIT TP21-6

PROJECT: Preliminary Geotechnical Investigation - Picton Airport

CLIENT: Tercot Development Group

Method: Backhoe Excavation

PROJECT LOCATION: 343 County Road 22, Picton, Prince Edward County, ON

Diameter:

REF. NO.: 1510436

DATUM: N/A

Date: Feb/17/2021

ENCL NO.: 6

TP LOCATION: See Test Pit Location Plan

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE 20 40 60 80 100	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) 10 20 30	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	Ground Surface										
0.0	**TOPSOIL:** 100 mm										
0.1	**DISTURBED NATIVE (FILL):** sandy silt, some clay, trace gravel, some organics, trace rootlets, dark brown to brown, moist to wet		1	GS							
0.7	**END OF TEST PIT UPON REFUSAL ON LIMESTONE BEDROCK** 1. No groundwater accumulation upon completion of excavation.										

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

Palmer

LOG OF TEST PIT TP21-7

PROJECT: Preliminary Geotechnical Investigation - Picton Airport

CLIENT: Tercot Development Group

PROJECT LOCATION: 343 County Road 22, Picton, Prince Edward County, ON

DATUM: N/A

TP LOCATION: See Test Pit Location Plan

Method: Backhoe Excavation

Diameter:

Date: Feb/17/2021

REF. NO.: 1510436

ENCL NO.: 7

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m							GR SA SI CL
	Ground Surface											
0.0	**TOPSOIL:** 100 mm											
0.1	**DISTURBED NATIVE (FILL):** sandy silt, some clay, trace gravel, trace rootlets, trace organics, dark brown to brown, moist to wet		1	GS					○			
0.5	**END OF TEST PIT UPON REFUSAL ON LIMESTONE BEDROCK** 1. No groundwater accumulation upon completion of excavation.											

GROUNDWATER ELEVATIONS

Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

SOIL-ROCK-GOTEA 019 - PAL ROCK - HISTOGS STDRD 1 NOV - GDT 0.8
PALMER ROCK - 2019.8 - 1510436 - PICTON AIRPORT - 2021/03/18 6:07 PM

Palmer

LOG OF TEST PIT TP21-8

PROJECT: Preliminary Geotechnical Investigation - Picton Airport

CLIENT: Tercot Development Group

Method: Backhoe Excavation

PROJECT LOCATION: 343 County Road 22, Picton, Prince Edward County, ON

Diameter:

REF. NO.: 1510436

DATUM: N/A

Date: Feb/17/2021

ENCL NO.: 8

TP LOCATION: See Test Pit Location Plan

ELEV / DEPTH (m)	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	Ground Surface							20 40 60 80 100	10 20 30			
0.0	**TOPSOIL:** 300 mm											
0.3	**DISTURBED NATIVE (FILL):** sandy silt, some clay, trace gravel, some organics, trace rootlets, dark brown, moist to wet		1	GS					○			
0.6	**DISTURBED NATIVE (FILL):** clayey silt, some sand, some gravel, trace organics, contains cobbles, dark brown to brown, moist		2	GS					○	50		44 11 29 16
1.2	**END OF TEST PIT UPON REFUSAL ON LIMESTONE BEDROCK** 1. No groundwater accumulation upon completion of excavation.											

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity ○ ε=3% Strain at Failure

Palmer

LOG OF TEST PIT TP21-9

PROJECT: Preliminary Geotechnical Investigation - Picton Airport

CLIENT: Tercot Development Group

Method: Backhoe Excavation

PROJECT LOCATION: 343 County Road 22, Picton, Prince Edward County, ON

Diameter:

REF. NO.: 1510436

DATUM: N/A

Date: Feb/17/2021

ENCL NO.: 9

TP LOCATION: See Test Pit Location Plan

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS / 0.3 m "N"							
	Ground Surface											
0.0	**TOPSOIL:** 200 mm											
0.2	**DISTURBED NATIVE (FILL):** sandy silt, some clay, trace gravel, trace rootlets, brown, moist to wet		1	GS								
0.5	**END OF TEST PIT UPON REFUSAL ON LIMESTONE BEDROCK** 1. No groundwater accumulation upon completion of excavation.											

GROUNDWATER ELEVATIONS

Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

SOIL-ROCK LOG 001.GLB 019 - PAL ROCK - METRIC.GPJ PALMER.ROL - 2018-10Fb - 19:04:08 - PICTON AIRPORT - 2021/03/18.GPJ 1.1.73

Palmer

LOG OF BOREHOLE BH21-4

PROJECT: Preliminary Geotechnical Investigation - Picton Airport

CLIENT: Tercot Acquisitions Limited

Method: Hollow Stem Augers/NQ Coring

PROJECT LOCATION: 343 County Road 22, Picton, Prince Edward County, ON

Diameter: 205 mm/76 mm

REF. NO.: 1510436

DATUM: Geodetic

Date: Jun-02-2021

ENCL NO.: 15

BH LOCATION: See Borehole Location Plan

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"							GR SA SI CL
146.4	Ground Surface											
146.3 0.0	**TOPSOIL:** 100 mm											
0.1	**DISTURBED NATIVE (FILL):** gravelly silty clay, trace sand, trace rootlets, contain cobbles and boulders, brown, moist, hard		1	SS	70/ 175mm		146					
145.8 0.6	**ROCK CORING STARTS, REFER TO ROCK CORE LOG**						145					Auger grinding and spoon bouncing
1							144					
2							143					
3							142					
4												
5												
141.2 5.2	**END OF BOREHOLE** Notes: 1. Borehole was open upon completion of drilling.											

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity ○ ε=3% Strain at Failure

Palmer

LOG OF ROCK CORE BH21-4

PROJECT: Preliminary Geotechnical Investigation - Picton Airport

CLIENT: Tercot Acquisitions Limited | Method: Hollow Stem Augers/NQ Coring | REF. NO.: 1510436

LOCATION: 343 County Road 22, Picton, Prince Edward County, ON | Diameter: 205 mm/76 mm | ENCL NO.: 15

DATUM: Geodetic | Date: Jun-02-2021

BH LOCATION: See Borehole Location Plan

(m) ELEV / DEPTH	ROCK DESCRIPTION	GROUND WATER CONDITIONS	CORE SAMPLE NUMBER	CORE SAMPLE SIZE	TOTAL CORE RECOVERY (%)	SOLID CORE RECOVERY (%)	HARD LAYER (%)	RQD (%)	FRACTURE INDEX (per 0.3 m)	DISCONTINUITIES	Weathering Index	HYDRAULIC CONDUCTIVITY (cm/sec)	POINT LOAD TEST UCS AXIAL (MPa)*	POINT LOAD TEST UCS DIAMETRAL (MPa)*	UNIAXIAL COMPRESSION (MPa)	DENSITY (g/cm^3) E (GPa)
145.8	Rock Surface															
145.8 / 0.0	**LIMESTONE** moderately weathered with cobbles and boulders, medium strong to very strong, grey								14	Gravel Layer/Fragment Zone: 0.56m - 0.64m Fragment Zone: 0.87m - 0.97m 1.27m - 1.35m	W3-W2					
0.6	**LIMESTONE** slightly weathered to fresh, strong to very strong, grey								11							
1			1	NQ	100	82	N/A	47	9							
									2							
2 / 144.3									2							
2.1									3							
									5							
3			2	NQ	100	100	N/A	75	2		W1		104.6	114.2		
									4							
142.8									2							
3.6									1							
4									4							
			3	NQ	100	100	N/A	64	4							
									3							
5 / 141.2									4							
5.2	**END OF BOREHOLE** Notes: 1. Borehole was open upon completion of drilling.															

Weathering Index: W1-Fresh, W2-Slightly weathered, W3-Moderately weathered, W4-Highly weathered, W5-Completely weathered

Diangle to the core axis

E = Modulus of Elasticity

*: UCS [Mpa] ≈ 24 $I_{S(50)}$

Palmer

LOG OF BOREHOLE BH21-5

PROJECT: Preliminary Geotechnical Investigation - Picton Airport

CLIENT: Tercot Acquisitions Limited

Method: Hollow Stem Augers/NQ Coring

PROJECT LOCATION: 343 County Road 22, Picton, Prince Edward County, ON

Diameter: 205 mm/76 mm

REF. NO.: 1510436

DATUM: Geodetic

Date: Jun-02-2021

ENCL NO.: 16

BH LOCATION: See Borehole Location Plan

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS / 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa): ○ UNCONFINED, ● QUICK TRIAXIAL, + FIELD VANE & Sensitivity, × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
145.9	Ground Surface										
145.8 0.0	**TOPSOIL:** 100 mm										
0.1	**DISTURBED NATIVE (FILL):** gravelly silty clay, trace sand, trace rootlets, contain cobbles and boulders, brown, moist, hard		1	SS	56/ 275mm						
145.4											
0.6	**ROCK CORING STARTS, REFER TO ROCK CORE LOG**										Auger grinding and spoon bouncing
1							145				
2							144				
3							143				
4							142				
5 140.9							141				
5.1	**END OF BOREHOLE** Notes: 1. Borehole was open upon completion of drilling.										

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

Palmer

LOG OF ROCK CORE BH21-5

PROJECT: Preliminary Geotechnical Investigation - Picton Airport

CLIENT: Tercot Acquisitions Limited

LOCATION: 343 County Road 22, Picton, Prince Edward County, ON

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

Method: Hollow Stem Augers/NQ Coring

Diameter: 205 mm/76 mm

Date: Jun-02-2021

REF. NO.: 1510436

ENCL NO.: 16

(m) ELEV / DEPTH	ROCK DESCRIPTION	GROUND WATER CONDITIONS	CORE SAMPLE NUMBER	CORE SAMPLE SIZE	TOTAL CORE RECOVERY (%)	SOLID CORE RECOVERY (%)	HARD LAYER (%)	RQD (%)	FRACTURE INDEX (per 0.3 m)	DISCONTINUITIES	Weathering Index	HYDRAULIC CONDUCTIVITY (cm/sec)	POINT LOAD TEST UCS AXIAL (MPa)*	POINT LOAD TEST UCS DIAMETRAL (MPa)*	UNIAXIAL COMPRESSION (MPa)	DENSITY (g/cm^3) E (GPa)
145.4	Rock Surface															
0.6	**LIMESTONE** moderately weathered with cobbles and boulders, medium strong to very strong, grey								>25	Gravel Layer/Fragment Zone: 0.56m - 0.89m	W3-W2					
145.0																
0.9	**LIMESTONE** slightly weathered to fresh, strong to very strong, grey								10							
1			1	NQ	100	73	N/A	38	4							
									1							
144.1									1							
1.9									2							
2									2							
			2	NQ	100	100	N/A	91	5		W1				89.1	
3									1							
									2							
142.4																
3.5									2				109.8	88.4		
4									3							
			3	NQ	100	100	N/A	72	3							
									2							
5									1							
140.9																
5.1	**END OF BOREHOLE** Notes: 1. Borehole was open upon completion of drilling.															

Weathering Index: W1-Fresh, W2-Slightly weathered, W3-Moderately weathered, W4-Highly weathered, W5-Completely weathered

Angle to the core axis

E = Modulus of Elasticity

*: UCS [Mpa] ≈ 24 $I_{S(50)}$

871 Equestrian Court, Unit 1, Oakville ON L6L 6L7
Tel: 647-795-8153 | www.pecg.ca

Memorandum

Date: November 27, 2023
Project #: 1510458

To: Mike Pearsell and Julia Risi
SCS Consulting Group Ltd.
30 Centurian Drive, Suite 100, Markham, ON, L3R 8B8

From: Ted Ou and Matthew St. Denis

Re: Test Pit Observation
Picton Airport/Base 31

1. Introduction

Palmer is pleased to provide SCS Consulting Group Ltd. with our memorandum for test pit observation at the project Site located at 343 County Rd 22, in the county of Prince Edward, Ontario.

It is understood that the proposed development will consist of low rise and multi-storey buildings. The purpose of the test pit is to confirm bedrock depth in the Revitalization area to support the upcoming works as well as in the proposed Village A development area north of Kingsley Road to support the design of this future area, by means of twelve (12) test pits.

2. Test Pit Observation

The field work was carried out on Nov 15, 2023 by JCB 3CX rubber tire backhoe, with an 18inch bucket, provided by the client, during which time twelve (12) test pits (TP1 to TP12) were advanced at the locations shown on the **Test Pit Location Plan**, Drawing 1. The test pits were excavated to refusal on sound bedrock at depths ranging from 0.5 to 1.2m below existing ground surface.

Nine (9) test pits were conducted within the Revitalization area. Three (3) test pits were conducted within the Village A area, and the soil conditions were observed by the bidder and the engineers/technician from SCS and Palmer. The test pit locations were provided by the client and the test pit locations plotted on the Test Pit Location Plan (Drawing 1) were based on the measurement of site features and should be considered as approximate.

During the test pit excavation, fractured rock debris were observed at throughout the site as shown in the Photos in **Appendix A**. Due to the limit of excavation method during the excavation, all test pits were terminated at the sound bedrock surface. Additional heavy duty excavator equipped with a hoe ram or rock bucket were not available on site for further advancement into bedrock.

Table 1. Observations at Test Pits

Test Pit	Soil Obersvations
TP1	0 - 0.3m: Top soil 0.3 – 0.9m: Brown sandy silt mix with rock debris, moist 0.9m: Bedrock
TP2	0 - 0.3m: Top soil 0.3 – 1.2 m: Brown sandy silt mix with rock debris, moist 1.2m: Bedrock
TP3	0 - 0.3m: Top soil 0.3 – 0.8m: Brown sandy silt mix with rock debris, moist 0.8m: Bedrock
TP4	0 - 0.4m: Top soil 0.4 – 0.9m: Brown sandy silt mix with rock debris, moist 0.9m: Bedrock
TP5	0 - 0.4m: Top soil 0.4 – 0.7m: Brown sandy silt mix with rock debris, moist 0.7m: Bedrock
TP6	0 - 0.2m: Top soil 0.2 – 0.6m: Brown sandy silt mix with rock debris, moist 0.6m: Bedrock
TP7	0 - 0.2m: Top soil 0.2 – 0.7m: Brown sandy silt mix with rock debris, moist 0.7m: Bedrock
TP8	0 - 0.4m: Granular Fill 0.4 – 0.6m: Asphalt mix with granular fill 0.6 – 0.8m: Brown sandy silt mix with rock debris, moist 0.8m: Bedrock
TP9	0 - 0.4m: Granular Fill 0.4 – 0.6m: Asphalt mix with granular fill 0.6 – 0.85m: Brown sandy silt mix with rock debris, moist 0.85m: Bedrock
TP10 (TP#1 in Village A)	0 - 0.4m: Top soil 0.4 – 0.5m: Brown sandy silt mix with rock debris, moist 0.5m: Bedrock
TP11(TP#3 in Village A)	0 - 0.4m: Top soil 0.4 – 0.6m: Brown sandy silt mix with rock debris, moist 0.6m: Bedrock
TP12(TP#5 in Village A)	0 - 0.4m: Top soil 0.4 – 0.8m: Brown sandy silt mix with rock debris, moist 0.8m: Bedrock

3. Certification

We trust that the information contained in this memorandum is satisfactory. Should you have any questions, please do not hesitate to contact this office.

This memorandum was prepared and reviewed by the undersigned:

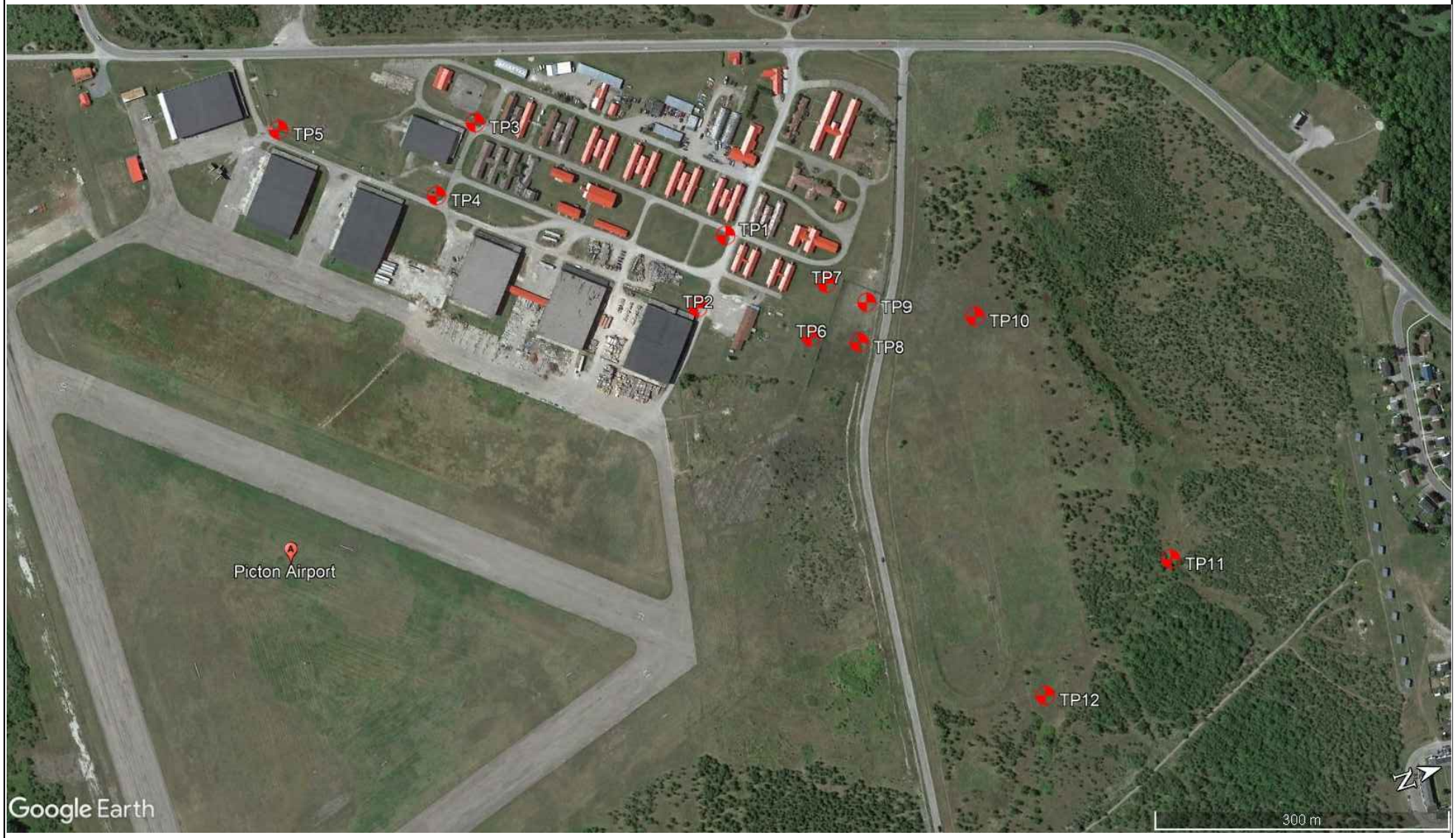
Prepared By:

Ted Ou, M.Sc, P.Eng, PMP.
Geotechnical Project Manager

Reviewed By:

Matthew D. St Denis., P.Eng.
Team Lead, Geotechnical Engineering

Drawings



LEGEND

Test Pit Location

Client:				Project No.: **1510458**	Drawing No.: **1**
Drawn: **TO**		Approved: **MDS**		Title: **Test Pit Location Plan**	
Date: **Nov, 2023**		Scale: **As Shown**		Project: **Test Pit Observation** **Picton Airport, Prince Edward County, ON**	
Original Size: **Letter**		Rev: **N/A**		Palmer PART OF SLR	871 Equestrain Court, Unit 1 Oakville, Ontario L6L 6L7

Appendix A

Site Photos



Test Pit 1



Test pit 2



Test pit 3



Test pit 4



Test pit 5



Test pit 6



Test pit 7



Test pit 8



Test pit 9



Test pit 10



Test pit 11



Test pit 12

APPENDIX D

Abbreviations and Terminology Used on Records of Boreholes
Record of Borehole Sheets BH24-1 to BH24-18

ABBREVIATIONS AND TERMINOLOGY USED ON RECORDS OF BOREHOLES AND TEST PITS

SAMPLE TYPES	
AS	Auger sample
CA	Casing sample
CS	Chunk sample
BS	Borros piston sample
GS	Grab sample
MS	Manual sample
RC	Rock core
SS	Split spoon sampler
ST	Slotted tube
TO	Thin-walled open shelby tube
TP	Thin-walled piston shelby tube
WS	Wash sample

SOIL TESTS	
w	Water content
PL, w_p	Plastic limit
LL, w_L	Liquid limit
C	Consolidation (oedometer) test
D_R	Relative density
DS	Direct shear test
G_S	Specific gravity
M	Sieve analysis for particle size
MH	Combined sieve and hydrometer (H) analysis
MPC	Modified Proctor compaction test
SPC	Standard Proctor compaction test
OC	Organic content test
UC	Unconfined compression test
γ	Unit weight

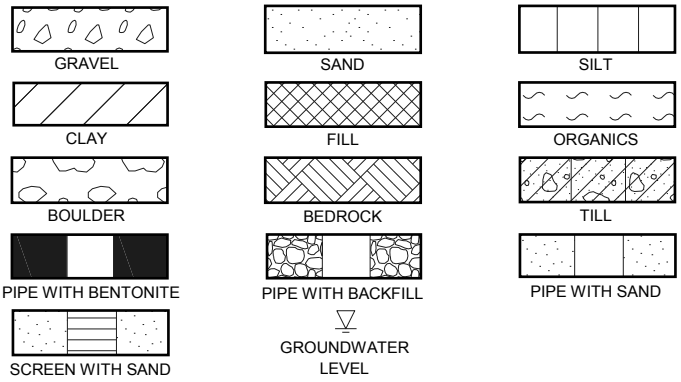
PENETRATION RESISTANCE

Standard Penetration Resistance, N
The number of blows by a 63.5 kg (140 lb) hammer dropped 760 millimetres (30 in.) required to drive a 50 mm split spoon sampler for a distance of 300 mm (12 in.). For split spoon samples where less than 300 mm of penetration was achieved, the number of blows is reported over the sampler penetration in mm.

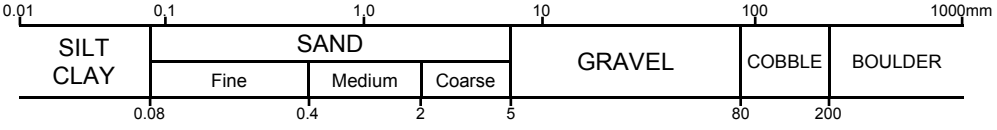
Dynamic Penetration Resistance
The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in.) to drive a 50 mm (2 in.) diameter 60° cone attached to 'A' size drill rods for a distance of 300 mm (12 in.).

WH	Sampler advanced by static weight of hammer and drill rods
WR	Sampler advanced by static weight of drill rods
PH	Sampler advanced by hydraulic pressure from drill rig
PM	Sampler advanced by manual pressure

COHESIONLESS SOIL Compactness		COHESIVE SOIL Consistency	
SPT N-Values	**Description**	**Cu, kPa**	**Description**
0-4	Very Loose	0-12	Very Soft
4-10	Loose	12-25	Soft
10-30	Compact	25-50	Firm
30-50	Dense	50-100	Stiff
>50	Very Dense	100-200	Very Stiff
		>200	Hard

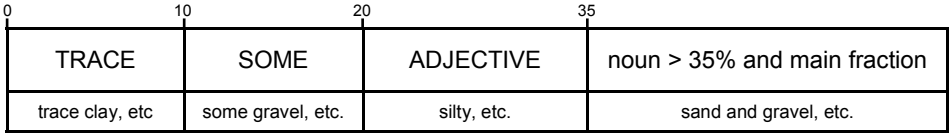


GRAIN SIZE



DESCRIPTIVE TERMINOLOGY

(Based on the CANFEM 4th Edition)



RECORD OF BOREHOLE : BH24-1

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 26 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger; Hollow Stem Auger (152mm OD)	Ground Surface		145.37						
		TOPSOIL (~75mm thick)		0.08	1A	SS				
		(SM) SILTY SAND, some gravel; grey, oxidation stains, rock fragment; non-cohesive, moist, very dense		145.07 0.30	1B	SS	203	50/0.08		
1		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	0	50/0.03		
				143.82	3	SS	0	50/0.03		
2	HQ Coring	End of Augering BEDROCK cored (approximately 1.6 m to 4.7 m depths) Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)		1.55	RC-1	RC	1524	TCR = 100%, SCR = 91%, RQD = 87%		
3										
4					RC-2	RC	1524	TCR = 100%, SCR = 83%, RQD = 90%		
				140.70						
5		End of Borehole Notes: 1. Borehole open and dry upon completion of drilling. 2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.		4.67						
6										
7										
8										
9										
10										

SOIL PROFILE | SAMPLES

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, % W_P W W_L
10 20 30 40 50 60 70 80 90

GEMTEC
Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-2

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 30 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	PENETRATION RESISTANCE (N), BLOWS/0.3m / DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m / SHEAR STRENGTH (Cu), kPA / WATER CONTENT, %	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger Hollow Stem Auger (152mm OD)	Ground Surface		143.61							
		TOPSOIL (~50mm thick)		0.05	1A	SS					
		(SM) SILTY SAND, some gravel; grey, rock fragment; non-cohesive, moist, very dense		143.31 0.30	1B	SS	203	50/0.1③			
1		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	25	50/0.0③			
				142.06	3	SS	25	50/0.0③			
		End of Augering		1.55							
2	HQ Coring	BEDROCK cored (approximately 1.6 m to 7.7 m depths): Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)			RC-1	RC	1524	TCR = 100%, SCR = 17%, RQD = 0%			
3											
4					RC-2	RC	1524	TCR = 100%, SCR = 38%, RQD = 0%			
5					RC-3	RC	1524	TCR = 100%, SCR = 83%, RQD = 22%			
6											
7					RC-4	RC	1524	TCR = 100%, SCR = 98%, RQD = 93%			
				135.94							
		End of Borehole		7.67							
8		Notes: 1. Borehole open and dry upon completion of drilling. 2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.									
9											
10											

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P — W — W_L
10 20 30 40 50 60 70 80 90

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LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-3

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 29 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	PENETRATION RESISTANCE (N), BLOWS/0.3m / DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m / SHEAR STRENGTH (Cu), kPA / WATER CONTENT, %	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger Hollow Stem Auger (152mm OD)	Ground Surface		142.49							
		TOPSOIL (~75mm thick)		0.08	1A	SS					
		(SM) SILTY SAND, some gravel; grey, oxidation stains, rock fragments; non-cohesive, moist, compact to very dense		142.19 0.30	1B	SS	254	19			
1		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	25	50/0.03			
				140.94	3	SS	0	50/0.03			
		End of Augering		1.55							
2	HQ Coring	BEDROCK cored (approximately 1.6 m to 6.2 m depths)									
		Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)			RC-1	RC	1524	TCR = 100%, SCR = 97%, RQD = 83%			
3											
					RC-2	RC	1524	TCR = 100%, SCR = 92%, RQD = 85%			
4											
5					RC-3	RC	1524	TCR = 100%, SCR = 97%, RQD = 90%			
6				136.32							
		End of Borehole		6.17							
		Notes:									
7		1. Borehole open and dry upon completion of drilling.									
		2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.									
8											
9											
10											

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P — W — W_L
10 20 30 40 50 60 70 80 90

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LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-4

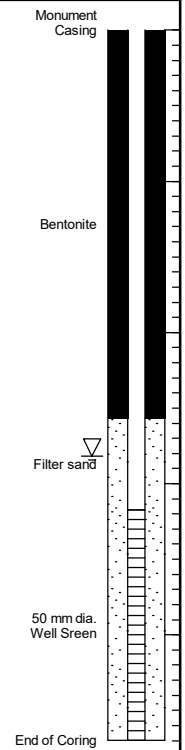
CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 29 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	ADDITIONAL LAB. TESTING
		Ground Surface		143.60					
0	Power Auger / Hollow Stem Auger (152mm OD)	TOPSOIL (~125mm thick)		0.13	1A	SS			
		(SM) SILTY SAND and GRAVEL; grey, rock fragments; non-cohesive, moist, compact to very dense		143.30 0.30	1B	SS	356	21	
		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	76	50/0.08	MH
1				142.05	3	SS	0	50/0.03	
	HQ Coring	End of Augering BEDROCK cored (approximately 1.7 m to 4.7 m depths) Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)		1.55	RC-1	RC	1524	TCR = 100%, SCR = 100%, RQD = 100%	
2									
3									
4					RC-2	RC	1524	TCR = 100%, SCR = 100%, RQD = 95%	UCS
		End of Borehole		138.90 4.70					
5		Notes: 1. Borehole open and dry upon completion of drilling. 2. Monitoring well installed as shown upon completion of drilling. 3. Groundwater level measured in monitoring well at approximately 2.8 mbgs (Elev. 140.8 m) on August 13, 2024.							
6									
7									
8									
9									
10									

SHEAR STRENGTH (Cu), kPA
● PENETRATION RESISTANCE (N), BLOWS/0.3m
+ NATURAL ⊕ REMOULDED
▲ DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
WATER CONTENT, %
W_P W W_L
10 20 30 40 50 60 70 80 90

PIEZOMETER OR STANDPIPE INSTALLATION



GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEV. (m)
24/08/13	2.8 ▽	140.8

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LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-5

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 23 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger / Hollow Stem Auger (152mm OD)	Ground Surface		146.60						
		TOPSOIL (~125mm thick)			1A	SS				
		(GP) GRAVEL, some sand, some fines; grey, rock fragments; non-cohesive, moist, very dense		0.13 146.09	1B	SS	152	50/0.13		
1		- Auger grinding between depths of approximately 0.5 m (start of weathered BEDROCK) and 1.6 m		0.51	2	SS	0	50/0.1		
				145.05	3	SS	0	50/0.03		
2	HQ Coring	End of Augering BEDROCK cored (approximately 1.5 m to 4.6 m depths) Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)		1.55	RC-1	RC	1448	TCR = 95%, SCR = 83%, RQD = 83%		
3										
4					RC-2	RC	1524	TCR = 100%, SCR = 97%, RQD = 87%		
				142.00						
5		End of Borehole Notes: 1. Borehole open and dry upon completion of drilling. 2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.		4.60						
6										
7										
8										
9										
10										

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P — W — W_L
10 20 30 40 50 60 70 80 90

GEMTEC
Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-6

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

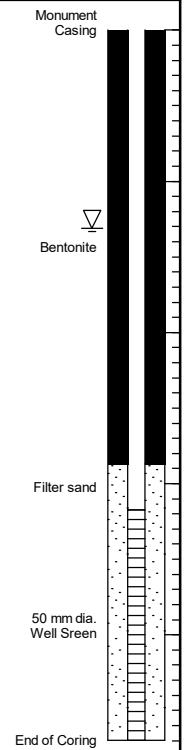
SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 26 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m
		Ground Surface		146.45				
0	Power Auger / Hollow Stem Auger (152mm OD)	TOPSOIL (~100mm thick)			1A	SS		
		(SM) SILTY SAND, some gravel; grey, rock fragments; non-cohesive, moist, very dense		0.10 146.15	1B	SS	127	50/0.1
		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m		0.30	2	SS	0	50/0.03
1				144.90	3	SS	0	50/0.03
	HQ Coring	End of Augering BEDROCK cored (approximately 1.7 m to 4.7 m depths) Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)		1.55	RC-1	RC	1524	TCR = 100%, SCR = 100%, RQD = 88%
2								
3								
4					RC-2	RC	1524	TCR = 100%, SCR = 100%, RQD = 100%
		End of Borehole Notes: 1. Borehole open and dry upon completion of drilling. 2. Monitoring well installed as shown upon completion of drilling. 3. Groundwater level measured in monitoring well at approximately 1.3 mbgs (Elev. 145.1 m) on August 13, 2024.		141.75 4.70				
5								
6								
7								
8								
9								
10								

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: NATURAL, REMOULDED
WATER CONTENT, %: W_P, W, W_L
10 20 30 40 50 60 70 80 90

ADDITIONAL LAB. TESTING: UCS

PIEZOMETER OR STANDPIPE INSTALLATION



GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEV. (m)
24/08/13	1.3 ▽	145.1

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Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-7

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 22 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger	Ground Surface		146.64						
		TOPSOIL (~175mm thick)		0.18	1A	SS				
		(SM) SILTY SAND, some gravel; grey, rock fragments; non-cohesive, moist, very dense		146.26 0.38	1B	SS	305	50/0.08		
1	Hollow Stem Auger (152mm OD)	- Auger grinding between depths of approximately 0.4 m (start of weathered BEDROCK) and 1.6 m			2	SS	0	50/0.03		
				145.09	3	SS	0	50/0.03		
2	HQ Coring	End of Augering BEDROCK cored (approximately 1.7 m to 4.7 m depths) Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)		1.55	RC-1	RC	1524	TCR = 100%, SCR = 97%, RQD = 90%		
3										
4					RC-2	RC	1524	TCR = 100%, SCR = 97%, RQD = 85%		
				141.94						
5		End of Borehole Notes: 1. Borehole open and dry upon completion of drilling. 2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.		4.70						
6										
7										
8										
9										
10										

SOIL PROFILE | SAMPLES

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, % — W_P W W_L
10 20 30 40 50 60 70 80 90

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Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-8

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 24 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m
0	Power Auger	Ground Surface		147.00				
		TOPSOIL (~75mm thick)		0.08	1A	SS		
		(SM) SILTY SAND and GRAVEL; grey, rock fragments; non-cohesive, moist, dense to very dense		146.70 0.30	1B	SS	356	32
1	Hollow Stem Auger (152mm OD)	- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	0	50/0.03
				145.45	3	SS	0	50/0.03
		End of Augering BEDROCK cored (approximately 1.5 m to 4.6 m depths) Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)		1.55	RC-1	RC	1524	TCR = 100%, SCR = 97%, RQD = 97%
2								
3	HQ Coring				RC-2	RC	1524	TCR = 100%, SCR = 97%, RQD = 88%
4				142.40				
		End of Borehole Notes: 1. Borehole open and dry upon completion of drilling. 2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.		4.60				
5								
6								
7								
8								
9								
10								

SOIL PROFILE | SAMPLES

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P — W — W_L
10 20 30 40 50 60 70 80 90

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION

GEMTEC
Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-9

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 24 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger	Ground Surface		146.88						
		BALLAST (~75mm thick)		0.08	1A	SS				
		(SM) SILTY SAND and GRAVEL; grey, oxidation stains, rock fragments; non-cohesive, moist, compact to very dense		146.48 0.40	1B	SS	457	17		
1	Hollow Stem Auger (152mm OD)	- Auger grinding between depths of approximately 0.4 m (start of weathered BEDROCK) and 1.6 m			2	SS	25	50/0.03		
		End of Augering		145.33 1.55	3	SS	0	50/0.03		
2	HQ Coring	BEDROCK cored (approximately 1.6 m to 4.6 m depths)			RC-1	RC	1524	TCR = 100%, SCR = 90%, RQD = 72%	UCS	
		Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)								
3										
4					RC-2	RC	1524	TCR = 100%, SCR = 97%, RQD = 83%		
		End of Borehole		142.23 4.65						
5		Notes:								
		1. Borehole open and dry upon completion of drilling.								
6		2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.								
7										
8										
9										
10										

SAMPLES

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, % W_P W W_L
10 20 30 40 50 60 70 80 90

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Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-10

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

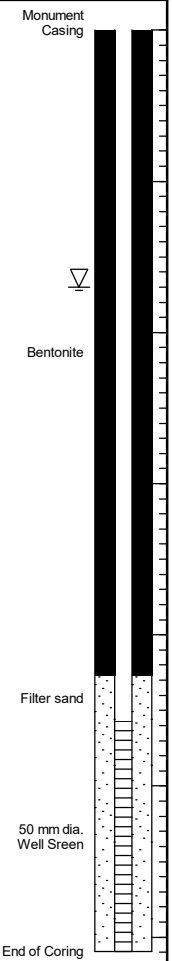
SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 23 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m
0	Power Auger (Hollow Stem Auger (152mm OD))	Ground Surface		145.43				
		TOPSOIL (~125mm thick)			1A	SS		
		(SM) SILTY SAND, some gravel; grey, rock fragments; non-cohesive, moist, very dense		0.13	1B	SS	203	50/0.13
				144.83				
1		- Auger grinding between depths of approximately 0.6 m (start of weathered BEDROCK) and 1.6 m		0.60	2	SS	0	50/0.05
				143.88	3	SS	0	50/0.03
		End of Augering		1.55				
2	HQ Coring	BEDROCK cored (approximately 1.6 m to 6.2 m depths)						
		Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)			RC-1	RC	1524	TCR = 100%, SCR = 100%, RQD = 100%
3								
4					RC-2	RC	1524	TCR = 100%, SCR = 100%, RQD = 93%
5					RC-3	RC	1524	TCR = 100%, SCR = 93%, RQD = 80%
6				139.21				
		End of Borehole		6.22				
7		Notes: 1. Borehole open and dry upon completion of drilling. 2. Monitoring well installed as shown upon completion of drilling. 3. Groundwater level measured in monitoring well at approximately 1.7 mbgs (Elev. 143.7 m) on August 13, 2024.						
8								
9								
10								

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: NATURAL, REMOULDED
WATER CONTENT, %: W_P — W — W_L
10 20 30 40 50 60 70 80 90

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION



GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEV. (m)
24/08/13	1.7 ▽	143.7

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LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-11

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 23 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		Ground Surface		143.65						
0	Power Auger Hollow Stem Auger (152mm OD)	TOPSOIL (~125mm thick)			1A	SS				
		(SM) SILTY SAND and GRAVEL; grey, rock fragments; non-cohesive, moist, dense to very dense		0.13	1B	SS	203	50/0.13		
				143.05						
		- Auger grinding between depths of approximately 0.6 m (start of weathered BEDROCK) and 1.6 m		0.60	2	SS	356	32	MH	
1										
				142.10	3	SS	25	50/0.03		
		End of Augering		1.55						
2	HQ Coring	BEDROCK cored (approximately 1.7 m to 6.2 m depths)								
		Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)			RC-1	RC	1524	TCR = 100%, SCR = 100%, RQD = 95%		
3										
					RC-2	RC	1524	TCR = 100%, SCR = 100%, RQD = 90%		
4										
5					RC-3	RC	1524	TCR = 100%, SCR = 97%, RQD = 92%		
6				137.43						
		End of Borehole		6.22						
		Notes:								
		1. Borehole open and dry upon completion of drilling.								
7		2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.								
8										
9										
10										

SOIL PROFILE | SAMPLES | PENETRATION RESISTANCE (N), BLOWS/0.3m | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | SHEAR STRENGTH (Cu), kPA + NATURAL ⊕ REMOULDED | WATER CONTENT, % W_P W W_L | 10 20 30 40 50 60 70 80 90

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Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-12

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 24 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	PENETRATION RESISTANCE (N), BLOWS/0.3m / DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m / SHEAR STRENGTH (Cu), kPA / WATER CONTENT, %	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger Hollow Stem Auger (152mm OD)	Ground Surface		146.00							
		TOPSOIL (~50mm thick)		0.05	1A	SS					
		(SM) SILTY SAND and GRAVEL; grey, rock fragments; non-cohesive, moist, very dense		145.70 0.30	1B	SS	127	50/0.05			
1		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	0	50/0.03			
				144.45	3	SS	0	50/0.03			
	HQ Coring	End of Augering		1.55							
2		BEDROCK cored (approximately 1.7 m to 6.2 m depths)									
		Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)			RC-1	RC	1524	TCR = 100%, SCR = 98%, RQD = 98%			
3											
4					RC-2	RC	1524	TCR = 100%, SCR = 97%, RQD = 93%			
5					RC-3	RC	1524	TCR = 100%, SCR = 100%, RQD = 100%			
6				139.78							
		End of Borehole		6.22							
7		Notes:									
		1. Borehole open and dry upon completion of drilling.									
		2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.									
8											
9											
10											

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P — W — W_L
10 20 30 40 50 60 70 80 90

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Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-13

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 25 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	PENETRATION RESISTANCE (N), BLOWS/0.3m / DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m / SHEAR STRENGTH (Cu), kPA / WATER CONTENT, %	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger Hollow Stem Auger (152mm OD)	Ground Surface		145.82						MH	Monument Casing
		TOPSOIL (~50mm thick)		0.05	1A	SS					
		(SM) gravelly SILTY SAND; grey, rock fragments; non-cohesive, moist, very dense		145.52 0.30	1B	SS	127	50/0.08			
1		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	25	50/0.03			
				144.27	3	SS	0	50/0.03			
		End of Augering		1.55							
2	HQ Coring	BEDROCK cored (approximately 1.7 m to 6.2 m depths)									Bentonite
		Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)			RC-1	RC	1524	TCR = 100%, SCR = 97%, RQD = 92%			
3											
4					RC-2	RC	1524	TCR = 100%, SCR = 90%, RQD = 70%			Filter sand
5					RC-3	RC	1524	TCR = 100%, SCR = 97%, RQD = 93%			50 mm dia. Well Sreen
6				139.60							End of Coring
		End of Borehole		6.22							
7		Notes:									
		1. Borehole open and dry upon completion of drilling.									
		2. Monitoring well installed as shown upon completion of drilling.									
8		3. Groundwater level measured in monitoring well at approximately 1.2 mbgs (Elev. 144.7 m) on August 13, 2024.									
9											
10											

GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEV. (m)
24/08/13	1.2 ▽	144.7

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Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-14

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 25 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	PENETRATION RESISTANCE (N), BLOWS/0.3m / DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m / SHEAR STRENGTH (Cu), kPA / WATER CONTENT, %	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger Hollow Stem Auger (152mm OD)	Ground Surface		143.60							
		TOPSOIL (~75mm thick)		0.08	1A	SS					
		(SM) SILTY SAND and GRAVEL; grey, rock fragments; non-cohesive, moist, very dense		143.30 0.30	1B	SS	152	50/0.08			
1		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	25	50/0.03			
				142.05 1.55	3	SS	0	50/0.03			
2	HQ Coring	End of Augering BEDROCK cored (approximately 1.6 m to 6.1 m depths) Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)			RC-1	RC	1524	TCR = 100%, SCR = 75%, RQD = 60%			
3											
4					RC-2	RC	1524	TCR = 100%, SCR = 77%, RQD = 67%			
5					RC-3	RC	1524	TCR = 100%, SCR = 82%, RQD = 75%			
6				137.45 6.15							
		End of Borehole Notes: 1. Borehole open and dry upon completion of drilling. 2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.									
7											
8											
9											
10											

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P — W — W_L
10 20 30 40 50 60 70 80 90

GEMTEC
Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-15

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 30 2024

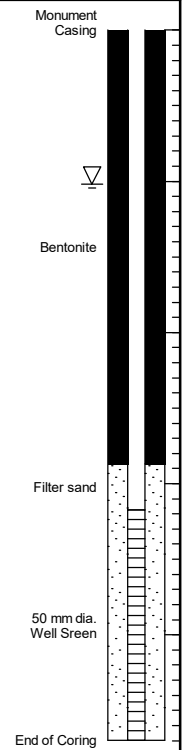
DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m
		Ground Surface		143.50				
0	Power Auger / Hollow Stem Auger (152mm OD)	TOPSOIL (~75mm thick)		0.08	1A	SS		
		(SM) SILTY SAND and GRAVEL; grey, rock fragments; non-cohesive, moist, very dense		143.20 0.30	1B	SS	152	50/0.13
		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	25	50/0.03
1				141.95	3	SS	0	50/0.03
	HQ Coring	End of Augering		1.55				
		BEDROCK cored (approximately 1.7 m to 4.7 m depths)						
2		Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)			RC-1	RC	1524	TCR = 100%, SCR = 100%, RQD = 100%
3								
4					RC-2	RC	1524	TCR = 100%, SCR = 100%, RQD = 95%
				138.80				
		End of Borehole		4.70				
5		Notes:						
		1. Borehole open and dry upon completion of drilling.						
		2. Monitoring well installed as shown upon completion of drilling.						
6		3. Groundwater level measured in monitoring well at approximately 1.0 mbgs (Elev. 142.5 m) on August 13, 2024.						
7								
8								
9								
10								

SAMPLES

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P — W — W_L
10 20 30 40 50 60 70 80 90

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION



GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEV. (m)
24/08/13	1.0 ▽	142.5

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LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-16

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 24 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m
		Ground Surface		142.98				
0	Power Auger / Hollow Stem Auger (152mm OD)	TOPSOIL (~125mm thick)			1A	SS		
		(SM) SILTY SAND and GRAVEL; grey, rock fragments; non-cohesive, moist, very dense		0.13 142.58 0.40	1B	SS	203	50/0.08
1		- Auger grinding between depths of approximately 0.4 m (start of weathered BEDROCK) and 1.6 m			2	SS	25	50/0.03
				141.43	3	SS	0	50/0.03
	HQ Coring	End of Augering BEDROCK cored (approximately 1.7 m to 6.2 m depths) Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)		1.55	RC-1	RC	1524	TCR = 100%, SCR = 97%, RQD = 92%
2								
3					RC-2	RC	1524	TCR = 100%, SCR = 97%, RQD = 93%
4								
5					RC-3	RC	1524	TCR = 100%, SCR = 95%, RQD = 85%
6				136.76				
		End of Borehole Notes: 1. Borehole open and dry upon completion of drilling. 2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.		6.22				
7								
8								
9								
10								

SAMPLES

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P W W_L
10 20 30 40 50 60 70 80 90

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION

GEMTEC
Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-17

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

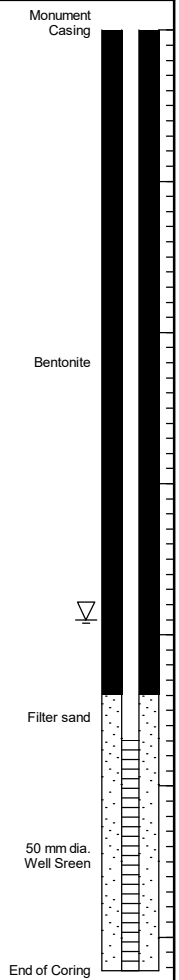
SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 25 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m
		Ground Surface		141.46				
0	Power Auger / Hollow Stem Auger (152mm OD)	TOPSOIL (~50mm thick)		0.05	1A	SS		
		(SM) SILTY SAND, some gravel; grey, rock fragments; non-cohesive, moist, very dense		141.16 0.30	1B	SS	102	50/0.08
1		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	25	50/0.03
				139.91	3	SS	25	50/0.03
		End of Augering		1.55				
2	HQ Coring	BEDROCK cored (approximately 1.7 m to 6.2 m depths)						
		Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)			RC-1	RC	1524	TCR = 100%, SCR = 98%, RQD = 97%
3								
4					RC-2	RC	1524	TCR = 100%, SCR = 98%, RQD = 98%
5					RC-3	RC	1524	TCR = 100%, SCR = 98%, RQD = 97%
6				135.24				
		End of Borehole		6.22				
7		Notes:						
		1. Borehole open and dry upon completion of drilling.						
		2. Monitoring well installed as shown upon completion of drilling.						
8		3. Groundwater level measured in monitoring well at approximately 3.9 mbgs (Elev. 137.6 m) on August 13, 2024.						
9								
10								

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: NATURAL, REMOULDED
WATER CONTENT, %: W_P, W, W_L
10 20 30 40 50 60 70 80 90

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION



GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEV. (m)
24/08/13	3.9 ▽	137.6

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LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-18

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 29 2024

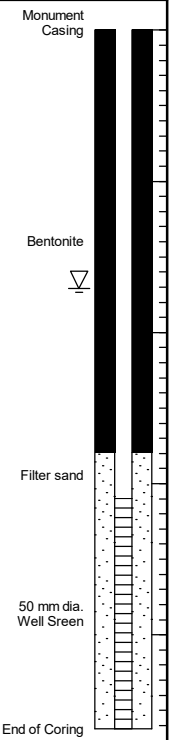
DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m
0	Power Auger	Ground Surface		147.15				
		TOPSOIL (~75mm thick)		0.08	1A	SS		
		(SM) SILTY SAND and GRAVEL; grey, rock fragments; non-cohesive, moist, very dense		146.85 0.30	1B	SS	203	50/0.1
1	Hollow Stem Auger (152mm OD)	- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	152	50/0.0
				145.60	3	SS	25	50/0.0
2	HQ Coring	End of Augering BEDROCK cored (approximately 1.6 m to 4.6 m depths) Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)		1.55	RC-1	RC	1524	TCR = 100%, SCR = 95%, RQD = 83%
3								
4					RC-2	RC	1524	TCR = 100%, SCR = 97%, RQD = 87%
				142.53				
5		End of Borehole Notes: 1. Borehole open and dry upon completion of drilling. 2. Monitoring well installed as shown upon completion of drilling. 3. Groundwater level measured in monitoring well at approximately 1.7 mbgs (Elev. 145.4 m) on August 13, 2024.		4.62				
6								
7								
8								
9								
10								

SAMPLES

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P W W_L
10 20 30 40 50 60 70 80 90

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION



GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEV. (m)
24/08/13	1.7 ▽	145.4

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LOGGED: IO
CHECKED: TO

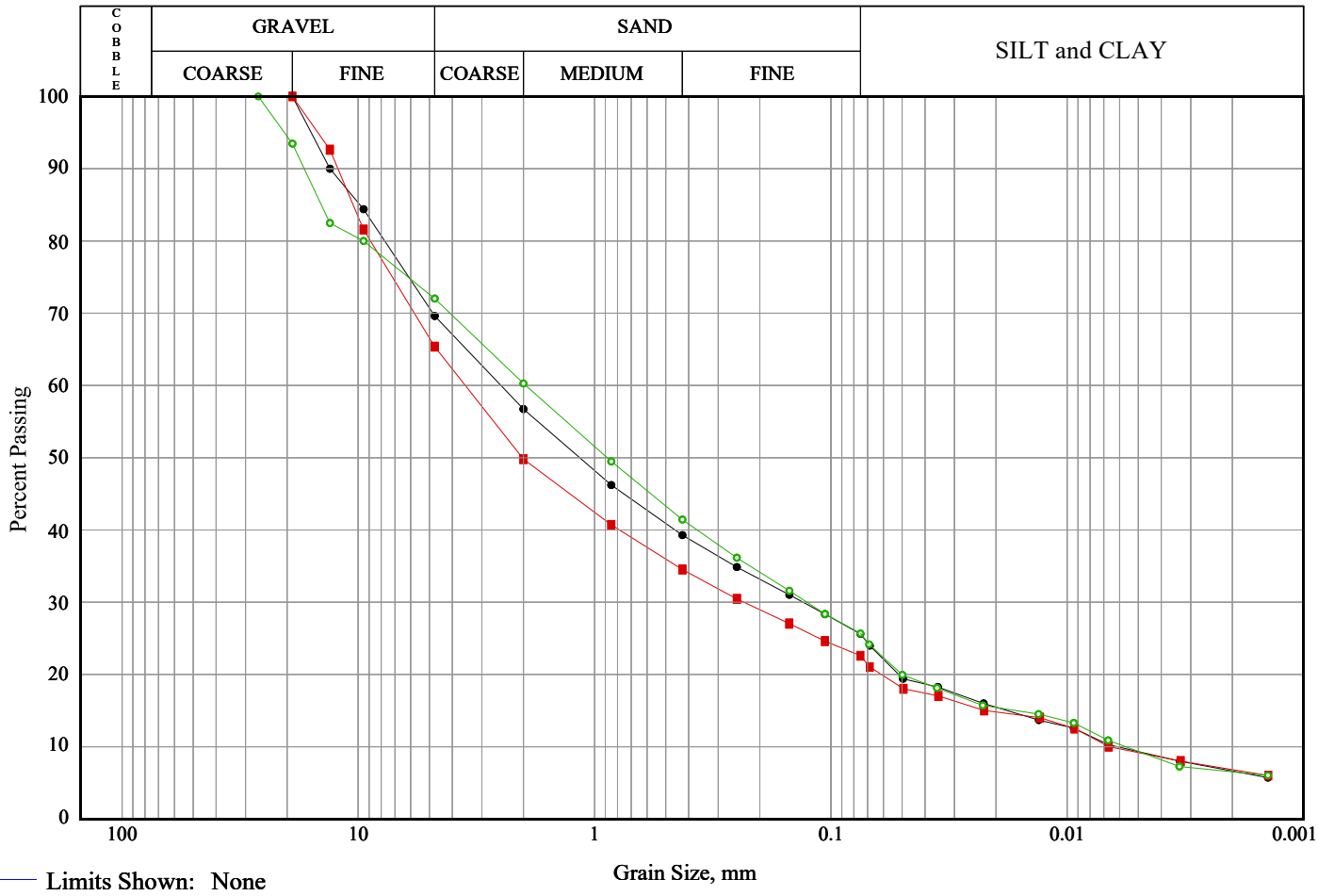
GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

APPENDIX E

Geotechnical Laboratory Results

GEMTEC Consulting Engineers and Scientists	Client: PEC Community Partners Inc.	Soils Grading LS-702/ASTM D-422
	Project: Village A, Base 31 Area, Picton, Ontario	
	Project #: 103306002	

Note: More information available upon request



Line Symbol	Sample	Borehole/ Test Pit	Sample Number	Depth (m)	% Cob.+ Gravel	% Sand	% Silt and Clay
●		BH24-4	SA-2	0.8	30.4	44.0	25.6
■		BH24-11	SA-2	0.8-1.4	34.6	42.8	22.6
○		BH24-13	SA-2	0.8	28.0	46.4	25.6

Line Symbol	USCS Classification	USCS Symbol	D_{10}	D_{15}	D_{30}	D_{50}	D_{60}	D_{85}	% 5-75µm
●	Gravelly SILTY SAND	SM	0.006	0.018	0.13	1.16	2.49	9.85	19.0
■	SILTY SAND and GRAVEL	SM	0.007	0.022	0.23	2.02	3.52	10.52	15.8
○	Gravelly SILTY SAND	SM	0.006	0.016	0.13	0.89	1.96	14.35	19.1

GEMTEC
Consulting Engineers and Scientists

Client: PEC Community Partners Inc.

Project: Village A, Base 31 Area, Picton, Ontario

Project #: 103306002

Rock Core Compressive Strength

Date/Time Sampled: 24/08/21 1:12:36 PM	Date/Time Tested: 24/08/21 1:12:36 PM

BH	Sample No	Depth (m)	Description	Diameter, mm	Area, mm²	Length After Capping, mm	L/D	Load, kN	Comp. Str., MPa
24-4	1890	3.5-3.8		63.3	3150	124	1.95	330.350	105.0
24-6	1891	4.2-4.5		63.3	3148	123	1.94	166.760	53.0
24-9	1892	2.7-2.9		63.3	3149	123	1.94	278.180	88.4

APPENDIX F

Rock Core Photographs

PEC Community Partners Inc.
Village A, Base 31 Residential Subdivision
Picton, Prince Edwards County, Ontario

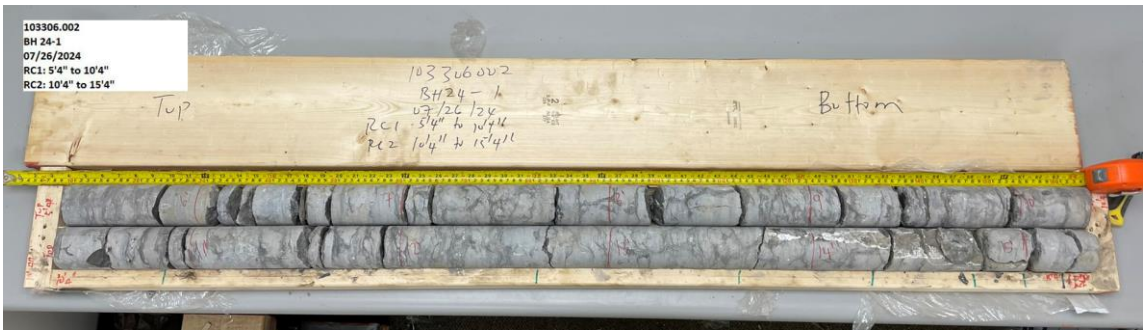


Photo 1: BH 24-1



Photo 2: BH 24-2

GEMTEC
Consulting Engineers and Scientists

Date:	September 20, 2024
Project No:	103306.002
Figure No:	1 and 2



Photo 3: BH 24-3

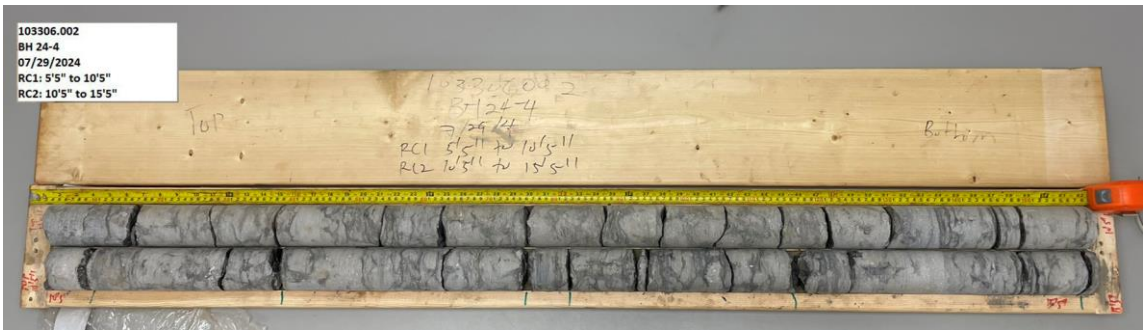


Photo 4: BH 24-4

PEC Community Partners Inc.
Village A, Base 31 Residential Subdivision
Picton, Prince Edwards County, Ontario



Photo 5: BH 24-5

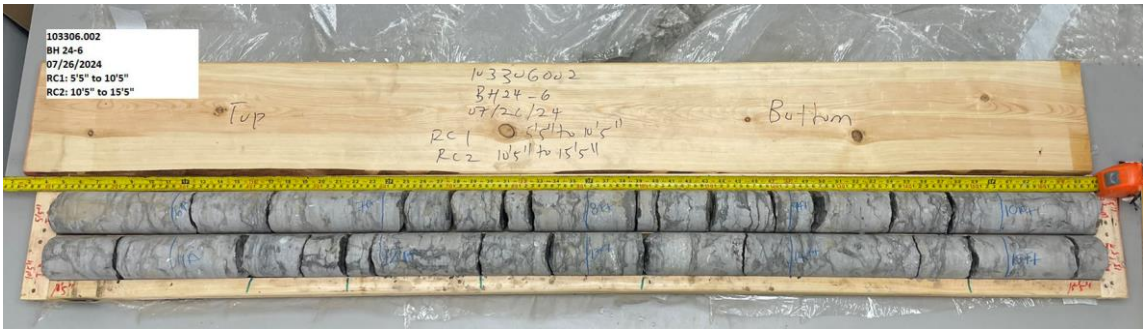


Photo 6: BH 24-6



Photo 7: BH 24-7

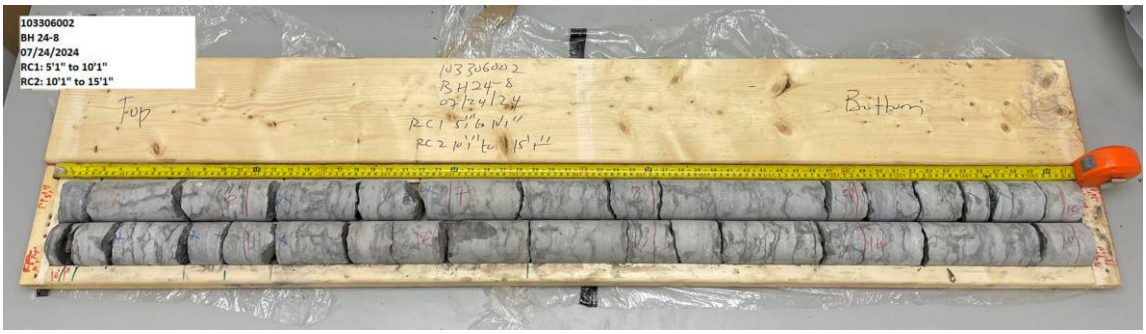


Photo 8: BH 24-8

PEC Community Partners Inc.
Village A, Base 31 Residential Subdivision
Picton, Prince Edwards County, Ontario



Photo 9: BH 24-9



Photo 10: BH 24-10

PEC Community Partners Inc.
Village A, Base 31 Residential Subdivision
Picton, Prince Edwards County, Ontario



Photo 11: BH 24-11



Photo 12: BH 24-12

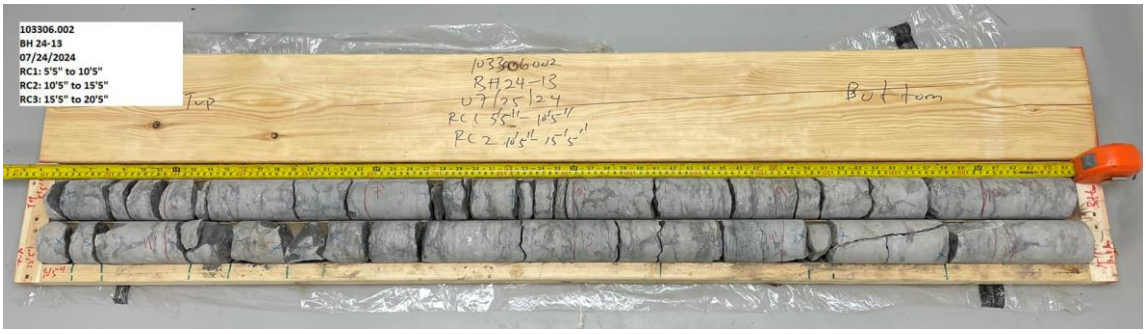


Photo 13: BH 24-13



Photo 14: BH 24-14



Photo 15: BH 24-15

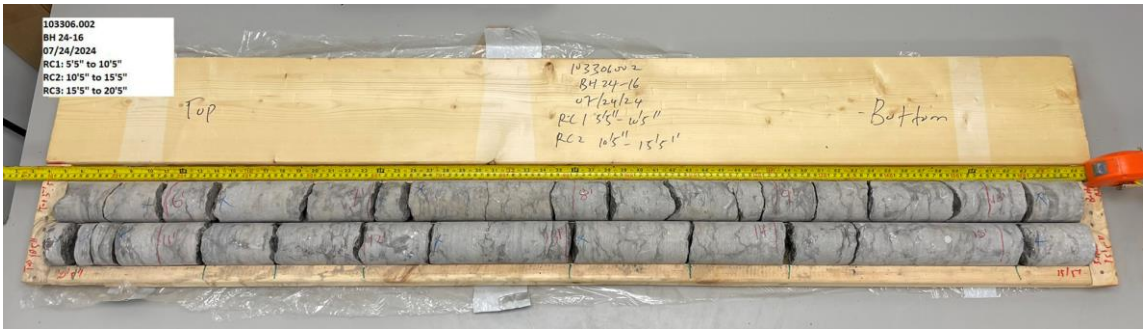


Photo 16: BH 24-16

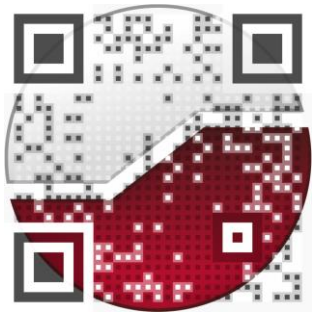


Photo 17: BH 24-17



Photo 18: BH 24-18

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civil	civil
geotechnical	géotechnique
environmental	environnement
structural	structures
field services	surveillance de chantier
materials testing	service de laboratoire des matériaux

expérience • connaissance • intégrité

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Preliminary Geotechnical Site Investigation
Village A - Base 31 Residential Subdivision
Picton, Prince Edward County, Ontario

GEMTEC Project: 103306.002

GEMTEC
www.gemtec.ca

Submitted to:

PEC Community Partners Inc.
570 Applewood Crescent
Vaughan, Ontario
L4K 4B4

Preliminary Geotechnical Site Investigation
Village A - Base 31 Residential Subdivision
Picton, Prince Edward County, Ontario

September 20, 2024
GEMTEC Project: 103306.002

experience • knowledge • integrity

GEMTEC Consulting Engineers and Scientists Limited
850 Champlain Avenue, Unit 101
Oshawa, ON, Canada
L1J 8C3

September 20, 2024 Project: 103306.002 – Rev0

PEC Community Partners Inc.
570 Applewood Crescent
Vaughan, Ontario
L4K 4B4

Attention: Chris Marchese, Development Manager

Re: Preliminary Geotechnical Site Investigation
Village A – Base 31 Residential Subdivision, Picton, Prince Edward County, Ontario

Enclosed is our geotechnical site investigation report in support of the proposed residential development located at the northeast quadrant of Kingsley Road and Church Street (County Road 22) in Picton, Prince Edward County, Ontario. The report presented herein is based on the scope of work summarized in the proposal dated June 25, 2024, and authorization to proceed was provided by PEC Community Partners Inc. on July 11, 2024. This report was prepared by Rafael Abdulla, M.Eng., P.Eng., PMP and reviewed by Timi Olumuyiwa, M.Sc., P.Eng., PMP.



Rafael Abdulla, M.Eng., P.Eng., PMP
Senior Geotechnical Engineer



Timi Olumuyiwa, M.Sc., P.Eng., PMP
Senior Geotechnical Engineer

RA/TO/af/mk

\\Lucid\Drawings and Files\Projects\103300\103306.002\03_Submittals\Geotech\103306.002_RPT_Geotech_Base 31 Village A_2024-09-20_Rev0.docx

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1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) has been retained by PEC Community Partners Inc. (PECCPI) to carry out a preliminary geotechnical site investigation in support of the design of the proposed residential development to be located at the northeast quadrant of the intersection of Kingsley Road and Church Street (County Road 22) in Picton, Prince Edward County, Ontario (herein referred to as the “Site” – Village A).

The purpose of the geotechnical site investigation was to characterize the general subsurface and groundwater conditions at the Site by means of a limited number of boreholes, laboratory tests and monitoring wells. Based on an interpretation of the information obtained, this report provides geotechnical recommendations for the proposed construction and other aspects of the project, including construction considerations, that could influence design decisions. It should be noted that this report addresses only the geotechnical (physical) aspects of the subsurface conditions at the site. The geo-environmental (chemical) aspects, including the consequences of possible surface and/or subsurface contamination resulting from previous activities or uses of the site and/or resulting from the introduction onto the site of materials from off-site sources, are beyond the terms of reference for this assignment and are not addressed herein.

This report is subject to the *Conditions and Limitations of This Report*, which follows the text of the report, and are considered an integral part of the report (Appendix A).

2.0 PROJECT AND SITE DESCRIPTION

2.1 Background Information

The following reports and project documents have been provided to and considered by GEMTEC in the preparation of the geotechnical recommendations:

- Site Concept Plan, Drawing No. DP-01 titled "*Draft Plan of Subdivision*” prepared by Biglieri Group, dated August 15, 2024.
- “Functional Servicing & Stormwater Management Report,” prepared by SCS Consulting Group Ltd. (SCS) dated September 2024.
- Geotechnical Report titled “*Preliminary Geotechnical Investigation, Main Parcel, North parcel, West Parcel, and Southwest parcel, Picton Airport, Prince Edward County, Ontario,*” prepared by Palmer dated July 9, 2021 (Palmer 2021); and,
- Report titled “*Test Pit Observation, Picton Airport/Base 31,*” prepared by Palmer dated November 27, 2023 (Palmer 2023).

2.2 Project Location and Site Description

The Site is located northeast of the intersection of Kingsley Road and Church Street in Picton, Prince Edward County, Ontario as shown on the Site Location Plan (Figure 1 in Appendix B).

The Site occupies an area of approximately 29 hectares (ha) and is vacant and predominantly wooded. The Site is bounded by a residential district to the north, Church Street to the west, Kingsley Road and commercial block to the south and wooded vacant land to the east. An unpaved roadway was observed at the east side of the property.

The topographic information provided by SCS indicates that the Site gently slopes downwards from east to west with elevations (Elev.) ranging from approximately Elev. 140.5 metres (m) to Elev. 147.2 m. The southern portion of the Site was an open area and was generally flat. A tributary of Marsh Creek is located west of Church Street and east of the Site, generally flowing in the north to south direction. It should be noted that Site activities (i.e., earthworks operations) was on-going and the existing grades may be different from those provided in the topographical survey information.

At the time of preparing this report, the information available indicated that the Site will be developed as follows:

- A stormwater management (SWM) pond is proposed for Block 281 (SWM Pond 1) located in the western area of the site adjacent to Church Street. Based on discussions with SCS, it is understood that a second SWM pond is proposed east of Street A, adjacent to Kingsley Road, within Village C (SWM Pond 2). This facility is proposed as a temporary facility SWM pond to service a portion of Village A as well as Street C ahead of the development of Village C.
- Two high-density blocks are proposed northeast and southwest of the proposed SWM Pond 2 adjacent to Church Street.
- Parks and open spaces are planned at different locations within the development.
- The remainder of the Site will be occupied by townhouses and detached houses with the associated access roads. It is understood that the buildings on-Site will be slab-on-grade buildings without a basement level.

Based on the drawings provided by SCS, it is understood that the underground infrastructure will consist of 375 millimetres (mm), 450 mm, 525 mm, and 600 mm diameter storm sewers, 250 mm, 300 mm, 375 mm, 525 mm and 600 mm diameter sanitary sewers, and watermain. A 1050 mm diameter storm sewer will be used to connect Village A to Village C along the southern limit of Street A. The servicing depth will range from about 2.0 m to 3.5 m below finished grades. The proposed sanitary sewers will have inverts ranging from approximately Elev. 139.1 m to Elev. 145.4 m, while the proposed storm sewer will have inverts ranging from approximately Elev. 138.5 m to Elev. 146.2 m.

2.3 Regional Geology

The surficial geology aspects of the general site area were reviewed from the following publications:

- Chapman, L.J., and Putnam, D.F., 2007, "*The Physiography of Southern Ontario*"; 4th Edition, Ontario Geological Survey; and,
- The Ontario Geological Survey, 2003, "*Surficial Geology of Southern Ontario*".

Physiographic mapping in the area according to the above-noted reference indicates that the Site lies within the physiographic region of southern Ontario known as the Prince Edward Peninsula. Prince Edward County is a plain or low plateau of limestone projecting in the eastern part of Lake Ontario and separated from the mainland by the Bay of Quinte. The Prince Edward Peninsula consists of clays, sands/silty sands, and till deposits and is underlain by the Lindsay Formation (Upper Ordovician) / Shadow Lake Formation (Middle Ordovician) bedrock. The surficial geology mapping indicates that the Site lies within an area of Palaeozoic bedrock.

Although not shown on the geology maps, reworked native material associated with the previous land use may be present at the Site. In general, the subsurface conditions encountered during the previous and current investigations were generally consistent with the physiographic and surficial geological mapping.

3.0 PREVIOUS INVESTIGATIONS

As noted above, a preliminary geotechnical investigation and test pit investigation were previously conducted for a larger property and findings are provided in reports provided in Appendix C.

Within the Village A property, the geotechnical report Palmer 2021 involved drilling two boreholes (Boreholes BH21-4 and BH21-5) and four test pits (Test Pits TP21-6 to TP21-9) in the southeastern area of Village A. The subsurface conditions at the boreholes and test pits consisted of topsoil (0.1 m to 0.3 m thick) overlying native sandy silt and gravelly silty clay overlying the bedrock. The upper portion of the overburden may have been disturbed due to past activities. The depth to bedrock at the locations of the test pits and boreholes ranged from about 0.5 metres below ground surface (mbgs) to 1.2 mbgs. Palmer 2021 indicated that the weathered zone in the bedrock observed in the boreholes ranged to depths of approximately 1.2 mbgs and 1.5 mbgs and the RQD ranged from 38 percent to 91 percent.

Palmer 2023 included three test pits (Test Pits TP10, TP11 and TP12) which were excavated in Village A. The subsurface conditions recorded at these locations indicated that the topsoil thickness was about 0.4 m underlain by sandy silt (extending to depths ranging from 0.5 mbgs and 0.8 mbgs) underlain by bedrock.

4.0 CURRENT SITE INVESTIGATION METHODOLOGY

The field work for this current site investigation was carried out from July 22 to 30, 2024 during which time eighteen boreholes, designated as Boreholes BH24-1 to BH24-18, were advanced to depths ranging from approximately 4.6 m to 7.7 mbgs (between Elev. 135.2 m and Elev. 142.5 m). It should be noted that two boreholes (i.e., Boreholes BH24-14 and BH24-15) were advanced within Village C, as requested by SCS. A total of forty-seven test pits, designated as Test Pits TP1 to TP47 were carried out on August 26, 2024, at the southern portion of the Site with thicknesses ranging from approximately 165 mm to 510 mm.

The borehole and test pit locations are shown on the Borehole and Test Pit Location Plan in Appendix B. Descriptions of the subsurface conditions observed in the boreholes are provided on the Record of Borehole Sheets in Appendix D. The results of the geotechnical laboratory tests are provided on the Record of Boreholes and in Appendix E.

The boreholes were advanced using a track mounted drill rig operated by Pontil Drilling of Mount Albert, Ontario, who is a MECP-licensed Water Well Contractor. The field work was observed throughout by a member of our geotechnical engineering staff who directed the drilling operations and logged the samples and boreholes.

The boreholes through the overburden were advanced to the sampling depths by means of continuous flight hollow stem augers using conventional 50-millimetre (mm) external diameter split spoon sampling equipment driven by an automatic hammer in accordance with the SPT procedures outlined in ASTM International standard D1586: "*Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils*". 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 split-spoon samplers used in the investigation limit the maximum particle size that can be sampled and tested to about 40 mm. Therefore, particles or objects that may exist within the soils that are larger than this dimension were not sampled and are not represented in the grain size distributions contained herein. The results of the field tests (i.e., SPT "N" -values) as presented on the Record of Borehole sheets and in subsequent sections of this report are the values measured directly in the field and are unfactored.

The bedrock was cored using rotary wet coring techniques with HQ core size (63.5 mm outside diameter) at all borehole locations and the results are presented on the Record of Borehole Sheets in Appendix D.

Monitoring wells were installed in seven boreholes. The monitoring wells were constructed using nominal 50 mm diameter, Schedule 40 polyvinyl chloride (PVC) pipe with a No. 10 machine slotted screen (0.01-inch slot). The annular space between the monitoring well screen and surrounding soils was backfilled with a silica sand filter to a maximum of 0.3 m above the top of the screen, and the remainder of the annular space was sealed with bentonite. All monitoring wells were

completed with above-ground steel casing. The monitoring well installation details are provided in the Record of Borehole Sheets (Appendix D).

The field work for this investigation was observed by members of GEMTEC's technical staff, who located the boreholes in the field, arranged for the clearance of underground utilities, observed the borehole drilling, sampling and in situ testing operations, logged the boreholes as well as examined and took custody of the recovered soil and rock samples. The samples were identified in the field, placed in appropriate containers, labelled, and transported to our Oshawa geotechnical laboratory for further visual examination by the project engineer and for laboratory testing.

Groundwater conditions were noted in the open boreholes during and upon completion of drilling and monitoring wells were installed in the bedrock, following the completion of drilling to allow for subsequent groundwater measurements. All other boreholes were backfilled and sealed in accordance with Ontario Regulation (O.Reg.) 903, as amended.

Following completion of the drilling, the soil and rock core samples were returned to our laboratory for examination by a geotechnical engineer. Selected samples were submitted for grain size distribution, uniaxial compressive strength (UCS), and moisture content testing.

The borehole locations were selected by GEMTEC and positioned on-site relative to existing features, including underground and above ground utility constraints. The ground surface elevations and coordinates at the borehole and monitoring well locations were surveyed by SCS in August 2024 and provided to GEMTEC.

A summary of the borehole information (including ground surface elevations and monitoring well locations) are provided in Table 4.1.

Table 4.1 – Summary of Borehole Information

Location	Borehole ID	Ground Surface Geodetic Elevation (m)	Borehole Depth (m)	Notes
Block 280 High Density	BH24-1	145.4	4.7	
Block 281 SWM Pond	BH24-2	143.6	7.7	
Block 279 High Density	BH24-3	142.5	6.2	
Block 281 SWM Pond	BH24-4	143.6	4.7	50-mm diameter monitoring well
Within Development Area	BH24-5	146.6	4.6	
	BH24-6	146.5	4.7	50-mm diameter monitoring well
	BH24-7	146.6	4.7	
	BH24-8	147.0	4.6	
	BH24-9	146.9	4.7	
Along Street A	BH24-10	145.4	6.2	50-mm diameter monitoring well
	BH24-11	143.7	6.2	
	BH24-12	146.0	6.2	
	BH24-13	145.8	6.2	50-mm diameter monitoring well
Block 281 SWM Pond	BH24-14	143.6	6.2	
SWM Pond 2 (Village C)	BH24-15	143.5	4.7	50-mm diameter monitoring well
	BH24-16	143.0	6.2	

Location	Borehole ID	Ground Surface Geodetic Elevation (m)	Borehole Depth (m)	Notes
Block 281 SWMP	BH24-17	141.5	6.2	50-mm diameter monitoring well
Within Development Area	BH24-18	147.2	4.6	50-mm diameter monitoring well

Notes: 1. Bedrock cored in all boreholes (HQ size)

5.0 SUBSURFACE AND GROUNDWATER CONDITIONS

5.1 Subsurface Conditions

The detailed soil profiles encountered in the boreholes are indicated on the Record of Borehole Sheets in Appendix D. The Record of Boreholes indicate the subsurface conditions at the specific borehole locations only. Boundaries between the different soils on the Records are often not distinct, but rather are transitional and have been interpreted. The precision with which subsurface conditions are indicated depends on the method of drilling, the frequency and recovery of samples, the method of sampling, and the uniformity of the subsurface conditions. Subsurface conditions at locations other than the boreholes may vary from the conditions encountered in the boreholes, both laterally and with depth. In addition to soil variability, fill of variable physical and chemical composition can be present over portions of the site or on adjacent properties.

The soil descriptions in this report are based on commonly accepted methods of classification and identification employed in geotechnical practice. Classification and identification of soil involves judgement and GEMTEC does not guarantee descriptions as exact but infers accuracy to the extent that is common in current geotechnical practice.

Based on the results of the geotechnical investigation, subsurface conditions at the Site generally consist of topsoil overlying silty sand to silty sand and gravel (probably disturbed native soils) overlying the limestone bedrock. The weathered bedrock was encountered at depths ranging from about 0.3 mbgs to 0.8 mbgs.

5.1.1 Topsoil

Topsoil was encountered at all borehole locations and ranged in thickness from about 50 mm to 130 mm. In the test pit locations, topsoil thicknesses ranged from approximately 165 mm to 510 mm. The topsoil thicknesses in the boreholes and test pits and provided in Table 5.1.

Table 5.1 – Approximate Thicknesses of Topsoil

TP/BH ID	Topsoil Thickness (mm)	Test Pit ID	Topsoil Thickness (mm)	Test Pit ID	Topsoil Thickness (mm)	Test Pit ID	Topsoil Thickness (mm)
TP1	229	TP13	203	TP25	279	TP37	267
TP2	267	TP14	203	TP26	216	TP38	343
TP3	279	TP15	508	TP27	178	TP39	279
TP4	191	TP16	229	TP28	229	TP40	483
TP5	229	TP17	508	TP29	241	TP41	216
TP6	406	TP18	406	TP30	165	TP42	381
TP7	394	TP19	318	TP31	305	TP43	203
TP8	343	TP20	241	TP32	292	TP44	254
TP9	406	TP21	229	TP33	267	TP45	191
TP10	305	TP22	267	TP34	381	TP46	203
TP11	330	TP23	241	TP35	356	TP47	254
TP12	254	TP24	203	TP36	394		
BH24-1	75	BH24-6	100	BH24-11	130	BH24-16	130
BH24-2	50	BH24-7	180	BH24-12	50	BH24-17	50
BH24-3	75	BH24-8	75	BH24-13	50	BH24-18	75
BH24-4	125	BH24-9	75	BH24-14	75		
BH24-5	125	BH24-10	130	BH24-15	75		

5.1.2 Overburden

The subsurface conditions of the overburden encountered in the boreholes drilled at the Site are described in the following sections.

Please note that:

- Depths given in the table describing the subsurface conditions are measured from ground surface;
- The SPT “N”-values given are blows for 0.3 m of penetration unless otherwise indicated; and,
- Top of the weathered bedrock was inferred at the depth where the grinding of the augers commenced. However, bedrock coring commenced at a depth of about 1.6 mbgs.

A summary of the encountered soil conditions of the site is presented below in Table 5.2.

Table 5.2 – Summary of Overburden Conditions

Soil Type	Depth (m)		Elevation (m)		SPT “N” Values	Compactness Condition	Approximate Water Content (%)
	From	To	From	To			
Topsoil	0	0.05 – 0.51			-	-	-
Silty Sand with some gravel, Silty Sand and Gravel, and Gravel with some sand and fines	0.05 – 0.51	0.3 – 0.8	141.4 to 147.1	142.2 to 146.7	17 to 50/25 mm	Compact to very dense	1 to 5

The overburden was present in all boreholes near surface, and contained oxidation stains, and rock fragments. Further, the overburden appears to be completely weathered bedrock and has been treated as soil.

5.1.3 Bedrock

Bedrock was encountered at the following depths and elevations at each borehole location as summarized below in Table 5.3. Photographs taken of the rock cores are provided in Appendix F.

Table 5.3 – Approximate Depth and Elevations of Bedrock

Borehole ID	Depth (mbgs)	Geodetic Elevation (m)
BH24-1	0.3	145.1
BH24-2	0.3	143.3
BH24-3	0.3	142.2
BH24-4	0.3	143.3
BH24-5	0.5	146.1
BH24-6	0.3	146.2
BH24-7	0.8	145.8
BH24-8	0.3	146.7
BH24-9	0.4	146.5
BH24-10	0.6	144.8
BH24-11	0.6	143.1
BH24-12	0.3	145.7
BH24-13	0.3	145.5
BH24-14	0.3	143.3
BH24-15	0.3	143.2
BH24-16	0.5	142.5
BH24-17	0.3	141.2
BH24-18	0.3	146.9

The upper 1 m to 1.5 m of overburden overlying the fresh bedrock is anticipated to be completely weathered to highly weathered bedrock.

The fresh bedrock encountered can be described as fine to medium grained, dark grey to black, strong to very strong fresh limestone with shale/siltstone interbeds of the Lindsay Formation. The recovery and quality parameters measured during the rock coring are summarized in Table 5.4.

Table 5.4 – Summary of Rock Quality at Borehole Location

Borehole ID	Run	Total Core Recovery (TCR) %	Solid Core Recovery (SCR) %	Rock Quality Designation (RQD) %
BH24-1	Run 1	100	91	87
	Run 2	100	83	90
BH24-2	Run 1	100	17	0
	Run 2	100	38	0
	Run 3	100	83	22
	Run 4	100	98	93
BH24-3	Run 1	100	97	83
	Run 2	100	92	85
	Run 3	100	97	90
BH24-4	Run 1	100	100	100
	Run 2	100	100	95
BH24-5	Run 1	95	83	83
	Run 2	100	97	87
BH24-6	Run 1	100	100	88
	Run 2	100	100	100
BH24-7	Run 1	100	97	90
	Run 2	100	97	85
BH24-8	Run 1	100	97	97
	Run 2	100	97	88
BH24-9	Run 1	100	90	72
	Run 2	100	97	83
BH24-10	Run 1	100	100	100
	Run 2	100	100	93
	Run 3	100	93	80

Borehole ID	Run	Total Core Recovery (TCR) %	Solid Core Recovery (SCR) %	Rock Quality Designation (RQD) %
BH24-11	Run 1	100	100	95
	Run 2	100	100	90
	Run 3	100	97	92
BH24-12	Run 1	100	98	98
	Run 2	100	97	93
	Run 3	100	100	100
BH24-13	Run 1	100	97	92
	Run 2	100	90	70
	Run 3	100	97	93
BH24-14	Run 1	100	75	60
	Run 2	100	77	67
	Run 3	100	82	75
BH24-15	Run 1	100	100	100
	Run 2	100	100	95
BH24-16	Run 1	100	97	92
	Run 2	100	97	93
	Run 3	100	95	85
BH24-17	Run 1	100	98	97
	Run 2	100	98	98
	Run 3	100	98	97
BH24-18	Run 1	100	95	83
	Run 2	100	97	87
	Average	***100***	***92***	***84***
	Minimum	***95***	***17***	***0***
	Maximum	***100***	***100***	***100***

5.1.4 Geotechnical Laboratory Tests

Grain size distribution testing was undertaken on three samples of the overburden and the results are provided in Appendix E and summarized in Table 5.5.

Table 5.5 – Summary of Grain Size Distribution Tests (Overburden)

Borehole	Sample Depth (m)	Gravel (%)	Sand (%)	Silt / Clay (%)	USCS Soil Description
BH24-4	0.8	30.4	44.0	25.6	Gravelly Silty Sand
BH24-11	0.8 – 1.4	34.6	42.8	22.6	Silty Sand and Gravel
BH24-13	0.8	28.0	46.4	25.6	Gravelly Silty Sand

Three uniaxial compressive strength (UCS) tests were carried out on the HQ size cores and the detailed laboratory results are presented in Appendix E. A summary of the laboratory results is presented in Table 5.6 below:

Table 5.6 – Bedrock UCS Test Results

Borehole	Sample Depth (m)	UCS (MPa)
BH24-4	3.5 – 3.8	105
BH24-6	4.2 – 4.5	53
BH24-9	2.7 – 2.9	88

5.2 Groundwater Levels

Un-stabilized groundwater levels were measured in the open boreholes upon completion of drilling and the details are provided in Record of Borehole Sheets in Appendix D. Groundwater level measured in seven monitoring wells on August 13, 2024, are provided in Table 5.7.

Table 5.7 – Approximate Groundwater Depths and Elevations

Monitoring Wells	Groundwater Depth (mbgs)	Groundwater Elevations (m)
BH24-4	2.8	140.8
BH24-6	1.3	145.1
BH24-10	1.7	143.7
BH24-13	1.2	144.7
BH24-15	1.0	142.5

Monitoring Wells	Groundwater Depth (mbgs)	Groundwater Elevations (m)
BH24-17	3.9	137.6
BH24-18	1.7	145.4

The measured groundwater levels reflect the groundwater conditions in the boreholes at the time of the field work. Groundwater levels at the site are anticipated to vary between and beyond the borehole locations and to fluctuate on a seasonal basis and in response to significant precipitation or snowmelt events.

6.0 DISCUSSION AND RECOMMENDATIONS

This section of the report provides guidance on the geotechnical engineering design aspects of the project based on our interpretation of the boreholes and test pits advanced as part of the site investigation by GEMTEC. It is stressed that the information in the following sections is provided for the guidance of the designers and is intended for this project only. Contractors bidding on or undertaking the works should examine the factual results of the investigation, satisfy themselves as to the adequacy of the information for construction, and make their own interpretation of the factual data as it affects their construction techniques, schedule, safety, and equipment capabilities.

The professional services retained for this project include only the geotechnical engineering aspects of the subsurface and groundwater conditions at this site. The presence or implications of possible surface and/or subsurface contamination resulting from previous uses or activities of this site or adjacent properties, and/or resulting from the introduction onto the site from materials from off-site sources are outside the terms of reference for this report and have not been investigated or addressed.

6.1 Topsoil Stripping and Reuse

The following geotechnical comments are provided regarding organic and topsoil stripping and reuse at the Site:

- Surficial vegetation and topsoil should be stripped from the proposed development area.
- Consideration may be given to selective stripping operations, consisting of road allowances, and building footprints (including driveways).
- Outside of road allowances and building footprints, topsoil, if encountered, may be buried and/or reused as general lot fill to raise grades. The primary factor controlling methane generation is the organic carbon content of the topsoil. The loss on ignition (LOI) test provides an indication of the organic carbon content of the sample. If topsoil is to be reused as general lot fill to raise grades, then LOI testing should be carried out and further recommendations provided by the geotechnical engineer in regard to the reuse of topsoil

and the potential for methane generation. Stripping of organically stained layers would not be required in any site area from a geotechnical perspective. However, from a construction viewpoint, it may not be practical (or possible) for the contractor to distinguish between this zone and the overlying topsoil, if encountered, especially if cuts of less than 150 mm are required. Where topsoil is to be reused for landscaping, fertility testing should be carried out.

- Where low organic content topsoil is used as general lot fill, its thickness should be limited to about 1.5 m. The topsoil fill should be placed in maximum 300-mm thick loose lifts and uniformly compacted to at least 95 percent of standard Proctor maximum dry density (SPMDD). To have any success in placing topsoil as lot grading fill, it must be placed at or very close to its optimum water content to achieve workability and adequate compaction, in order to reduce post-construction settlements and/or lateral movements (e.g., of fences, etc.).
- It should be noted that the topsoil thicknesses vary within the site. As such, it is recommended that a topsoil test pit program should be carried out once the trees within the site has been completely removed to confirm the topsoil thickness within the northern half of the site.

6.2 Site Preparation

At the time of preparing this report the preliminary drawings indicate that the Site will be developed in three phases. The preliminary grading plan indicates that design grades will include some cut and fill for site grading operations which will be required to establish final grade levels throughout the Site and will not exceed 2 m.

In Palmer's test pits and boreholes, disturbed native soils were observed near surface at the southern portion of the Site (i.e., the open area outside of the woodlots). However, the in situ test completed in the boreholes indicate a very dense compactness condition which is representative of a competent soil unit. As such, it is recommended that this area be compacted and proofrolled upon topsoil stripping. During detailed design, additional boreholes should be positioned at the southern portion of the Site to confirm the competency and presence of disturbed materials.

The exposed subgrades (soil or bedrock) should be proofrolled and/or visually inspected by a qualified geotechnical engineer prior to placement of engineered fill. Any loose/soft soils identified at the time of proofrolling that are unable to uniformly be 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.

It is strongly recommended that construction should be carried out under dry conditions. If construction is required during freezing temperatures, the subgrade should be protected immediately from freezing using straw, propane heaters and insulated tarpaulins, or other suitable means. Backfilling during the winter is not recommended, but recommendations can be provided if required.

6.3 Engineered Fill

As noted above, grade raise of up to 2 m is anticipated within the Site. As such, engineered fill will be required to achieve final grades and support structural elements such as foundations and / or floor slabs depending on the Cut and Fill Plan. The following is recommended for the construction of engineered fill:

- Prior to placing engineered fill, topsoil and any disturbed native soil, or deleterious materials should be removed from the Site. The disturbed native soil (if encountered) can be re-used as engineered fill. Ponded water and sloughed soil due to erosion during rainfall event should be cleaned and/or re-compacted.
- Based on the soil classification and frost group described in Table 14.1 of the *Canadian Foundation Engineering Manual* (CFEM, 2023), the non-cohesive deposits encountered on the Site are regarded as being of low to moderate frost susceptibility. This should be considered for any design elements exposed to freezing temperatures (concrete flatworks, exterior concrete slabs, and the like).
- The subgrade or base of the engineered fill area must be approved by GEMTEC prior to placement of any new fill, to ensure that suitability of subgrade condition. The area(s) should then be proofrolled in conjunction with an inspection by GEMTEC to confirm that the exposed soils are native, undisturbed, and competent, and have been adequately cleaned of ponded water and all disturbed, loosened, softened, organic and other deleterious material. Any of the localized near-surface soils containing organic matter or loose soils will also need to be removed prior to placement of engineered fill as directed by GEMTEC during proofrolling.
- Materials for reuse as engineered fill must be approved by GEMTEC prior to placement and should be free of organic, and deleterious materials. In this regard, the native non-cohesive soil which are near their optimum water contents and do not contain topsoil or organics or any other deleterious materials can be reused on site as engineered fill. The materials for use as engineered fill must be maintained within about 2 percent of optimum water content for compaction. The natural water contents of the native non-cohesive soil are below their optimum water contents and wetting of these soils will be required during fill placement to achieve compaction.
- If native soils from the site are not used as engineered fill, imported material for engineered fill should consist of clean, non-organic soils, free of chemical contamination or deleterious material. Imported materials to be used for engineered fill must be approved by GEMTEC at the source(s), prior to hauling to the Site. In this regard, imported materials which meet the requirements for OPSS 1010.MUNI Select Subgrade Material (SSM) placed in maximum 300 mm thick loose lifts and uniformly compacted to 98 percent of SPMDD throughout. The water contents at the time of placement should be within +/- 2 percent of its optimum moisture content to achieve the required compaction. Placement of fill is not recommended in the winter season, if unavoidable, any frost penetration into the fill

material must be removed prior to placement of subsequent lifts of fill and reviewed by GEMTEC. Additional recommendations will need to be provided at detailed design.

- Excavated bedrock maybe crushed and reused on site as granular fill for backfilling purposes. Depending on the gradation, a bulk up factor of 25 percent to 50 percent is typical for this rock type, and a 40% value maybe be used as an average for the bedrock. It should be noted that the completely weathered rock will have its engineering behaviour similar to a soil while highly weathered rock will be easier to breakdown (in comparison with moderately weathered to fresh bedrock) and re-compact due to the material being a combination of soil and rock. Equipment should be selected based on the encountered material.
- Cobbles and boulders exceeding 150 mm in diameter should be removed from the engineered fill prior to compaction. It is recommended that the contractor consider the possible presence of cobbles / boulders and bedrock or other obstructions when developing their excavation and engineered fill construction methodology.
- Full time testing and inspection during fill placement is required as outlined in Section 4.2.2.2 of the 2012 Ontario Building Code (OBC).

6.4 Shallow Foundations

At the time of writing this report, information available indicated that the residential buildings will be slab-on-grade without any basements. Proposed building foundations, floor slabs, pavements or other settlement-sensitive structures may be supported on approved native undisturbed compact soils that are free of organics and other deleterious materials, on approved engineered fill materials or on the bedrock.

Based on the subsurface information, the proposed residential structures can be supported by conventional strip and/or spread footing foundations founded on engineered fill, compact to very dense native soils (potentially completely to highly weathered bedrock), or on the fresh bedrock.

The spread/strip footings may be designed using the factored geotechnical resistance at Ultimate Limit States (ULS) and the unfactored geotechnical reaction at Serviceability Limit States (SLS) for 25 mm total settlement and 19 mm differential settlement provided below in Table 6.1.

Table 6.1 – Recommended ULS and SLS for Shallow Foundations

Footings Dimensions	Factored Geotechnical Resistance at ULS	Geotechnical Reaction at SLS (for 25 mm of settlement)	Founding Soils
1 m x 1 m to 3 m x 3 m spread footings Strip footings 0.9 m wide	225 kPa	150 kPa	Engineered Fill or undisturbed compact native soils.

Footings Dimensions	Factored Geotechnical Resistance at ULS	Geotechnical Reaction at SLS (for 25 mm of settlement)	Founding Soils
1 m x 1 m to 3 m x 3 m spread footings Strip footings 0.9 m wide	375 kPa	250 kPa	Dense to Very Dense undisturbed native non-cohesive soils.
5 m x 5 m spread footings, maximum. Strip footings up to 1.2 m wide	5 MPa	ULS capacity govern	Slightly weathered bedrock.
5 m x 5 m spread footings Strip footings up to 1 m wide	10 MPa	ULS capacity govern	Fresh bedrock at depths of greater than 2.5 mbgs adjacent to Church Street.*

Note: *Please note that at Borehole BH24-2 competent bedrock was encountered at 5 mbgs (Elevation 138.6 m) and foundation base should be inspected and approved by GEMTEC to confirm the presence of the competent bedrock.

The factored ULS bearing resistance for the bedrock was assessed based on the required bearing resistance factor of 0.5 for shallow spread/strip footings. The SLS reaction values for less than 25 mm of settlement were also assessed for the various sizes of footings. At the calculated ULS values settlements were below the SLS value of 25 mm for strip footings up to 1 m wide and for spread footings up to 5 m x 5 m (i.e., the SLS reaction for 25 mm of settlement would exceed the factored ULS resistance, and hence, the ULS resistance value will govern the design).

As the actual soil bearing resistances are related to the actual footing sizes and founding depths, the foundation recommendations must be reviewed by GEMTEC once the building details are finalized and, as such, the recommendation provided above should be considered preliminary.

To mitigate differential settlement, as much as possible, foundations should not be supported by different materials, that is, the foundations should entirely be founded on the bedrock, competent native materials or engineered fill.

If stepped spread footings are constructed at different founding levels, the difference in elevation between individual footings should not be greater than one half the clear distance between the footings (2H:1V or gentler). Should this not be possible, GEMTEC should be consulted to provide field inspection to ensure that the footings exceeding the above requirement are stable and the bearing and lateral support for the upper footing is not compromised. In addition, the lower footings should be constructed first so that if it is necessary to construct the lower footings at a greater depth than anticipated, the elevations of the upper footings can be adjusted accordingly.

Stepped strip footings, if required, should be constructed in accordance with the latest edition of the Ontario Building Code (2015 OBC), Section 9.15.3.9.

The founding materials are susceptible to disturbance by construction activities especially during wet weather and care should be taken to preserve the integrity of the materials as bearing strata. Prior to placing concrete for the footings, the foundation excavations must be inspected by GEMTEC to confirm that the footings are located in a native, undisturbed, and competent bearing stratum which has been cleaned of ponded water and loosened or softened material. If the concrete for the footings on the native soil cannot be placed immediately after excavation and inspection (i.e., within 24 hours of excavation and inspection), it is recommended that a working mat of lean concrete be placed in the excavation to protect the integrity of the bearing stratum. The bearing soil and fresh concrete must be protected from freezing during cold weather construction.

For shallow foundations in bedrock, it is recommended that the footings be founded on a flat lying surface to convey loads vertically to the bedrock. All footing excavations must be inspected prior to placing concrete to ensure that the base has been adequately cleaned, and that the bedrock conditions as exposed at the founding level are consistent with the design assumptions. Where possible, the footing foundations should be excavated to provide a flat bearing surface at right angles to the axis of the loads. Rock protrusions, cavities, or large open joints should be avoided to provide a uniform bearing pressure across the full area of the footing. All loose, shattered or highly weathered rock within the footprint of the footings and at the footing level should be removed and replaced with concrete with a 28-day compressive strength of at least 15 MPa. All footing foundations should be cleaned of deleterious material. Also, all footings must be inspected by a geotechnical engineer prior to placing any concrete for the footings.

6.4.1 Frost Penetration

Based on the Ontario Provincial Standard Drawing (OPSD) 3090.101, the typical frost penetration depth is expected to be approximately 1.4 mbgs. All exterior footings and footings in unheated areas should be provided with at least 1.4 m of earth cover after final grading or a thermally equivalent thickness of insulation, in order to address the potential for damage due to frost action.

6.4.2 Foundation Walls and Isolated Piers

To avoid ad-freeze and possible jacking (heaving) of the foundations, the interior and exterior of the foundation walls should be backfilled with free draining, non-frost susceptible material that meets OPSS requirements for Granular B Type I or II. The backfill should be compacted in maximum 300 mm thick lifts to at least 95 percent SPMDD using suitable vibratory compaction equipment. Alternatively, where the native soils are used as backfill at the building exterior, appropriate external insulation (e.g., a semi-rigid glass fibre/SM Styrofoam) should be installed to help absorb the adfreezing forces. The insulation should extend to the footing depth. Where the backfill will ultimately support areas of hard surfacing (pavement, sidewalks, or other similar

surfaces), the backfill should be placed in maximum 200 mm thick lifts and compacted to 95 percent SPMDD using suitable compaction equipment.

Backfilling against isolated (unheated) walls or piers should consist of free draining, non-frost susceptible material meeting OPSS Granular B Type I or II requirements. Other measures to prevent frost jacking of foundation elements can be provided if required.

Where areas of hard surfacing (pavement etc.) abut the proposed structures, a gradual transition should be provided between those areas of hard surfacing underlain by non-frost susceptible granular wall backfill and those areas underlain by existing frost susceptible material to reduce the effects of differential frost heaving. It is suggested that granular frost tapers be constructed from 1.4 m below finished grade to the underside of the granular subbase material for the hard surfaced areas. The frost tapers should be sloped at 1H:1V or flatter.

In general, for any structure placed wholly or in part on engineered fill, it is recommended that the foundation walls be provided with nominal reinforcement with reinforcing steel at the top and bottom of the foundation walls. This could typically consist of two 10 M bars in the top and two 10 M bars in the bottom of the walls. The bars should be placed as close as possible allowing for at least 50 mm of cover. Corner bars should have proper factory bends and all tied steel should have at least 600 mm of overlap. At window well locations, two 10 M bars should be placed in the foundation wall as close to the sill as possible (allowing for 50 mm of cover). The bars should extend laterally at least 600 mm beyond the edge of the window opening. The actual design should be approved by the home builder's structural engineer.

A perforated perimeter drain should be provided at the level of the bottom of the footings where the floor slab is at or above the exterior final grade. The drain should outlet by gravity to a storm sewer or to a sump pit from which the water is pumped to a suitable outlet.

6.4.3 Seismic Site Classification

Seismic hazard is defined in the 2012 OBC (as amended) by uniform hazard spectra (UHS) at spectral coordinates of 0.2 second, 0.5 second, 1.0 second and 2.0 seconds and a probability of exceedance of 2 percent in 50 years. The OBC method uses a site classification system defined by the average soil/bedrock properties (e.g., shear wave velocity, Standard Penetration Test (SPT) resistance, undrained soil shear strength, etc.) in the 30 m of the soil profile extending below the foundation level. There are six site classes from A to F, decreasing in ground stiffness from A, hard rock, to E, soft soil; with site class F used to denote problematic soils (e.g., sites underlain by thick peat deposits and/or liquefiable/collapsible soils). The site class is then used to obtain acceleration and velocity-based site coefficients F_a and F_v, respectively, used to modify the UHS to account for the effects of site-specific soil conditions in design.

The site classification recommendation is based on the available information as well as our interpretation of conditions below the boreholes and our knowledge of the soil/bedrock conditions

in the area. In accordance with Table 4.1.8.4.A of the OBC (2012), it is recommended that Site Class “C” (very dense soils and soft rock) be applied for structural design at the Site. The site classification may be improved by site-specific testing such as seismic cone penetration testing or multi-channel analysis of surface waves (MASW) testing.

6.4.4 Slab-on-Grade (Heated Areas Only) Floor

It is anticipated that the floor slab can be designed as a concrete slab-on-grade. Based on the existing borehole information, the subgrade will consist of engineered fill or compact to very dense native soils, and limestone bedrock. The final rock surface should be cleared of any loose or shattered rock and debris for slab in the bedrock.

Any low areas may be brought up to within at least 200 mm of the underside of the floor slabs, as required, using Ontario Provincial Standard Specification (OPSS) Granular ‘B’, Type I material or other approved material, placed in maximum 200-mm thick loose lifts and uniformly compacted to at least 98 percent of the material’s SPMDD.

The final lift of granular fill beneath floor slabs should consist of a minimum thickness of 200 mm of OPSS 1010 Granular A compacted to 100 percent of its SPMDD in order to create a stable working surface, to distribute loadings, and for drainage purposes.

The floor slabs should be structurally separate from the foundation walls and columns. Sawcut control joints should be provided at regular intervals and along column lines to control shrinkage cracking and to allow for differential settlement of the floor slabs.

6.5 Temporary Excavation

Depending on the finished grades, finished floor elevations, and pipe inverts, it is anticipated that excavations for the construction of the shallow foundations, SWM ponds, site services and structures will extend into engineered fill, and the compact to very dense non-cohesive deposits and the underlying bedrock.

6.5.1 Overburden Excavation

The sides of the excavations should be sloped in accordance with the requirements in Ontario Regulation 213/91 under the Occupational Health and Safety Act (OHSA). It is anticipated that temporary excavations in engineered fill can be classified as Type 3 soils with unsupported side slopes no steeper than 3 horizontal to 1 vertical (3H:1V). Where excavation is mostly carried out within the dense to very dense native soils, these soils can be generally classified as Type 2 and, accordingly, allowance should be made for excavation side slopes of 1H:1V sloped to a depth of 1.2 m or less from the base of the excavation.

Where the side slopes consist of more than one soil type, the soil shall be classified as the type with the highest number among the soil types present. Please note that if the excavation extends below the groundwater table without adequate dewatering, the soil at the face of the excavation

would be classified as Type 4. The soil type classifications indicated above are provisional and are subject to change based on field observations of the actual conditions at the time of exposure.

Flattening and / or blanketing of the side slopes may be required in the non-cohesive materials depending on the weather conditions and construction procedure adopted by the contractor. Further, excavations should be left open for as short a duration as possible and completely backfilled at the end of each working day.

All excavated material should be stockpiled well away (i.e., minimum 2 m) from the sides / crest of the excavation. In general, stockpiles of excavated materials should be kept at least the same horizontal distance from the top edge of the excavation as the depth to not negatively impact excavation slope stability, subject to confirmation by a geotechnical engineer in the field during construction.

6.5.2 Bedrock Excavation

All excavations should be carried out in accordance with Ontario Regulation 213 (Ontario Occupational Health and Safety Act, OHSA, for Construction projects).

The measured UCS of the selected rock samples ranged from about 53 MPa to 105 MPa and it is anticipated that the rock excavation in the Lindsay Formation will require the use of hydraulic rock breakers (i.e., hoe ramming) and large hydraulic excavators may not be able to penetrate the shale or limestone encountered in the boreholes.

A hydraulic excavator equipped with rock teeth may be able to excavate fractured bedrock horizons, but will need to be supplemented with equipment such as a road header or hydraulic rock breaker in the more competent bedrock at depth. The rate of excavation through the bedrock is highly dependent on the method and equipment chosen by the contractor. Any excavations into a minimum of moderately fractured bedrock (150 mm to 300 mm bedding planes) can have vertical side slopes; excavations in closely fractured bedrock (20 mm to 150 mm bedding planes) should be benched or sloped back with side slopes no steeper than 1H:1V, provided that all loosened rock fragments are removed from the excavated rock faces.

Alternatively, blasting may be considered for excavation into the fresh strong to very strong limestone bedrock. Blasting would be carried out by a specialist contractor.

Noise, vibration and dust would be a significant issue during excavation of the bedrock. Pre- and post-construction condition surveys are recommended on structures (if any within the zone of influence) that could be impacted by the construction activities.

6.6 Temporary Groundwater Control

The groundwater levels measured in the monitoring wells installed were about 1.0 mbgs to 3.9 mbgs (or Elev. 137.6 m to 145.4 m) at the time of the investigation in August 2024. It is anticipated that excavations will be generally extend below the groundwater level. Based on these

observations, it is assumed that the groundwater table will be within the bedrock; however, it should be noted that the groundwater table is influenced by seasonal fluctuations and major precipitation events. Large open excavations or excavations extending into the bedrock may experience groundwater seepage during heavy precipitation events. Therefore, minor groundwater seepage may be anticipated during typical excavations but should be controllable with filtered sumps and pumps. In any event, groundwater levels should be lowered to at least 1 m below the excavation invert.

The rate and volume required for dewatering will be dependent on the depth of the required excavations, the groundwater levels at the time of construction and the construction methods and staging chosen by the Contractor.

Water takings in excess of 50 cubic metres per day (m^3/day) are regulated by the Ministry of the Environment, Conservation and Parks (MECP). Certain takings of groundwater and storm water for construction site dewatering purposes with a combined total less than 400 m^3/day qualify for self-registration on the MECP's Environmental Activity and Sector Registry ("EASR"). Registration on the EASR replaces the need to obtain a PTTW and a Section 53 approval. A Category 3 PTTW is required where the proposed water taking is greater than 400 m^3/day.

The dewatering system is the Contractor's responsibility and the rate and volume required for dewatering is dependent on the construction methods and staging chosen by the contractor. Further, the contractor will be responsible for obtaining any required discharge approvals.

6.7 Site Servicing

Preliminary details of the proposed watermain, sanitary and storm sewers for the proposed development have been provided and are shown on the preliminary servicing plan provided by SCS.

As noted above, it is understood that the underground infrastructure will consist of storm sewers, sanitary sewers, and watermain. The servicing depth will range from about 2.0 m to 3.5 m below finished grades. The proposed sanitary sewers will have inverts ranging from approximately Elev. 139.1 m to Elev.145.4 m, while the proposed storm sewer will have inverts ranging from approximately Elev. 138.5 m to Elev. 146.2 m.

Based on the pipe inverts and the subsurface conditions within the Site, the proposed services are anticipated to be founded on the dense to very dense native non-cohesive deposits, and in the limestone bedrock which are considered suitable for supporting sewers and watermains, provided that the integrity of the base can be maintained during construction. As such, excavation for the underground utilities will be challenging due to the presence of bedrock.

Based on the final grade as shown on the preliminary grading plan, the invert of the proposed underground services within the site will have a soil cover of at least 1.4 m below finished grade for frost protection.

6.7.1 Pipe Bedding and Cover

The bedding for watermains and sewers should be compatible with the size, type, and class of pipe, surrounding soil and loading conditions and should be designed in accordance with provincial and municipal standards.

Where granular bedding is deemed to be acceptable, it should consist of at least 200 mm of well graded crushed stone meeting OPSS gradation requirements for Granular A or 19 mm Crusher Run limestone material. Crushed rock mined from the Site can be used as bedding meeting the gradation of OPSS 1010 Granular A. The physical properties as per OPS standards must be confirmed and met prior to use on-Site.

Cover material, from pipe spring line to at least 300 mm above the top of the pipe, should consist of granular material, such as OPSS Granular A or sand. The use of ‘high-performance bedding' as the bedding or cover material should not be permitted.

The bedding and cover materials should be compacted in maximum 200 mm loose lift thickness to at least 98 percent SPMDD.

6.7.2 Trench Backfill

Most of the excavated materials will consist of engineered fill, native non-cohesive soils and bedrock. Excavated bedrock from Site may be crushed and reused for backfilling of utility trenches. The excavated material from the Site may be used as trench backfill, provided they are free of significant amounts of topsoil, organics or other deleterious material and are placed and compacted as outlined below. All topsoil, if encountered, and organic materials should be wasted or used for landscaping purposes. All oversized cobbles and boulders (i.e., greater than 150 mm in size) should be removed from the backfill.

All trench backfill, from the top of the cover material to subgrade elevation should be placed in maximum 300-mm thick loose lifts and uniformly compacted to at least 95 percent of the material’s SPMDD.

Alternatively, the trench may be backfilled with imported free draining, non-frost susceptible granular or sandy material. The material should meet OPSS gradation requirements for SSM or Granular A. To minimize future settlement of the backfill and achieve an acceptable subgrade for the roadways, curbs, driveways, etc., the backfill material should be compacted in maximum 300 mm loose lift thickness to a minimum 95 percent SPMDD from the top of the cover material to 1.0 m below the subgrade elevation. The upper 1 m of the backfill should consist of granular material and compacted to at least 98 percent SPMDD to support the pavement structure. Oversized cobbles and boulders (i.e., greater than 150 mm in size) should be removed from the backfill.

Normal post-construction settlement of the compacted trench backfill should be expected. As such, consideration could be given to implementing one or a combination of the following measures to reduce post construction settlement above the trenches, depending on the weather conditions encountered during the construction:

- Allow the overburden materials to dry prior to compaction; and / or,
- Make provision to defer final paving of the surface course asphalt in the roadway for 3 months, or longer, to allow the trench backfill settlement to occur and thereby improve the final roadway appearance.

6.7.3 Trench Cut-Offs

Where the invert levels of the services are located below the measured groundwater levels, consideration should be given to installation of low hydraulic conductivity water-stops or cut-offs (trench plugs) at strategic locations in accordance with OPSD 802.095. This should be done, as appropriate, to reduce the potential for preferential groundwater flow through the granular bedding and trench backfill where the trench is within the bedrock or along steep grades. The need for and frequency of trench plugs should be evaluated during the detailed design phase and should be considered at the construction limits, and equally spaced at a maximum 100 m spacing (depending on pipe length, may be less).

6.8 Stormwater Management Ponds

Based on the preliminary grading plan provided by SCS, the base of the SWM Pond 1 and SWM Pond 2 will be at approximately Elev. 138 m and Elev. 139 m, respectively. Boreholes BH24-2, BH24-4, BH24-14 and BH24-17 were advanced at the location of SWM Pond 2. Boreholes BH24-15 and BH24-16 were advanced at the location of SWM Pond 4 which is located in Village C.

The normal water level in the SWM Pond 1 and SWM Pond 2 are anticipated to be at approximately Elev. 138 m and Elev. 141 m. Design details of the SWM ponds were not available at the time of preparing this report. Additional geotechnical comments can be provided once the design details have been finalized. Excavations for the SWM ponds are anticipated to extend about 2.5 mbgs to 4.6 mbgs.

- Based on the subsurface conditions encountered within the SWM ponds, the subsurface soil conditions below the topsoil are expected to generally consist of compact to very dense non-cohesive deposits (silty sand to silty sand and gravel) overlying the bedrock. The inverts of the SWM ponds are anticipated to be within the bedrock.
- The measured shallow groundwater level in the monitoring wells installed in Boreholes BH24-4 and BH24-17 were at 2.8 mbgs and 3.9 mbgs on August 13, 2024 (Elev. 140.8 m and Elev. 137.6 m, respectively). At Borehole BH24-15 the groundwater level was measured at a depth of about 1.0 mbgs (Elev. 142.5 m). Considering that the

groundwater elevations are higher than the water level in the pond, groundwater inflow into the pond should be anticipated.

- If the potential mixing of the stormwater and groundwater is of no concern, a pond liner would not be required. If separation of groundwater and pond water is a requirement, a geosynthetic clay liner (GCL).
- Riprap, 50 mm Crusher Run Limestone or similar materials (crushed bedrock) are recommended to protect the geosynthetic clay liner (GCL) and at the pond bottom and up the side slopes to prevent damage by backhoes at the time of pond cleanout and servicing. A minimum thickness of 600 mm is recommended.
- Further, considering that excavation will be in bedrock, effort should be made to ensure the SWM pond base is free of sharp and protruding rock faces, which could puncture the proposed GCL. Alternatively, a 300 mm thick layer of soil should be placed at the bottom of the bedrock face prior to placement of the GCL.
- Groundwater flow is expected from the non-cohesive deposits during precipitation events and also from within the bedrock. Excavation of the SWM pond within these non-cohesive deposits is recommended to be carried out when groundwater levels are expected to be the lowest (i.e., late summer and fall). It is recommended that long-term monitoring of the groundwater levels be carried out to determine the lowest groundwater levels.
- Access roads are recommended to be compacted to 100 percent SPMDD.
- Any constructed berms around the pond should have a top width of at least 3 m to allow access by maintenance vehicles. The material used to construct the berms should be approved by the geotechnical engineer prior to placement. The approved material used to construct berms should be placed in maximum 300 mm thick loose lifts and uniformly compacted to at least 98 percent of the material's SPMDD.
- Further to the above, care should be taken to ensure homogeneity of the constructed berm (i.e., no erodible layers). The prepared foundation for the berm should be inspected by the geotechnical engineer prior to placement of berm fill material. Additional recommendations can be provided once design has been advanced.
- The pond should be equipped with an emergency spillway or similar structure(s) designed to eliminate the possibility of over-topping of the berms.
- Where pipes enter or exit the pond, they should be provided with a concrete collar and be backfilled with a relatively impermeable material (e.g., imported clayey soil) to reduce preferential flow through the pipe bedding and backfill and possible loss of ground. Pipes entering or exiting the pond should be sized and designed to allow for cleaning. The exposed end of the riser portion should be provided with a protective wire mesh or the like to prevent unauthorized access (e.g., by children).
- Alternatively, a trench plug (i.e., a clay seal or unshrinkable fill) at least 1 m long as per OPSD 802.095 can be placed along the inlet and outlet pipes where they pass through the pond slopes. The clay should be placed at water contents of +/- 2 percent of the standard Proctor optimum water content.
- All exposed surfaces should be covered with topsoil and seeded upon completion.

- The monitoring wells installed in the boreholes drilled as a part of the geotechnical investigations could provide a conduit for groundwater flow. It will be important that following the construction of the pond, all monitoring wells, piezometers, well points and the like be properly abandoned in strict accordance with Ontario Regulation (O. Reg.) 903 amended by O.Reg. 128/03 of the Ontario Water Resources Act.
- Regular inspections by the geotechnical engineer should be carried out during the pond construction. The final pond side slopes should be sodded or otherwise similarly treated to reduce erosion. Maintenance will be required over the first several years until the vegetative mat has taken root.

Further comments and revisions on the above recommendation and construction of the SWM ponds may be provided once the design drawings have been finalized.

6.9 Asphalt Pavement Construction

6.9.1 Pavement Structure

Based on the results of the geotechnical investigation and on review of the preliminary grading plan provided, it is our understanding that the roads within the development will be used for residential use and classified as a Local Road.

Traffic information was not available at the time of this report preparation, as such, the recommended minimum pavement structure design has been developed for two traffic loading scenarios, light duty and heavy duty and provided in Table 6.2.

Table 6.2 – Flexible Pavement Design Recommendations

Pavement Layer	Light Duty Pavements / Local Roadways	Heavy Duty Pavements / Collectors / Fire Route
Surface Course Asphalt	40 mm HL3	50 mm HL3
Binder Course Asphalt	50 mm HL8	70 mm HL8
Granular Base	150 mm Granular A	150 mm Granular A
Granular Subbase	300 mm Granular B Type I or II	400 mm Granular B Type I or II

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.

GEMTEC should be allowed to review the drawings and provide additional recommendations if the design differs from our assumptions. In general, heavy-duty pavement should be provided for access roads and where trucks will be present.

6.9.2 Effects of Subgrade Disturbance

If the road subgrade surface becomes disturbed or wetted due to construction operations or precipitation, or the granular pavement materials are to be used by construction traffic, the Granular B thicknesses provided above may not be adequate and it may be necessary to increase the thickness of the Granular B subbase or exclusively use Granular B, Type II subbase. The contractor should be responsible for providing suitable access for construction equipment.

The required thickness of the subbase materials will depend on a number of factors, including contractor workmanship and schedule, contractor methodology, soil types, and weather conditions, and should be assessed by geotechnical personnel at the time of construction. In our opinion, the recommended approach for subgrade preparation from a geotechnical point of view is to:

- Proofroll the subgrade conditions at the time of construction under the supervision of experienced geotechnical personnel; and,
- Adjust the thickness or type of the subbase material and include a woven geotextile separator, as required. Unit rate allowances should be made in the contract for sub-excavation and replacement with OPSS Granular B, Type II (as required).

6.9.3 Asphaltic Cement

Performance graded PG 58-28 asphaltic cement is recommended for the road construction. The final asphalt surface should be sloped at a minimum of 2 percent to shed runoff.

6.9.4 Granular and Asphalt Material Placement

The pavement granular materials should be compacted in maximum 300 mm thick loose lifts to the 100 percent SPMDD using suitable vibratory compaction equipment. Crushed rock mined from the Site can be used as granular subbase meeting the requirements of OPSS 1010 Granular B, Type II. However, the physical properties as per OPS standards must be confirmed and met prior to use on-Site.

The asphalt materials should be compacted to at least 92 percent of their Marshall Maximum Relative Density according to OPSS 310, as measured in the field using a nuclear density gauge.

6.9.5 Transition Treatments

In areas where the new pavement structure will abut existing pavements, the depths of the granular materials should taper up or down at 5H:1V, or flatter, to match the depths of the granular material(s) exposed in the existing pavement. Any undermining or broken edges resulting from the construction activities should be removed by saw cut. All milled surfaces and butt joints should be properly tack coated prior to asphalt placement.

6.9.6 Pavement Drainage

In order to provide drainage of the granular base and subbase, the granular material should extend to ditches or drainage outlets. The bottom of the granular subbase layer should be at least 0.3 m above the bottom of the ditch or drainage outlet and should have positive drainage away from the site.

If storm sewers and catch basins are installed, it is suggested that continuous subdrains connected to catch basins be provided along the perimeter of both sides of all roadways to assist with drainage of the pavement structure. These drains should be installed at the bottom of the subbase layer.

7.0 ADDITIONAL CONSIDERATIONS

7.1 Monitoring Well Abandonment

All monitoring wells installed as part of this investigation should be decommissioned when no longer required by a licensed Water Well Contractor in accordance with applicable legislation. The well abandonment could be carried out in advance of or during construction.

7.2 Corrosion Considerations

The potential for the subsurface soil and groundwater conditions to corrode concrete and steel elements, or the like, should be considered in the final design. Additional sampling and / or testing may be required, or suitable protection measures (i.e., sulphate resistance concrete, sacrificial thickness, cathodic protection, etc.) should be considered by the designer.

7.3 Management of Excess Soil

It is noted that the professional services retained for this project include only the geotechnical aspects of the subsurface conditions at this Site. The presence or implications of possible surface and/or subsurface contamination, including naturally occurring sources of contamination, are outside the terms of reference for this report. This report does not constitute a Phase II Environmental Site Assessment (ESA), nor does it constitute a contaminated material management plan. It is recommended that soil samples be collected prior to and/or during construction to support the disposal or re-use of excess soil generated from the site.

7.4 Effects of Construction Induced Vibration

Some of the construction operations (such as excavation, granular material compaction, depth foundation installation, etc.) will cause ground vibration on and off the Site. The vibrations will attenuate with distance from the source but may be felt at nearby structures. Assuming that excavation is carried out in accordance with the guidelines in this report, the magnitude of the vibrations may be less than that which could cause damage to the nearby structures or infrastructure in good condition but are anticipated to be felt at and within the adjacent nearby structures. Construction planning / scheduling and vibration monitoring should be considered,

especially if work within the underlying bedrock is to be undertaken and given the proximity to the existing residential development to the north.

7.5 Design Review and Construction Observation

The engagement of the services of the geotechnical consultant during construction is recommended to confirm that the subsurface conditions throughout the proposed site development and excavations do not materially differ from those given in the report, and that the construction activities do not adversely affect the intent of the design. The subgrade surfaces for the services and pavement construction should be inspected by experienced geotechnical personnel to ensure that suitable materials have been reached and properly prepared. The placing and compaction of earth fill and imported granular materials should be inspected to ensure that the materials used conform to the grading and compaction specifications.

8.0 CLOSURE

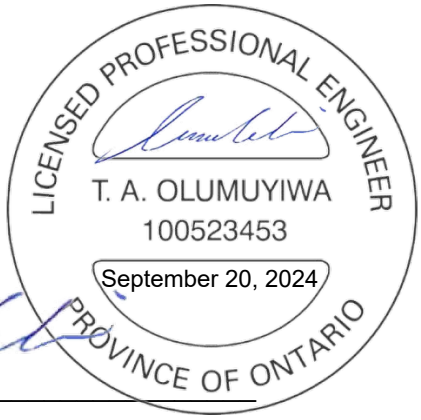
We trust that this report meets your immediate requirements. If conditions that differ from those assumed in this preliminary geotechnical investigation report are encountered during construction, GEMTEC should be given the opportunity to review the recommendations presented herein.

If you have any questions or require additional information, please contact the undersigned.

Regards,

GEMTEC Consulting Engineers and Scientists Limited





Rafael Abdulla, M.Eng., P.Eng., PMP
Senior Geotechnical Engineer

Timi Olumuyiwa, M.Sc., P.Eng., PMP
Senior Geotechnical Engineer

APPENDIX A

Conditions and Limitations of This Report

GEMTEC
Consulting Engineers and Scientists

Conditions and Limitations of This Report

1. **Standard of Care:** GEMTEC has prepared this report in a manner consistent with generally accepted engineering or environmental consulting practice in the jurisdiction in which the services are provided at the time of the report. No other warranty, expressed or implied is made.
2. **Copyright:** The contents of this report are subject to copyright owned by GEMTEC, save to the extent that copyright has been legally assigned by us to another party or is used by GEMTEC under license. To the extent that GEMTEC owns the copyright in this report, it may not be copied without our prior written agreement for any purpose other than the purpose indicated in this report. The methodology (if any) contained in this report is provided to the Client in confidence and must not be disclosed or copied to third parties without the prior written agreement of GEMTEC. Disclosure of that information may constitute an actionable breach of confidence or may otherwise prejudice our commercial interests.
3. **Complete Report:** This report is of a summary nature and is not intended to stand alone without reference to the instructions given to GEMTEC by the Client, communications between GEMTEC and the Client and to any other reports prepared by GEMTEC for the Client relative to the specific site described in the report. In order to properly understand the suggestions, recommendations and opinions expressed in this report, reference must be made to the whole of the report. GEMTEC can not be responsible for use of portions of the report without reference to the entire report.
4. **Basis of Report:** This Report has been prepared for the specific site, development, design objectives and purposes that were described to GEMTEC by the Client. The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the document, subject to the limitations provided herein, are only valid to the extent that this report expressly addresses the proposed development, design objectives and purposes. Any change of site conditions, purpose or development plans may alter the validity of the report and GEMTEC cannot be responsible for use of this report, or portions thereof, unless GEMTEC is requested to review any changes and, if necessary, revise the report.
5. **Time Dependence:** If the proposed project is not undertaken by the Client within 18 months following the issuance of this report, or within the timeframe understood by GEMTEC to be contemplated by the Client, the guidance and recommendations within the report should not be considered valid unless reviewed and amended or validated by GEMTEC in writing.
6. **Use of This Report:** The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without GEMTEC's express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the client, GEMTEC may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process.

   Contractors bidding on, or undertaking the work, should rely on their own investigations, as well as their own interpretations of the factual data presented in the report, as to how subsurface conditions may affect their work, including but not limited to proposed construction techniques, schedule, safety and equipment capabilities.
7. **No Legal Representations:** GEMTEC makes no representations whatsoever concerning the legal significance of its findings, or as to other legal matters touched on in this report, including but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and change. Such interpretations and regulatory changes should be reviewed with legal counsel.

8. **Decrease in property value:** GEMTEC shall not be responsible for any decrease, real or perceived, of the property or site's value or failure to complete a transaction, as a consequence of the information contained in this report.
9. **Reliance on Provided Information:** The evaluation and conclusions contained in this report have been prepared on the basis of conditions in evidence at the time of site inspections and on the basis of information provided to us. We have relied in good faith upon representations. information and instructions provided by the Client and others concerning the site. Accordingly, we cannot accept responsibility for any deficiency, misstatement or inaccuracy contained in this report as a result of misstatements, omissions, misrepresentations. or fraudulent acts of the Client or other persons providing information relied on by us. We are entitled to rely on such representations, information and instructions and are not required to carry out investigations to determine the truth or accuracy of such representations, information and instructions.
10. **Investigation Limitations:** Site investigation programs are a professional estimate of the scope of investigation required to provide a general profile of subsurface conditions but even a comprehensive investigation, sampling and testing program may fail to detect all or certain subsurface conditions.

    The data derived from the site investigation program and subsequent laboratory testing are interpreted by trained personnel and extrapolated across the site to form an inferred geological representation and an engineering opinion is rendered about overall subsurface conditions and their likely behaviour with regard to the proposed development. Conditions between and beyond the borehole/test hole locations may differ from those encountered at the borehole/test hole locations and the actual conditions at the site might differ from those inferred to exist, since no subsurface exploration program, no matter how comprehensive, can reveal all subsurface details and anomalies. Accordingly, GEMTEC does not warrant or guarantee the exactness of of the subsurface descriptions.

    Soil and groundwater conditions shown in the factual data and described in the report are the observed conditions at the time of their determination-or measurement. Unless otherwise noted, those conditions form the basis of the recommendations in the report. Groundwater conditions may vary between and beyond reported locations and can be affected by annual, seasonal and meteorological conditions. The condition of the soil, rock and groundwater may be significantly altered by construction activities (traffic, excavation, groundwater level lowering, pile driving, blasting, etc.) on the site or on adjacent sites. Excavation may expose the soils to changes due to wetting, drying or frost. Unless otherwise indicated the soil must be protected from these changes during construction.

    In addition, fill of variable physical and chemical composition can be present over portions of the site or on adjacent properties. The professional services retained for this project include only the geotechnical aspects of the subsurface conditions at the site, unless otherwise specifically stated and identified in the report. The presence or implication(s) of possible surface and/or subsurface contamination resulting from previous activities or uses of the site and/or resulting from the introduction onto the site of materials from off-site sources are outside the terms of reference for this project and have not been investigated or addressed.
11. **Sample Disposal:** GEMTEC will dispose of all uncontaminated soil and/or rock samples 60 days following issue of this report or, upon written request of the Client, will store uncontaminated samples and materials at the Client's expense. In the event that actual contaminated soils, fills or groundwater are encountered or are inferred to be present, all contaminated samples shall remain the property and responsibility of the Client for proper disposal.
12. **Follow-Up and Construction Services:** All details of the design were not known at the time of submission of GEMTEC's report. GEMTEC should be retained to review the final design, project plans and documents prior to construction, to confirm that they are consistent with the intent of GEMTEC's report.

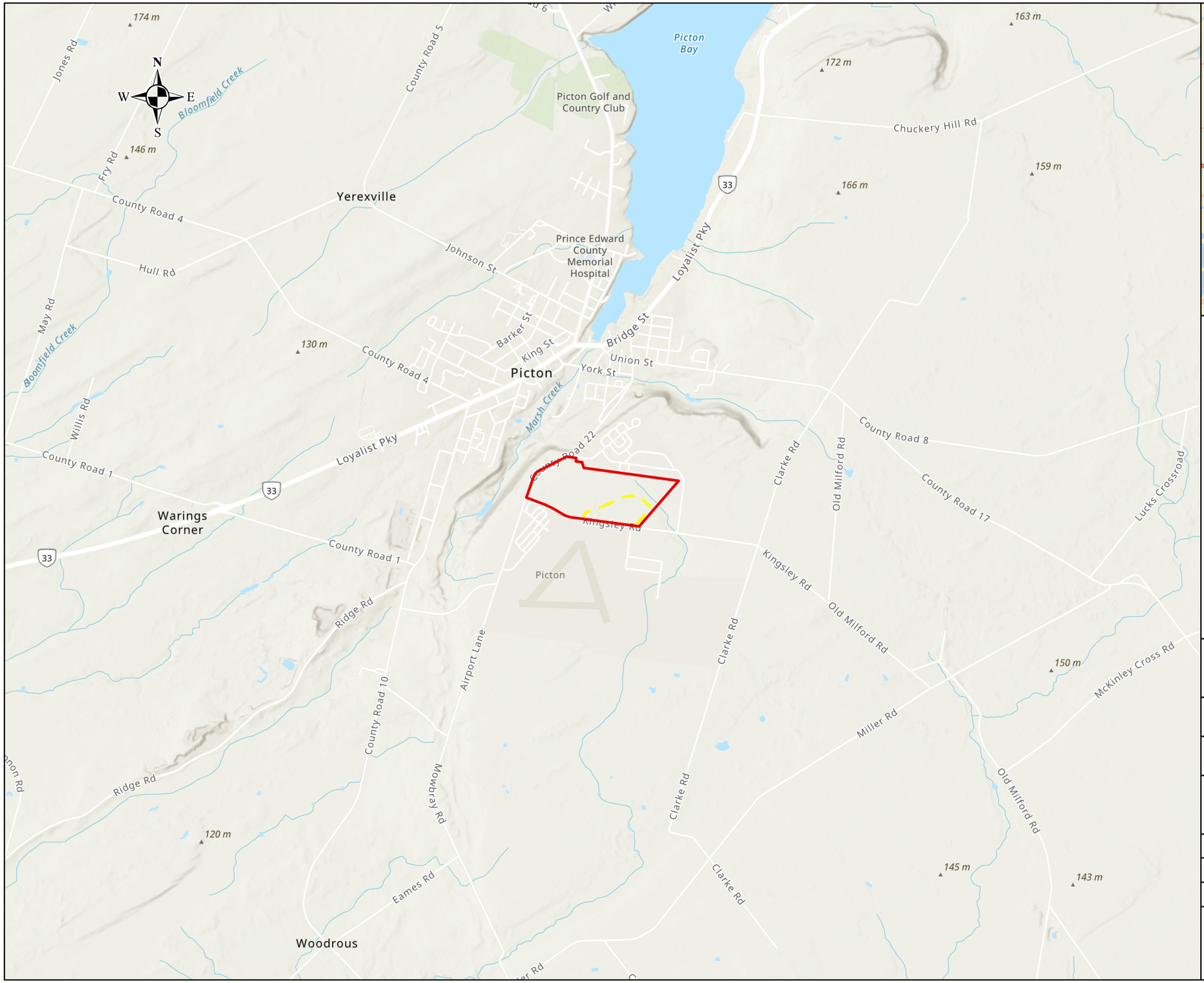
    During construction, GEMTEC should be retained to perform sufficient and timely observations of encountered conditions to confirm and document that the subsurface conditions do not

materially differ from those interpreted conditions considered in the preparation of GEMTEC's report and to confirm and document that construction activities do not adversely affect the suggestions, recommendations and opinions contained in GEMTEC's report. Adequate field review, observation and testing during construction are necessary for GEMTEC to be able to provide letters of assurance, in accordance with the requirements of many regulatory authorities. In cases where this recommendation is not followed, GEMTEC's responsibility is limited to interpreting accurately the information encountered at the borehole locations, at the time of their initial determination or measurement during the preparation of the Report.

13. **Changed Conditions:** Where conditions encountered at the site differ significantly from those anticipated in this report, either due to natural variability of subsurface conditions or construction activities, it is a condition of this report that GEMTEC be notified of any changes and be provided with an opportunity to review or revise the recommendations within this report. Recognition of changed soil and rock conditions requires experience and it is recommended that GEMTEC be employed to visit the site with sufficient frequency to detect if conditions have changed significantly.
14. **Drainage:** Drainage of subsurface water is commonly required either for temporary or permanent installations for the project. Improper design or construction of drainage or dewatering can have serious consequences. GEMTEC takes no responsibility for the effects of drainage unless specifically involved in the detailed design and construction monitoring of the system.

APPENDIX B

Site Location Plan
Borehole and Test Pit Location Plan





Legend

- APPROXIMATE VILLAGE C PROPERTY LINE
- APPROXIMATE SITE BOUNDARY

NOTES:

1. All locations approximate
2. Coordinate system: NAD 1983 UTM Zone 18N
3. Geographic dataset source: Ontario GeoHub.
4. Contains information licensed under the Open Government Licence – Ontario.
5. Service Layer Credits: World Topographic Map: Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, NRCan, Parks Canada
World Street Map Background (Community Map of Canada): Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, NRCan, Parks Canada
World Hillshade: Esri, NASA, NGA, USGS, FEMA

Scale: 1:35,000

0 250 500 1,000 1,500 2,000 2,500 Meters

Drawing: SITE LOCATION PLAN

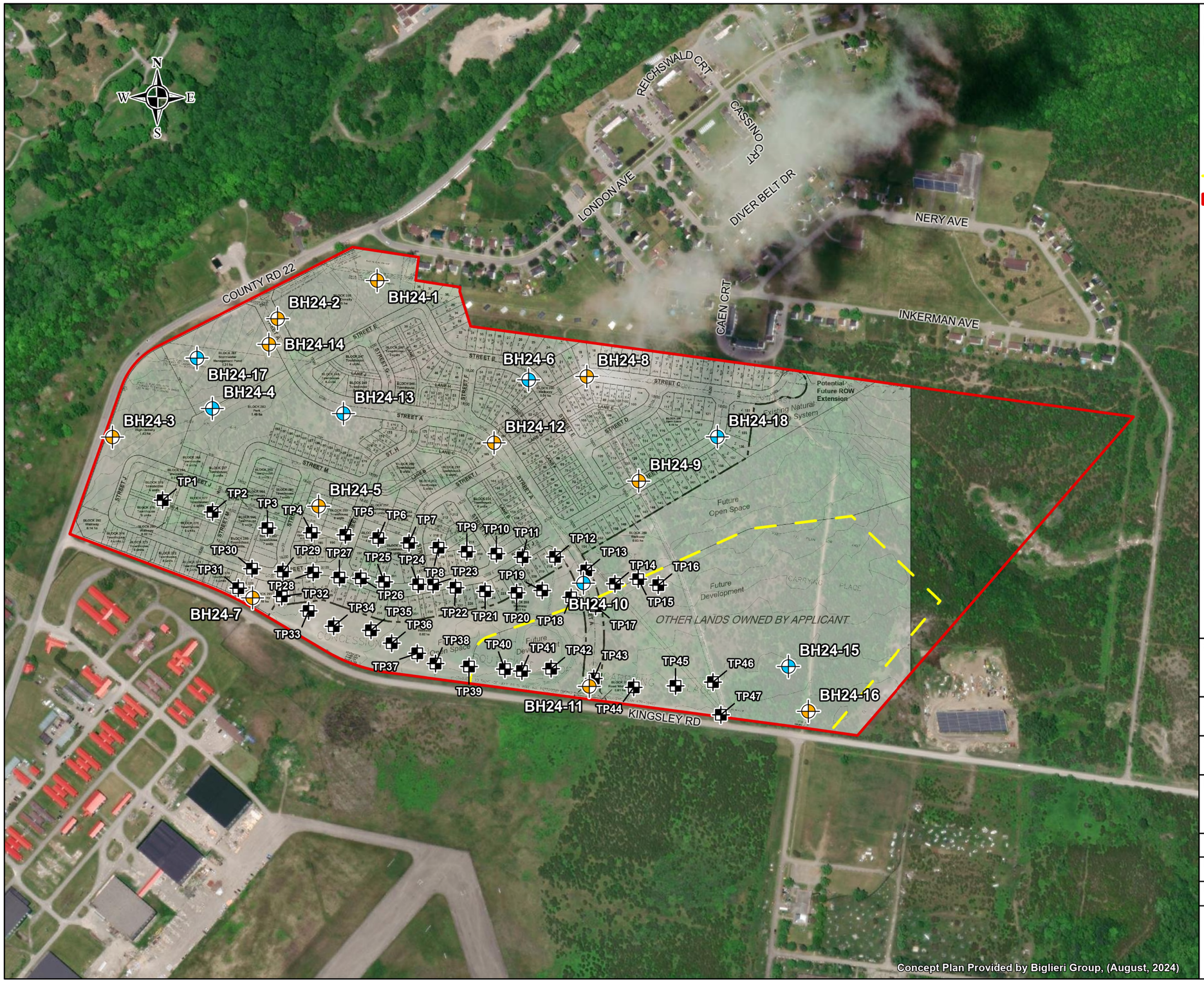
Client: PEC COMMUNITY PARTNERS INC.

Project: PRELIMINARY GEOTECHNICAL INVESTIGATION
VILLAGE A- BASE 31 AREA, PICTON,
COUNTY OF PRINCE EDWARD, ONTARIO

Drwn By:	S.J.	Chkd By:	R.A.
Project No.	103306.002	Revision No.	0
Date	SEPTEMBER 2024		**FIGURE 1**

GEMTEC
Consulting Engineers and Scientists
850 Champlain Ave Suite 101,
Oshawa, ON L1J 8C3
T: (289) 274-8476
www.gemtec.ca

Folder: N:\Projects\103300\103306.002\06_Civil Drafting\Sheets\Drawings\PrelimGeoTech\103306_002_PrelimGeoTech_Base31Area_R0_2024_08_30\



Legend

BH # BOREHOLE ID

TP # TEST PIT ID

APPROXIMATE BOREHOLE LOCATION

APPROXIMATE MONITORING WELL LOCATION

APPROXIMATE TEST PIT LOCATION

APPROXIMATE VILLAGE C PROPERTY LINE

APPROXIMATE SITE BOUNDARY

NOTES:

1. All locations approximate
2. Coordinate system: NAD 1983 UTM Zone 18N
3. Geographic dataset source: Ontario GeoHub.
4. Contains information licensed under the Open Government Licence – Ontario.
5. Service Layer Credits: World Imagery: Maxar

Scale: 1:5,000

0 50 100 200 300 400 Meters

Drawing: BOREHOLE AND TEST PIT LOCATION PLAN

Client: PEC COMMUNITY PARTNERS INC.

Project: PRELIMINARY GEOTECHNICAL INVESTIGATION
VILLAGE A- BASE 31 AREA, PICTON,
COUNTY OF PRINCE EDWARD, ONTARIO

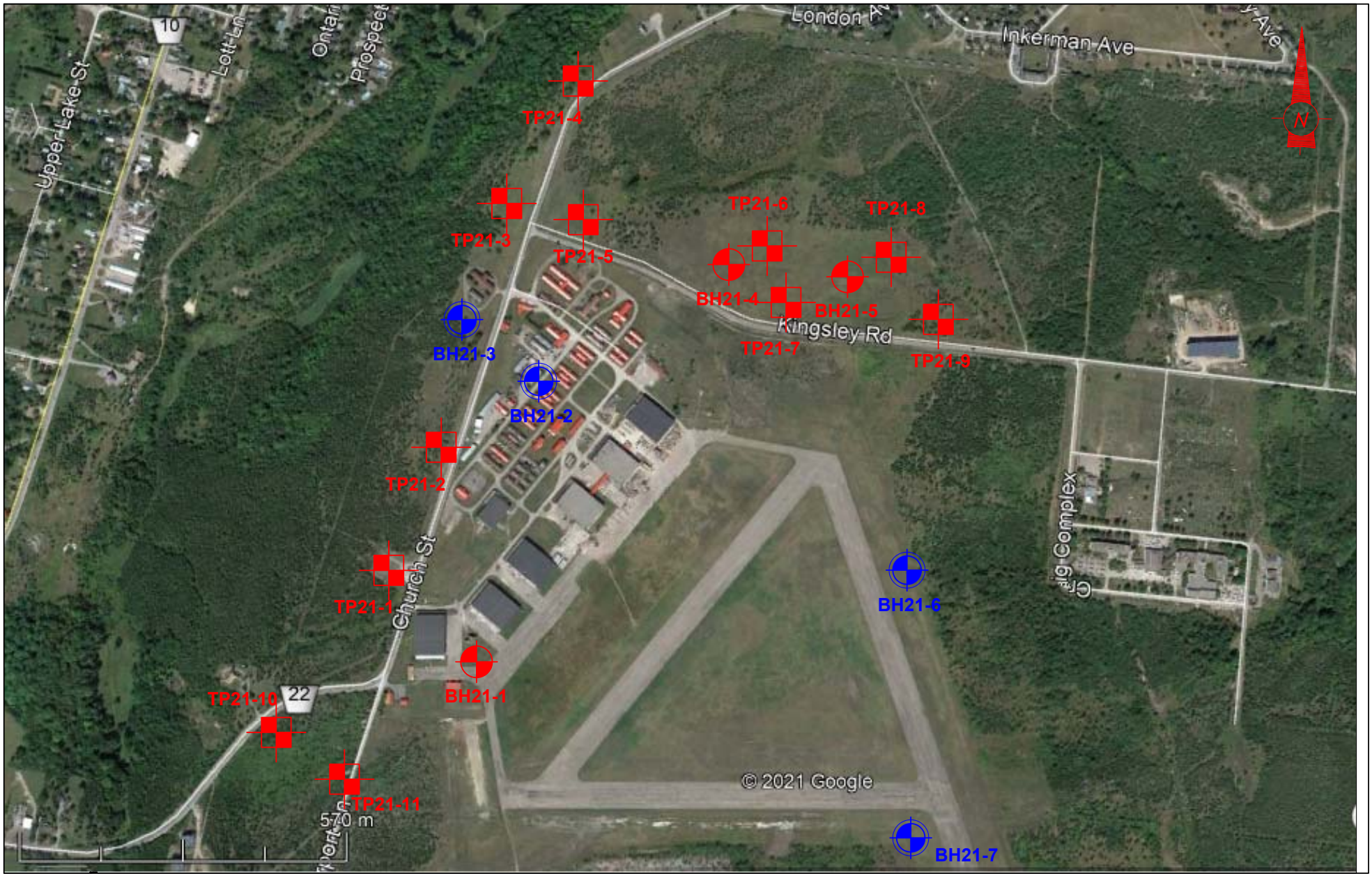
Drwn By:	S.J.	Chkd By:	R.A.
Project No.	103306.002	Revision No.	0
Date	SEPTEMBER 2024		**FIGURE 2**

GEMTEC
Consulting Engineers and Scientists
850 Champlain Ave Suite 101,
Oshawa, ON L1J 8C3
T: (289) 274-8476
www.gemtec.ca

Folder: N:\Projects\103300\103306.002\06_Civil Drafting\Sheets\Drawings\PrelimGeoTech\103306_002_PrelimGeoTech_Base31Area_R0_2024_08_30\

APPENDIX C

Previous Geotechnical Reports
Palmer 2021 & Palmer 2023



LEGEND

- Test Pit Locations
- Borehole Locations
- Borehole/Monitoring Well Locations

Client:	**Tercot Acquisitions Limited**			Project No.: **1510436**	Drawing No.: **1**
Drawn:	**TP**	Approved:	**DT**	Title:	**Test Pit/Borehle/Monitoring Well Location Plan**
Date:	**July, 2021**	Scale:	**As Shown**	Project:	**Preliminary Geotechnical Investigation** **Picton Airport, Prince Edward County, ON**
Original Size:	**Letter**	Rev:	**N/A**	Palmer™	74 Berkeley Street Toronto, Ontario M5A 2W7

Palmer

LOG OF TEST PIT TP21-5

PROJECT: Preliminary Geotechnical Investigation - Picton Airport

CLIENT: Tercot Development Group

PROJECT LOCATION: 343 County Road 22, Picton, Prince Edward County, ON

DATUM: N/A

TP LOCATION: See Test Pit Location Plan

Method: Backhoe Excavation

Diameter:

Date: Feb/17/2021

REF. NO.: 1510436

ENCL NO.: 5

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	Ground Surface										
0.0	**TOPSOIL:** 50 mm										
0.1	**DISTURBED NATIVE (FILL):** organic clayey silt, trace sand, trace gravel, some rootlets, brown, wet		1	GS					55	5	
0.6	**FRAGMENTED BEDROCK:** limestone, grey		2	GS							
0.7	**END OF TEST PIT UPON REFUSAL ON LIMESTONE BEDROCK** 1. No groundwater accumulation upon completion of excavation.										

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

Palmer

LOG OF TEST PIT TP21-6

PROJECT: Preliminary Geotechnical Investigation - Picton Airport

CLIENT: Tercot Development Group

Method: Backhoe Excavation

PROJECT LOCATION: 343 County Road 22, Picton, Prince Edward County, ON

Diameter:

REF. NO.: 1510436

DATUM: N/A

Date: Feb/17/2021

ENCL NO.: 6

TP LOCATION: See Test Pit Location Plan

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE 20 40 60 80 100	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) 10 20 30	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	Ground Surface										
0.0	**TOPSOIL:** 100 mm										
0.1	**DISTURBED NATIVE (FILL):** sandy silt, some clay, trace gravel, some organics, trace rootlets, dark brown to brown, moist to wet		1	GS							
0.7	**END OF TEST PIT UPON REFUSAL ON LIMESTONE BEDROCK** 1. No groundwater accumulation upon completion of excavation.										

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

Palmer

LOG OF TEST PIT TP21-7

PROJECT: Preliminary Geotechnical Investigation - Picton Airport

CLIENT: Tercot Development Group

PROJECT LOCATION: 343 County Road 22, Picton, Prince Edward County, ON

DATUM: N/A

TP LOCATION: See Test Pit Location Plan

Method: Backhoe Excavation

Diameter:

Date: Feb/17/2021

REF. NO.: 1510436

ENCL NO.: 7

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m							GR SA SI CL
	Ground Surface											
0.0	**TOPSOIL:** 100 mm											
0.1	**DISTURBED NATIVE (FILL):** sandy silt, some clay, trace gravel, trace rootlets, trace organics, dark brown to brown, moist to wet		1	GS					○			
0.5	**END OF TEST PIT UPON REFUSAL ON LIMESTONE BEDROCK** 1. No groundwater accumulation upon completion of excavation.											

GROUNDWATER ELEVATIONS

Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

SOIL-ROCK-GOTEA 019 - PAL ROCK - HISTOGS STDRD 1 NOV - GDT 0.8
PALMER ROCK - 2019.8 - 1510436 - PICTON AIRPORT - 2021/03/18 6:07 PM

Palmer

LOG OF TEST PIT TP21-8

PROJECT: Preliminary Geotechnical Investigation - Picton Airport

CLIENT: Tercot Development Group

Method: Backhoe Excavation

PROJECT LOCATION: 343 County Road 22, Picton, Prince Edward County, ON

Diameter:

REF. NO.: 1510436

DATUM: N/A

Date: Feb/17/2021

ENCL NO.: 8

TP LOCATION: See Test Pit Location Plan

ELEV / DEPTH (m)	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	Ground Surface							20 40 60 80 100	10 20 30			
0.0	**TOPSOIL:** 300 mm											
0.3	**DISTURBED NATIVE (FILL):** sandy silt, some clay, trace gravel, some organics, trace rootlets, dark brown, moist to wet		1	GS					○			
0.6	**DISTURBED NATIVE (FILL):** clayey silt, some sand, some gravel, trace organics, contains cobbles, dark brown to brown, moist		2	GS					○	50		44 11 29 16
1.2	**END OF TEST PIT UPON REFUSAL ON LIMESTONE BEDROCK** 1. No groundwater accumulation upon completion of excavation.											

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity ○ ε=3% Strain at Failure

Palmer

LOG OF TEST PIT TP21-9

PROJECT: Preliminary Geotechnical Investigation - Picton Airport

CLIENT: Tercot Development Group

Method: Backhoe Excavation

PROJECT LOCATION: 343 County Road 22, Picton, Prince Edward County, ON

Diameter:

REF. NO.: 1510436

DATUM: N/A

Date: Feb/17/2021

ENCL NO.: 9

TP LOCATION: See Test Pit Location Plan

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS / 0.3 m "N"							
	Ground Surface											
0.0	**TOPSOIL:** 200 mm											
0.2	**DISTURBED NATIVE (FILL):** sandy silt, some clay, trace gravel, trace rootlets, brown, moist to wet		1	GS								
0.5	**END OF TEST PIT UPON REFUSAL ON LIMESTONE BEDROCK** 1. No groundwater accumulation upon completion of excavation.											

GROUNDWATER ELEVATIONS

Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

SOIL-ROCK LOG 001.GLB 019 - PAL ROCK - METRIC.GPJ PALMER.ROL - 2018-10Fb - 19:04:08 - PICTON AIRPORT - 2021/03/18.GPJ 1.1.73

Palmer

LOG OF BOREHOLE BH21-4

PROJECT: Preliminary Geotechnical Investigation - Picton Airport

CLIENT: Tercot Acquisitions Limited

Method: Hollow Stem Augers/NQ Coring

PROJECT LOCATION: 343 County Road 22, Picton, Prince Edward County, ON

Diameter: 205 mm/76 mm

REF. NO.: 1510436

DATUM: Geodetic

Date: Jun-02-2021

ENCL NO.: 15

BH LOCATION: See Borehole Location Plan

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"							GR SA SI CL
146.4	Ground Surface											
146.3 0.0	**TOPSOIL:** 100 mm											
0.1	**DISTURBED NATIVE (FILL):** gravelly silty clay, trace sand, trace rootlets, contain cobbles and boulders, brown, moist, hard		1	SS	70/ 175mm		146					
145.8 0.6	**ROCK CORING STARTS, REFER TO ROCK CORE LOG**						145					Auger grinding and spoon bouncing
1							144					
2							143					
3							142					
4												
5												
141.2 5.2	**END OF BOREHOLE** Notes: 1. Borehole was open upon completion of drilling.											

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity ○ ε=3% Strain at Failure

Palmer

LOG OF ROCK CORE BH21-4

PROJECT: Preliminary Geotechnical Investigation - Picton Airport

CLIENT: Tercot Acquisitions Limited | Method: Hollow Stem Augers/NQ Coring | REF. NO.: 1510436

LOCATION: 343 County Road 22, Picton, Prince Edward County, ON | Diameter: 205 mm/76 mm | ENCL NO.: 15

DATUM: Geodetic | Date: Jun-02-2021

BH LOCATION: See Borehole Location Plan

(m) ELEV / DEPTH	ROCK DESCRIPTION	GROUND WATER CONDITIONS	CORE SAMPLE NUMBER	CORE SAMPLE SIZE	TOTAL CORE RECOVERY (%)	SOLID CORE RECOVERY (%)	HARD LAYER (%)	RQD (%)	FRACTURE INDEX (per 0.3 m)	DISCONTINUITIES	Weathering Index	HYDRAULIC CONDUCTIVITY (cm/sec)	POINT LOAD TEST UCS AXIAL (MPa)*	POINT LOAD TEST UCS DIAMETRAL (MPa)*	UNIAXIAL COMPRESSION (MPa)	DENSITY (g/cm^3) E (GPa)
145.8	Rock Surface															
145.8 / 0.0	**LIMESTONE** moderately weathered with cobbles and boulders, medium strong to very strong, grey								14	Gravel Layer/Fragment Zone: 0.56m - 0.64m Fragment Zone: 0.87m - 0.97m 1.27m - 1.35m	W3-W2					
0.6	**LIMESTONE** slightly weathered to fresh, strong to very strong, grey								11							
1			1	NQ	100	82	N/A	47	9							
									2							
2 / 144.3									2							
2.1									3							
									5							
3			2	NQ	100	100	N/A	75	2		W1		104.6	114.2		
									4							
142.8									2							
3.6									1							
4									4							
			3	NQ	100	100	N/A	64	4							
									3							
5 / 141.2									4							
5.2	**END OF BOREHOLE** Notes: 1. Borehole was open upon completion of drilling.															

Weathering Index: W1-Fresh, W2-Slightly weathered, W3-Moderately weathered, W4-Highly weathered, W5-Completely weathered

Diangle to the core axis

E = Modulus of Elasticity

*: UCS [Mpa] ≈ 24 $I_{S(50)}$

Palmer

LOG OF BOREHOLE BH21-5

PROJECT: Preliminary Geotechnical Investigation - Picton Airport

CLIENT: Tercot Acquisitions Limited

Method: Hollow Stem Augers/NQ Coring

PROJECT LOCATION: 343 County Road 22, Picton, Prince Edward County, ON

Diameter: 205 mm/76 mm

REF. NO.: 1510436

DATUM: Geodetic

Date: Jun-02-2021

ENCL NO.: 16

BH LOCATION: See Borehole Location Plan

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS / 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa): ○ UNCONFINED, ● QUICK TRIAXIAL, + FIELD VANE & Sensitivity, × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
145.9	Ground Surface										
145.8 0.0	**TOPSOIL:** 100 mm										
0.1	**DISTURBED NATIVE (FILL):** gravelly silty clay, trace sand, trace rootlets, contain cobbles and boulders, brown, moist, hard		1	SS	56/ 275mm						
145.4											
0.6	**ROCK CORING STARTS, REFER TO ROCK CORE LOG**										Auger grinding and spoon bouncing
1							145				
2							144				
3							143				
4							142				
5 140.9							141				
5.1	**END OF BOREHOLE** Notes: 1. Borehole was open upon completion of drilling.										

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

Palmer

LOG OF ROCK CORE BH21-5

PROJECT: Preliminary Geotechnical Investigation - Picton Airport

CLIENT: Tercot Acquisitions Limited

LOCATION: 343 County Road 22, Picton, Prince Edward County, ON

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

Method: Hollow Stem Augers/NQ Coring

Diameter: 205 mm/76 mm

Date: Jun-02-2021

REF. NO.: 1510436

ENCL NO.: 16

(m) ELEV / DEPTH	ROCK DESCRIPTION	GROUND WATER CONDITIONS	CORE SAMPLE NUMBER	CORE SAMPLE SIZE	TOTAL CORE RECOVERY (%)	SOLID CORE RECOVERY (%)	HARD LAYER (%)	RQD (%)	FRACTURE INDEX (per 0.3 m)	DISCONTINUITIES	Weathering Index	HYDRAULIC CONDUCTIVITY (cm/sec)	POINT LOAD TEST UCS AXIAL (MPa)*	POINT LOAD TEST UCS DIAMETRAL (MPa)*	UNIAXIAL COMPRESSION (MPa)	DENSITY (g/cm^3) E (GPa)
145.4	Rock Surface															
0.6	**LIMESTONE** moderately weathered with cobbles and boulders, medium strong to very strong, grey								>25	Gravel Layer/Fragment Zone: 0.56m - 0.89m	W3-W2					
145.0																
0.9	**LIMESTONE** slightly weathered to fresh, strong to very strong, grey								10							
1			1	NQ	100	73	N/A	38	4							
									1							
144.1									1							
1.9									2							
2									2							
			2	NQ	100	100	N/A	91	5		W1				89.1	
3									1							
									2							
142.4																
3.5									2				109.8	88.4		
4									3							
			3	NQ	100	100	N/A	72	3							
									2							
5									1							
140.9																
5.1	**END OF BOREHOLE** Notes: 1. Borehole was open upon completion of drilling.															

Weathering Index: W1-Fresh, W2-Slightly weathered, W3-Moderately weathered, W4-Highly weathered, W5-Completely weathered

Angle to the core axis

E = Modulus of Elasticity

*: UCS [Mpa] ≈ 24 $I_{S(50)}$

871 Equestrian Court, Unit 1, Oakville ON L6L 6L7
Tel: 647-795-8153 | www.pecg.ca

Memorandum

Date: November 27, 2023
Project #: 1510458

To: Mike Pearsell and Julia Risi
SCS Consulting Group Ltd.
30 Centurian Drive, Suite 100, Markham, ON, L3R 8B8

From: Ted Ou and Matthew St. Denis

Re: Test Pit Observation
Picton Airport/Base 31

1. Introduction

Palmer is pleased to provide SCS Consulting Group Ltd. with our memorandum for test pit observation at the project Site located at 343 County Rd 22, in the county of Prince Edward, Ontario.

It is understood that the proposed development will consist of low rise and multi-storey buildings. The purpose of the test pit is to confirm bedrock depth in the Revitalization area to support the upcoming works as well as in the proposed Village A development area north of Kingsley Road to support the design of this future area, by means of twelve (12) test pits.

2. Test Pit Observation

The field work was carried out on Nov 15, 2023 by JCB 3CX rubber tire backhoe, with an 18inch bucket, provided by the client, during which time twelve (12) test pits (TP1 to TP12) were advanced at the locations shown on the **Test Pit Location Plan**, Drawing 1. The test pits were excavated to refusal on sound bedrock at depths ranging from 0.5 to 1.2m below existing ground surface.

Nine (9) test pits were conducted within the Revitalization area. Three (3) test pits were conducted within the Village A area, and the soil conditions were observed by the bidder and the engineers/technician from SCS and Palmer. The test pit locations were provided by the client and the test pit locations plotted on the Test Pit Location Plan (Drawing 1) were based on the measurement of site features and should be considered as approximate.

During the test pit excavation, fractured rock debris were observed at throughout the site as shown in the Photos in **Appendix A**. Due to the limit of excavation method during the excavation, all test pits were terminated at the sound bedrock surface. Additional heavy duty excavator equipped with a hoe ram or rock bucket were not available on site for further advancement into bedrock.

Table 1. Observations at Test Pits

Test Pit	Soil Obersvations
TP1	0 - 0.3m: Top soil 0.3 – 0.9m: Brown sandy silt mix with rock debris, moist 0.9m: Bedrock
TP2	0 - 0.3m: Top soil 0.3 – 1.2 m: Brown sandy silt mix with rock debris, moist 1.2m: Bedrock
TP3	0 - 0.3m: Top soil 0.3 – 0.8m: Brown sandy silt mix with rock debris, moist 0.8m: Bedrock
TP4	0 - 0.4m: Top soil 0.4 – 0.9m: Brown sandy silt mix with rock debris, moist 0.9m: Bedrock
TP5	0 - 0.4m: Top soil 0.4 – 0.7m: Brown sandy silt mix with rock debris, moist 0.7m: Bedrock
TP6	0 - 0.2m: Top soil 0.2 – 0.6m: Brown sandy silt mix with rock debris, moist 0.6m: Bedrock
TP7	0 - 0.2m: Top soil 0.2 – 0.7m: Brown sandy silt mix with rock debris, moist 0.7m: Bedrock
TP8	0 - 0.4m: Granular Fill 0.4 – 0.6m: Asphalt mix with granular fill 0.6 – 0.8m: Brown sandy silt mix with rock debris, moist 0.8m: Bedrock
TP9	0 - 0.4m: Granular Fill 0.4 – 0.6m: Asphalt mix with granular fill 0.6 – 0.85m: Brown sandy silt mix with rock debris, moist 0.85m: Bedrock
TP10 (TP#1 in Village A)	0 - 0.4m: Top soil 0.4 – 0.5m: Brown sandy silt mix with rock debris, moist 0.5m: Bedrock
TP11(TP#3 in Village A)	0 - 0.4m: Top soil 0.4 – 0.6m: Brown sandy silt mix with rock debris, moist 0.6m: Bedrock
TP12(TP#5 in Village A)	0 - 0.4m: Top soil 0.4 – 0.8m: Brown sandy silt mix with rock debris, moist 0.8m: Bedrock

3. Certification

We trust that the information contained in this memorandum is satisfactory. Should you have any questions, please do not hesitate to contact this office.

This memorandum was prepared and reviewed by the undersigned:

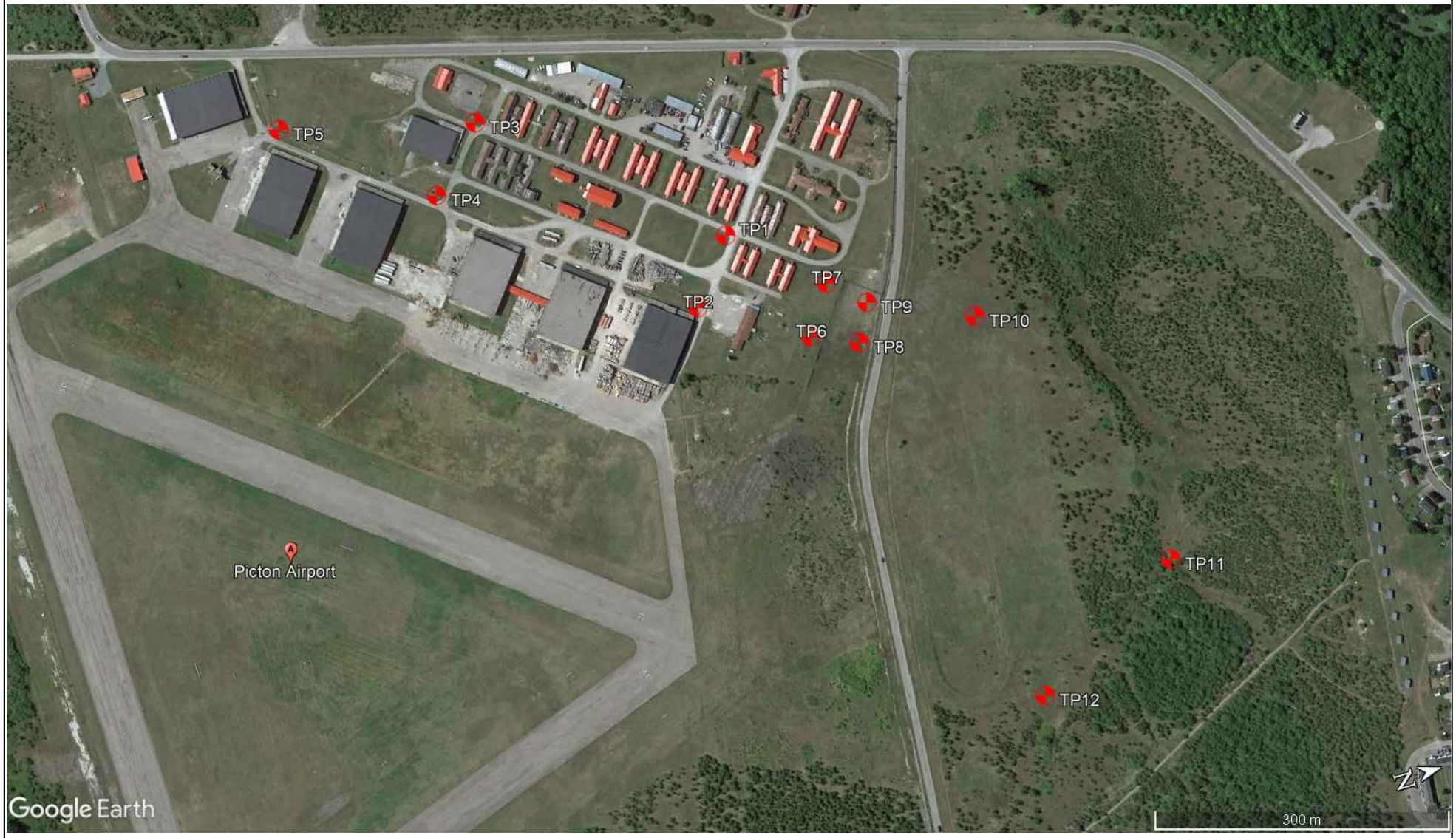
Prepared By:

Ted Ou, M.Sc, P.Eng, PMP.
Geotechnical Project Manager

Reviewed By:

Matthew D. St Denis., P.Eng.
Team Lead, Geotechnical Engineering

Drawings



LEGEND

Test Pit Location

Client:				Project No.: **1510458**	Drawing No.: **1**
Drawn: **TO**		Approved: **MDS**		Title: **Test Pit Location Plan**	
Date: **Nov, 2023**		Scale: **As Shown**		Project: **Test Pit Observation** **Picton Airport, Prince Edward County, ON**	
Original Size: **Letter**		Rev: **N/A**		Palmer PART OF SLR	871 Equestrain Court, Unit 1 Oakville, Ontario L6L 6L7

Appendix A

Site Photos



Test Pit 1



Test pit 2



Test pit 3



Test pit 4



Test pit 5



Test pit 6



Test pit 7



Test pit 8



Test pit 9



Test pit 10



Test pit 11



Test pit 12

APPENDIX D

Abbreviations and Terminology Used on Records of Boreholes
Record of Borehole Sheets BH24-1 to BH24-18

ABBREVIATIONS AND TERMINOLOGY USED ON RECORDS OF BOREHOLES AND TEST PITS

SAMPLE TYPES	
AS	Auger sample
CA	Casing sample
CS	Chunk sample
BS	Borros piston sample
GS	Grab sample
MS	Manual sample
RC	Rock core
SS	Split spoon sampler
ST	Slotted tube
TO	Thin-walled open shelby tube
TP	Thin-walled piston shelby tube
WS	Wash sample

SOIL TESTS	
w	Water content
PL, w_p	Plastic limit
LL, w_L	Liquid limit
C	Consolidation (oedometer) test
D_R	Relative density
DS	Direct shear test
G_S	Specific gravity
M	Sieve analysis for particle size
MH	Combined sieve and hydrometer (H) analysis
MPC	Modified Proctor compaction test
SPC	Standard Proctor compaction test
OC	Organic content test
UC	Unconfined compression test
γ	Unit weight

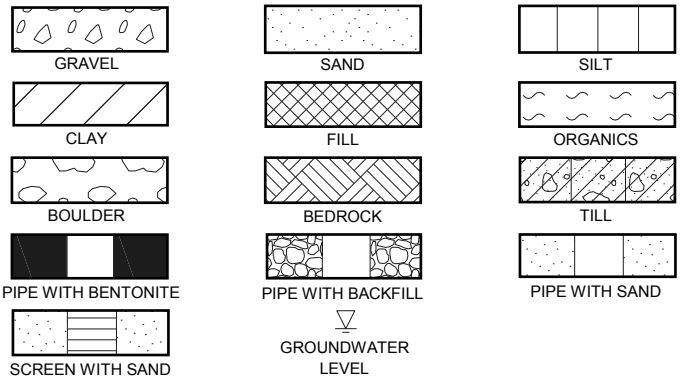
PENETRATION RESISTANCE

Standard Penetration Resistance, N
The number of blows by a 63.5 kg (140 lb) hammer dropped 760 millimetres (30 in.) required to drive a 50 mm split spoon sampler for a distance of 300 mm (12 in.). For split spoon samples where less than 300 mm of penetration was achieved, the number of blows is reported over the sampler penetration in mm.

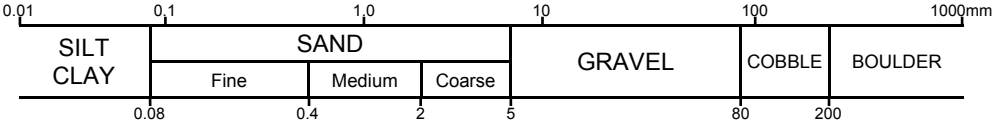
Dynamic Penetration Resistance
The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in.) to drive a 50 mm (2 in.) diameter 60° cone attached to 'A' size drill rods for a distance of 300 mm (12 in.).

WH	Sampler advanced by static weight of hammer and drill rods
WR	Sampler advanced by static weight of drill rods
PH	Sampler advanced by hydraulic pressure from drill rig
PM	Sampler advanced by manual pressure

COHESIONLESS SOIL Compactness		COHESIVE SOIL Consistency	
SPT N-Values	**Description**	**Cu, kPa**	**Description**
0-4	Very Loose	0-12	Very Soft
4-10	Loose	12-25	Soft
10-30	Compact	25-50	Firm
30-50	Dense	50-100	Stiff
>50	Very Dense	100-200	Very Stiff
		>200	Hard

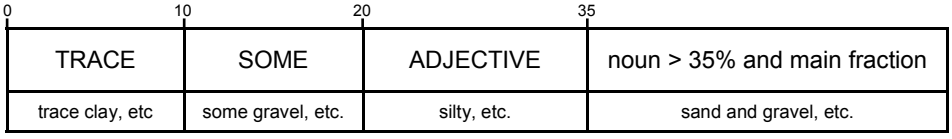


GRAIN SIZE



DESCRIPTIVE TERMINOLOGY

(Based on the CANFEM 4th Edition)



RECORD OF BOREHOLE : BH24-1

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 26 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger; Hollow Stem Auger (152mm OD)	Ground Surface		145.37						
		TOPSOIL (~75mm thick)		0.08	1A	SS				
		(SM) SILTY SAND, some gravel; grey, oxidation stains, rock fragment; non-cohesive, moist, very dense		145.07 0.30	1B	SS	203	50/0.08		
1		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	0	50/0.03		
				143.82	3	SS	0	50/0.03		
2	HQ Coring	End of Augering BEDROCK cored (approximately 1.6 m to 4.7 m depths) Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)		1.55	RC-1	RC	1524	TCR = 100%, SCR = 91%, RQD = 87%		
3										
4					RC-2	RC	1524	TCR = 100%, SCR = 83%, RQD = 90%		
				140.70						
5		End of Borehole Notes: 1. Borehole open and dry upon completion of drilling. 2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.		4.67						
6										
7										
8										
9										
10										

SOIL PROFILE | SAMPLES

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, % W_P W W_L
10 20 30 40 50 60 70 80 90

GEMTEC
Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-2

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 30 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	PENETRATION RESISTANCE (N), BLOWS/0.3m / DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m / SHEAR STRENGTH (Cu), kPA / WATER CONTENT, %	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger Hollow Stem Auger (152mm OD)	Ground Surface		143.61							
		TOPSOIL (~50mm thick)		0.05	1A	SS					
		(SM) SILTY SAND, some gravel; grey, rock fragment; non-cohesive, moist, very dense		143.31 0.30	1B	SS	203	50/0.1③			
1		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	25	50/0.0③			
				142.06	3	SS	25	50/0.0③			
		End of Augering		1.55							
2	HQ Coring	BEDROCK cored (approximately 1.6 m to 7.7 m depths): Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)			RC-1	RC	1524	TCR = 100%, SCR = 17%, RQD = 0%			
3											
4					RC-2	RC	1524	TCR = 100%, SCR = 38%, RQD = 0%			
5					RC-3	RC	1524	TCR = 100%, SCR = 83%, RQD = 22%			
6											
7					RC-4	RC	1524	TCR = 100%, SCR = 98%, RQD = 93%			
				135.94							
		End of Borehole		7.67							
8		Notes: 1. Borehole open and dry upon completion of drilling. 2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.									
9											
10											

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P — W — W_L
10 20 30 40 50 60 70 80 90

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LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-3

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 29 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	PENETRATION RESISTANCE (N), BLOWS/0.3m / DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m / SHEAR STRENGTH (Cu), kPA / WATER CONTENT, %	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger Hollow Stem Auger (152mm OD)	Ground Surface		142.49							
		TOPSOIL (~75mm thick)		0.08	1A	SS					
		(SM) SILTY SAND, some gravel; grey, oxidation stains, rock fragments; non-cohesive, moist, compact to very dense		142.19 0.30	1B	SS	254	19			
1		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	25	50/0.03			
				140.94	3	SS	0	50/0.03			
		End of Augering		1.55							
2	HQ Coring	BEDROCK cored (approximately 1.6 m to 6.2 m depths)									
		Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)			RC-1	RC	1524	TCR = 100%, SCR = 97%, RQD = 83%			
3											
					RC-2	RC	1524	TCR = 100%, SCR = 92%, RQD = 85%			
4											
5					RC-3	RC	1524	TCR = 100%, SCR = 97%, RQD = 90%			
6				136.32							
		End of Borehole		6.17							
		Notes:									
7		1. Borehole open and dry upon completion of drilling.									
		2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.									
8											
9											
10											

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P — W — W_L
10 20 30 40 50 60 70 80 90

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LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-4

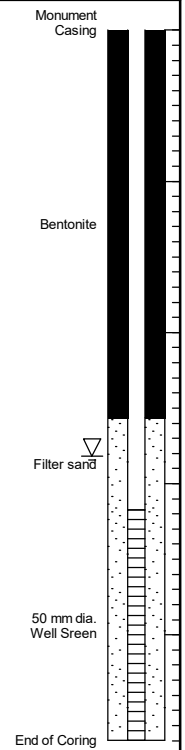
CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 29 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	ADDITIONAL LAB. TESTING
		Ground Surface		143.60					
0	Power Auger / Hollow Stem Auger (152mm OD)	TOPSOIL (~125mm thick)		0.13	1A	SS			
		(SM) SILTY SAND and GRAVEL; grey, rock fragments; non-cohesive, moist, compact to very dense		143.30 0.30	1B	SS	356	21	
		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	76	50/0.08	MH
1				142.05	3	SS	0	50/0.03	
	HQ Coring	End of Augering BEDROCK cored (approximately 1.7 m to 4.7 m depths) Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)		1.55	RC-1	RC	1524	TCR = 100%, SCR = 100%, RQD = 100%	
2									
3									
4					RC-2	RC	1524	TCR = 100%, SCR = 100%, RQD = 95%	UCS
		End of Borehole		138.90 4.70					
5		Notes: 1. Borehole open and dry upon completion of drilling. 2. Monitoring well installed as shown upon completion of drilling. 3. Groundwater level measured in monitoring well at approximately 2.8 mbgs (Elev. 140.8 m) on August 13, 2024.							
6									
7									
8									
9									
10									

SHEAR STRENGTH (Cu), kPA
● PENETRATION RESISTANCE (N), BLOWS/0.3m
+ NATURAL ⊕ REMOULDED
▲ DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
WATER CONTENT, %
W_P W W_L
10 20 30 40 50 60 70 80 90

PIEZOMETER OR STANDPIPE INSTALLATION



GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEV. (m)
24/08/13	2.8 ▽	140.8

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RECORD OF BOREHOLE : BH24-5

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 23 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger / Hollow Stem Auger (152mm OD)	Ground Surface		146.60						
		TOPSOIL (~125mm thick)			1A	SS				
		(GP) GRAVEL, some sand, some fines; grey, rock fragments; non-cohesive, moist, very dense		0.13 146.09	1B	SS	152	50/0.3		
1		- Auger grinding between depths of approximately 0.5 m (start of weathered BEDROCK) and 1.6 m		0.51	2	SS	0	50/0.1		
				145.05	3	SS	0	50/0.03		
2	HQ Coring	End of Augering BEDROCK cored (approximately 1.5 m to 4.6 m depths) Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)		1.55	RC-1	RC	1448	TCR = 95%, SCR = 83%, RQD = 83%		
3										
4					RC-2	RC	1524	TCR = 100%, SCR = 97%, RQD = 87%		
				142.00						
5		End of Borehole Notes: 1. Borehole open and dry upon completion of drilling. 2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.		4.60						
6										
7										
8										
9										
10										

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P — W — W_L
10 20 30 40 50 60 70 80 90

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LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-6

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

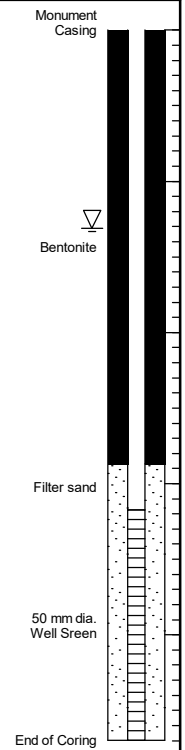
SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 26 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m
		Ground Surface		146.45				
0	Power Auger / Hollow Stem Auger (152mm OD)	TOPSOIL (~100mm thick)			1A	SS		
		(SM) SILTY SAND, some gravel; grey, rock fragments; non-cohesive, moist, very dense		0.10 146.15	1B	SS	127	50/0.1
		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m		0.30	2	SS	0	50/0.03
1				144.90	3	SS	0	50/0.03
	HQ Coring	End of Augering BEDROCK cored (approximately 1.7 m to 4.7 m depths) Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)		1.55	RC-1	RC	1524	TCR = 100%, SCR = 100%, RQD = 88%
2								
3								
4					RC-2	RC	1524	TCR = 100%, SCR = 100%, RQD = 100%
		End of Borehole Notes: 1. Borehole open and dry upon completion of drilling. 2. Monitoring well installed as shown upon completion of drilling. 3. Groundwater level measured in monitoring well at approximately 1.3 mbgs (Elev. 145.1 m) on August 13, 2024.		141.75 4.70				
5								
6								
7								
8								
9								
10								

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: NATURAL, REMOULDED
WATER CONTENT, %: W_P, W, W_L
10 20 30 40 50 60 70 80 90

ADDITIONAL LAB. TESTING: UCS

PIEZOMETER OR STANDPIPE INSTALLATION



GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEV. (m)
24/08/13	1.3 ▽	145.1

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CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-7

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 22 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger	Ground Surface		146.64						
		TOPSOIL (~175mm thick)		0.18	1A	SS				
		(SM) SILTY SAND, some gravel; grey, rock fragments; non-cohesive, moist, very dense		146.26 0.38	1B	SS	305	50/0.08		
1	Hollow Stem Auger (152mm OD)	- Auger grinding between depths of approximately 0.4 m (start of weathered BEDROCK) and 1.6 m			2	SS	0	50/0.03		
				145.09	3	SS	0	50/0.03		
2	HQ Coring	End of Augering BEDROCK cored (approximately 1.7 m to 4.7 m depths) Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)		1.55	RC-1	RC	1524	TCR = 100%, SCR = 97%, RQD = 90%		
3										
4					RC-2	RC	1524	TCR = 100%, SCR = 97%, RQD = 85%		
				141.94						
5		End of Borehole Notes: 1. Borehole open and dry upon completion of drilling. 2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.		4.70						
6										
7										
8										
9										
10										

SOIL PROFILE | SAMPLES

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, % — W_P W W_L
10 20 30 40 50 60 70 80 90

GEMTEC
Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-8

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 24 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m
0	Power Auger	Ground Surface		147.00				
		TOPSOIL (~75mm thick)		0.08	1A	SS		
		(SM) SILTY SAND and GRAVEL; grey, rock fragments; non-cohesive, moist, dense to very dense		146.70 0.30	1B	SS	356	32
1	Hollow Stem Auger (152mm OD)	- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	0	50/0.03
				145.45	3	SS	0	50/0.03
		End of Augering BEDROCK cored (approximately 1.5 m to 4.6 m depths) Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)		1.55	RC-1	RC	1524	TCR = 100%, SCR = 97%, RQD = 97%
2								
3	HQ Coring				RC-2	RC	1524	TCR = 100%, SCR = 97%, RQD = 88%
4				142.40				
		End of Borehole Notes: 1. Borehole open and dry upon completion of drilling. 2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.		4.60				
5								
6								
7								
8								
9								
10								

SOIL PROFILE | SAMPLES

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P — W — W_L
10 20 30 40 50 60 70 80 90

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION

GEMTEC
Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-9

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 24 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger	Ground Surface		146.88						
		BALLAST (~75mm thick)		0.08	1A	SS				
		(SM) SILTY SAND and GRAVEL; grey, oxidation stains, rock fragments; non-cohesive, moist, compact to very dense		146.48 0.40	1B	SS	457	17		
1	Hollow Stem Auger (152mm OD)	- Auger grinding between depths of approximately 0.4 m (start of weathered BEDROCK) and 1.6 m			2	SS	25	50/0.03		
		End of Augering		145.33 1.55	3	SS	0	50/0.03		
2	HQ Coring	BEDROCK cored (approximately 1.6 m to 4.6 m depths)			RC-1	RC	1524	TCR = 100%, SCR = 90%, RQD = 72%	UCS	
		Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)								
3										
4					RC-2	RC	1524	TCR = 100%, SCR = 97%, RQD = 83%		
		End of Borehole		142.23 4.65						
5		Notes:								
		1. Borehole open and dry upon completion of drilling.								
6		2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.								
7										
8										
9										
10										

SAMPLES

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, % W_P W W_L
10 20 30 40 50 60 70 80 90

GEMTEC
Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-10

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

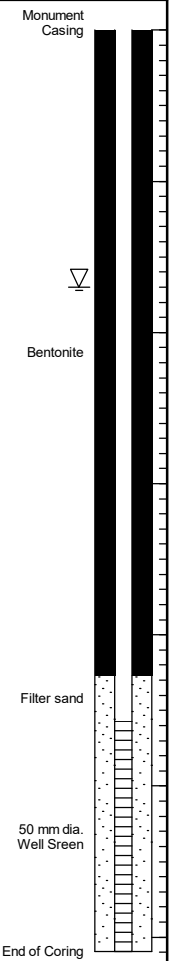
SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 23 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m
0	Power Auger (Hollow Stem Auger (152mm OD))	Ground Surface		145.43				
		TOPSOIL (~125mm thick)			1A	SS		
		(SM) SILTY SAND, some gravel; grey, rock fragments; non-cohesive, moist, very dense		0.13	1B	SS	203	50/0.13
				144.83				
1		- Auger grinding between depths of approximately 0.6 m (start of weathered BEDROCK) and 1.6 m		0.60	2	SS	0	50/0.05
				143.88	3	SS	0	50/0.03
		End of Augering		1.55				
2	HQ Coring	BEDROCK cored (approximately 1.6 m to 6.2 m depths)						
		Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)			RC-1	RC	1524	TCR = 100%, SCR = 100%, RQD = 100%
3								
4					RC-2	RC	1524	TCR = 100%, SCR = 100%, RQD = 93%
5					RC-3	RC	1524	TCR = 100%, SCR = 93%, RQD = 80%
6				139.21				
		End of Borehole		6.22				
7		Notes: 1. Borehole open and dry upon completion of drilling. 2. Monitoring well installed as shown upon completion of drilling. 3. Groundwater level measured in monitoring well at approximately 1.7 mbgs (Elev. 143.7 m) on August 13, 2024.						
8								
9								
10								

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: NATURAL, REMOULDED
WATER CONTENT, %: W_P — W — W_L
10 20 30 40 50 60 70 80 90

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION



GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEV. (m)
24/08/13	1.7 ▽	143.7

GEMTEC
Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-11

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 23 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger Hollow Stem Auger (152mm OD)	Ground Surface		143.65						
		TOPSOIL (~125mm thick)			1A	SS				
		(SM) SILTY SAND and GRAVEL; grey, rock fragments; non-cohesive, moist, dense to very dense		0.13	1B	SS	203	50/0.13		
				143.05						
				0.60						
1		- Auger grinding between depths of approximately 0.6 m (start of weathered BEDROCK) and 1.6 m			2	SS	356	32	MH	
					3	SS	25	50/0.03		
				142.10						
		End of Augering		1.55						
2	HQ Coring	BEDROCK cored (approximately 1.7 m to 6.2 m depths)								
		Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)			RC-1	RC	1524	TCR = 100%, SCR = 100%, RQD = 95%		
3										
4					RC-2	RC	1524	TCR = 100%, SCR = 100%, RQD = 90%		
5					RC-3	RC	1524	TCR = 100%, SCR = 97%, RQD = 92%		
6				137.43						
		End of Borehole		6.22						
7		Notes:								
		1. Borehole open and dry upon completion of drilling.								
		2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.								
8										
9										
10										

● PENETRATION RESISTANCE (N), BLOWS/0.3m
▲ DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P W W_L
10 20 30 40 50 60 70 80 90

GEMTEC
Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-12

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 24 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	PENETRATION RESISTANCE (N), BLOWS/0.3m / DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m / SHEAR STRENGTH (Cu), kPA / WATER CONTENT, %	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger Hollow Stem Auger (152mm OD)	Ground Surface		146.00							
		TOPSOIL (~50mm thick)		0.05	1A	SS					
		(SM) SILTY SAND and GRAVEL; grey, rock fragments; non-cohesive, moist, very dense		145.70 0.30	1B	SS	127	50/0.05			
1		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	0	50/0.03			
				144.45	3	SS	0	50/0.03			
	HQ Coring	End of Augering		1.55							
2		BEDROCK cored (approximately 1.7 m to 6.2 m depths)									
		Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)			RC-1	RC	1524	TCR = 100%, SCR = 98%, RQD = 98%			
3											
4					RC-2	RC	1524	TCR = 100%, SCR = 97%, RQD = 93%			
5					RC-3	RC	1524	TCR = 100%, SCR = 100%, RQD = 100%			
6				139.78							
		End of Borehole		6.22							
7		Notes:									
		1. Borehole open and dry upon completion of drilling.									
		2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.									
8											
9											
10											

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P — W — W_L
10 20 30 40 50 60 70 80 90

GEMTEC
Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-13

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 25 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	PENETRATION RESISTANCE (N), BLOWS/0.3m / DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m / SHEAR STRENGTH (Cu), kPA / WATER CONTENT, %	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger Hollow Stem Auger (152mm OD)	Ground Surface		145.82						MH	Monument Casing
		TOPSOIL (~50mm thick)		0.05	1A	SS					
		(SM) gravelly SILTY SAND; grey, rock fragments; non-cohesive, moist, very dense		145.52 0.30	1B	SS	127	50/0.08			
1		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	25	50/0.03			
				144.27	3	SS	0	50/0.03			
		End of Augering		1.55							
2	HQ Coring	BEDROCK cored (approximately 1.7 m to 6.2 m depths)									Bentonite
		Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)			RC-1	RC	1524	TCR = 100%, SCR = 97%, RQD = 92%			
3											
4					RC-2	RC	1524	TCR = 100%, SCR = 90%, RQD = 70%			Filter sand
5					RC-3	RC	1524	TCR = 100%, SCR = 97%, RQD = 93%			50 mm dia. Well Sreen
6				139.60							End of Coring
		End of Borehole		6.22							
7		Notes:									
		1. Borehole open and dry upon completion of drilling.									
		2. Monitoring well installed as shown upon completion of drilling.									
8		3. Groundwater level measured in monitoring well at approximately 1.2 mbgs (Elev. 144.7 m) on August 13, 2024.									
9											
10											

GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEV. (m)
24/08/13	1.2 ▽	144.7

GEMTEC
Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-14

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 25 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	PENETRATION RESISTANCE (N), BLOWS/0.3m / DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m / SHEAR STRENGTH (Cu), kPA / WATER CONTENT, %	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger Hollow Stem Auger (152mm OD)	Ground Surface		143.60							
		TOPSOIL (~75mm thick)		0.08	1A	SS					
		(SM) SILTY SAND and GRAVEL; grey, rock fragments; non-cohesive, moist, very dense		143.30 0.30	1B	SS	152	50/0.08			
1		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	25	50/0.03			
				142.05 1.55	3	SS	0	50/0.03			
2	HQ Coring	End of Augering BEDROCK cored (approximately 1.6 m to 6.1 m depths) Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)			RC-1	RC	1524	TCR = 100%, SCR = 75%, RQD = 60%			
3											
4					RC-2	RC	1524	TCR = 100%, SCR = 77%, RQD = 67%			
5					RC-3	RC	1524	TCR = 100%, SCR = 82%, RQD = 75%			
6				137.45 6.15							
		End of Borehole Notes: 1. Borehole open and dry upon completion of drilling. 2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.									
7											
8											
9											
10											

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P — W — W_L
10 20 30 40 50 60 70 80 90

GEMTEC
Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-15

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 30 2024

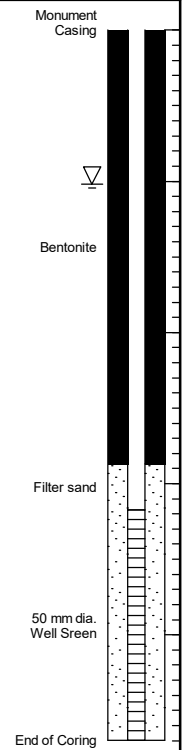
DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m
		Ground Surface		143.50				
0	Power Auger / Hollow Stem Auger (152mm OD)	TOPSOIL (~75mm thick)		0.08	1A	SS		
		(SM) SILTY SAND and GRAVEL; grey, rock fragments; non-cohesive, moist, very dense		143.20 0.30	1B	SS	152	50/0.13
		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	25	50/0.03
1				141.95	3	SS	0	50/0.03
	HQ Coring	End of Augering		1.55				
		BEDROCK cored (approximately 1.7 m to 4.7 m depths)						
2		Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)			RC-1	RC	1524	TCR = 100%, SCR = 100%, RQD = 100%
3								
4					RC-2	RC	1524	TCR = 100%, SCR = 100%, RQD = 95%
				138.80				
		End of Borehole		4.70				
5		Notes:						
		1. Borehole open and dry upon completion of drilling.						
		2. Monitoring well installed as shown upon completion of drilling.						
6		3. Groundwater level measured in monitoring well at approximately 1.0 mbgs (Elev. 142.5 m) on August 13, 2024.						
7								
8								
9								
10								

SAMPLES

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P — W — W_L
10 20 30 40 50 60 70 80 90

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION



GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEV. (m)
24/08/13	1.0 ▽	142.5

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LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-16

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 24 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m
		Ground Surface		142.98				
0	Power Auger / Hollow Stem Auger (152mm OD)	TOPSOIL (~125mm thick)			1A	SS		
		(SM) SILTY SAND and GRAVEL; grey, rock fragments; non-cohesive, moist, very dense		0.13 142.58 0.40	1B	SS	203	50/0.08
1		- Auger grinding between depths of approximately 0.4 m (start of weathered BEDROCK) and 1.6 m			2	SS	25	50/0.03
				141.43	3	SS	0	50/0.03
	HQ Coring	End of Augering BEDROCK cored (approximately 1.7 m to 6.2 m depths) Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)		1.55	RC-1	RC	1524	TCR = 100%, SCR = 97%, RQD = 92%
2								
3					RC-2	RC	1524	TCR = 100%, SCR = 97%, RQD = 93%
4								
5					RC-3	RC	1524	TCR = 100%, SCR = 95%, RQD = 85%
6				136.76				
		End of Borehole Notes: 1. Borehole open and dry upon completion of drilling. 2. Borehole was backfilled with bentonite and soil cuttings upon completion of drilling.		6.22				
7								
8								
9								
10								

SAMPLES

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P W W_L
10 20 30 40 50 60 70 80 90

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION

GEMTEC
Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-17

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

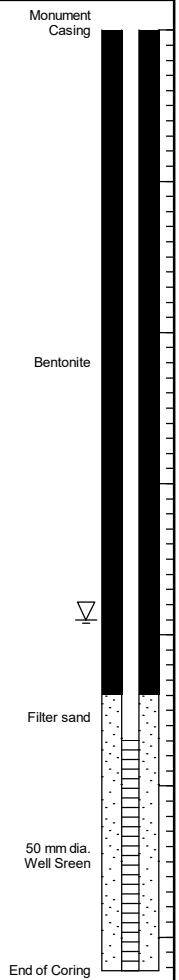
SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 25 2024

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m
		Ground Surface		141.46				
0	Power Auger / Hollow Stem Auger (152mm OD)	TOPSOIL (~50mm thick)		0.05	1A	SS		
		(SM) SILTY SAND, some gravel; grey, rock fragments; non-cohesive, moist, very dense		141.16 0.30	1B	SS	102	50/0.08
1		- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	25	50/0.03
				139.91	3	SS	25	50/0.03
		End of Augering		1.55				
2	HQ Coring	BEDROCK cored (approximately 1.7 m to 6.2 m depths)						
		Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)			RC-1	RC	1524	TCR = 100%, SCR = 98%, RQD = 97%
3								
4					RC-2	RC	1524	TCR = 100%, SCR = 98%, RQD = 98%
5					RC-3	RC	1524	TCR = 100%, SCR = 98%, RQD = 97%
6				135.24				
		End of Borehole		6.22				
7		Notes:						
		1. Borehole open and dry upon completion of drilling.						
		2. Monitoring well installed as shown upon completion of drilling.						
8		3. Groundwater level measured in monitoring well at approximately 3.9 mbgs (Elev. 137.6 m) on August 13, 2024.						
9								
10								

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: NATURAL, REMOULDED
WATER CONTENT, %: W_P, W, W_L
10 20 30 40 50 60 70 80 90

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION



GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEV. (m)
24/08/13	3.9 ▽	137.6

GEMTEC
Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

RECORD OF BOREHOLE : BH24-18

CLIENT: PEC Community Partners Inc.
PROJECT: Village A, Base 31 Area, Picton, Ontario
JOB#: 103306.002
LOCATION: See Borehole Location Plan

SHEET: 1 OF 1
DATUM: Geodetic
BORING DATE: Jul 29 2024

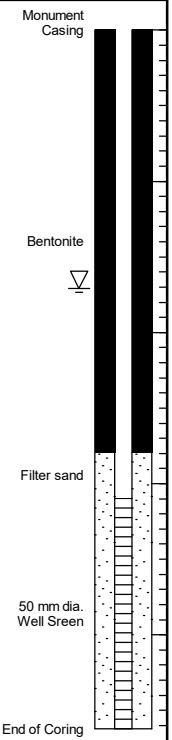
DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m
0	Power Auger	Ground Surface		147.15				
		TOPSOIL (~75mm thick)		0.08	1A	SS		
		(SM) SILTY SAND and GRAVEL; grey, rock fragments; non-cohesive, moist, very dense		146.85 0.30	1B	SS	203	50/0.1
1	Hollow Stem Auger (152mm OD)	- Auger grinding between depths of approximately 0.3 m (start of weathered BEDROCK) and 1.6 m			2	SS	152	50/0.0
				145.60	3	SS	25	50/0.0
2	HQ Coring	End of Augering BEDROCK cored (approximately 1.6 m to 4.6 m depths) Fine to medium grained, dark grey to black, strong to very strong, fresh LIMESTONE with shale/siltstone interbeds (Lindsay Formation)		1.55	RC-1	RC	1524	TCR = 100%, SCR = 95%, RQD = 83%
3								
4					RC-2	RC	1524	TCR = 100%, SCR = 97%, RQD = 87%
				142.53				
5		End of Borehole Notes: 1. Borehole open and dry upon completion of drilling. 2. Monitoring well installed as shown upon completion of drilling. 3. Groundwater level measured in monitoring well at approximately 1.7 mbgs (Elev. 145.4 m) on August 13, 2024.		4.62				
6								
7								
8								
9								
10								

SAMPLES

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P W W_L
10 20 30 40 50 60 70 80 90

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION



GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEV. (m)
24/08/13	1.7 ▽	145.4

GEMTEC
Consulting Engineers and Scientists

LOGGED: IO
CHECKED: TO

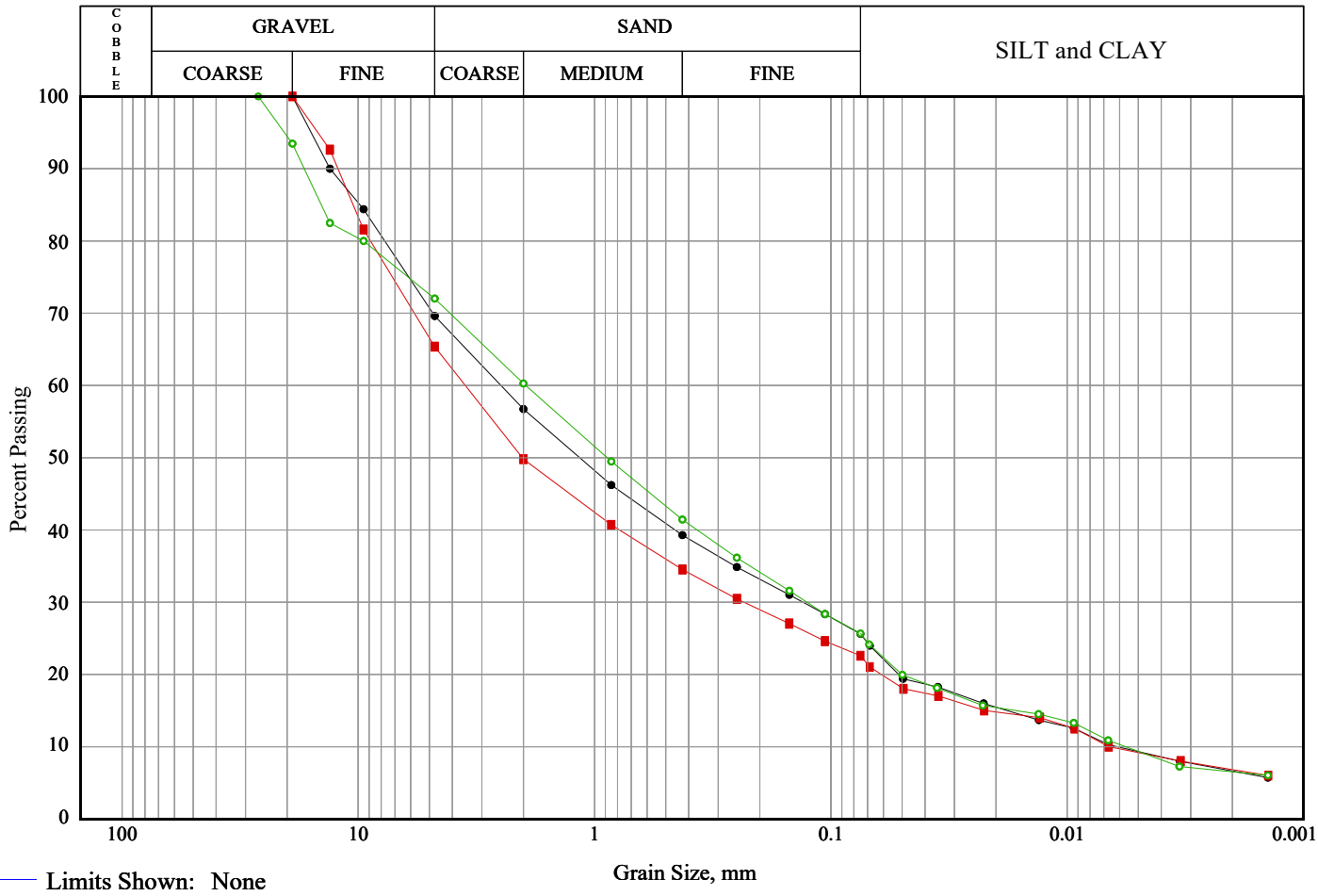
GEO - BOREHOLE LOG 103306.002_VILLAGEA_GINT_R0_2024_08_23.GPJ GEMTEC 2018.GDT 9/20/24

APPENDIX E

Geotechnical Laboratory Results

GEMTEC Consulting Engineers and Scientists	Client: PEC Community Partners Inc.	Soils Grading LS-702/ASTM D-422
	Project: Village A, Base 31 Area, Picton, Ontario	
	Project #: 103306002	

Note: More information available upon request



Line Symbol	Sample	Borehole/ Test Pit	Sample Number	Depth (m)	% Cob.+ Gravel	% Sand	% Silt and Clay
●		BH24-4	SA-2	0.8	30.4	44.0	25.6
■		BH24-11	SA-2	0.8-1.4	34.6	42.8	22.6
○		BH24-13	SA-2	0.8	28.0	46.4	25.6

Line Symbol	USCS Classification	USCS Symbol	D_{10}	D_{15}	D_{30}	D_{50}	D_{60}	D_{85}	% 5-75µm
●	Gravelly SILTY SAND	SM	0.006	0.018	0.13	1.16	2.49	9.85	19.0
■	SILTY SAND and GRAVEL	SM	0.007	0.022	0.23	2.02	3.52	10.52	15.8
○	Gravelly SILTY SAND	SM	0.006	0.016	0.13	0.89	1.96	14.35	19.1

GEMTEC
Consulting Engineers and Scientists

Client: PEC Community Partners Inc.

Project: Village A, Base 31 Area, Picton, Ontario

Project #: 103306002

Rock Core Compressive Strength

Date/Time Sampled: 24/08/21 1:12:36 PM	Date/Time Tested: 24/08/21 1:12:36 PM

BH	Sample No	Depth (m)	Description	Diameter, mm	Area, mm²	Length After Capping, mm	L/D	Load, kN	Comp. Str., MPa
24-4	1890	3.5-3.8		63.3	3150	124	1.95	330.350	105.0
24-6	1891	4.2-4.5		63.3	3148	123	1.94	166.760	53.0
24-9	1892	2.7-2.9		63.3	3149	123	1.94	278.180	88.4

APPENDIX F

Rock Core Photographs

PEC Community Partners Inc.
Village A, Base 31 Residential Subdivision
Picton, Prince Edwards County, Ontario

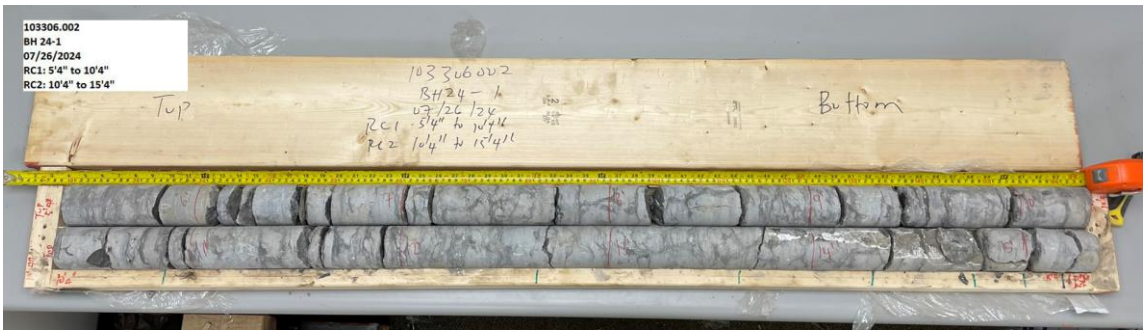


Photo 1: BH 24-1



Photo 2: BH 24-2

GEMTEC
Consulting Engineers and Scientists

Date:	September 20, 2024
Project No:	103306.002
Figure No:	1 and 2



Photo 3: BH 24-3

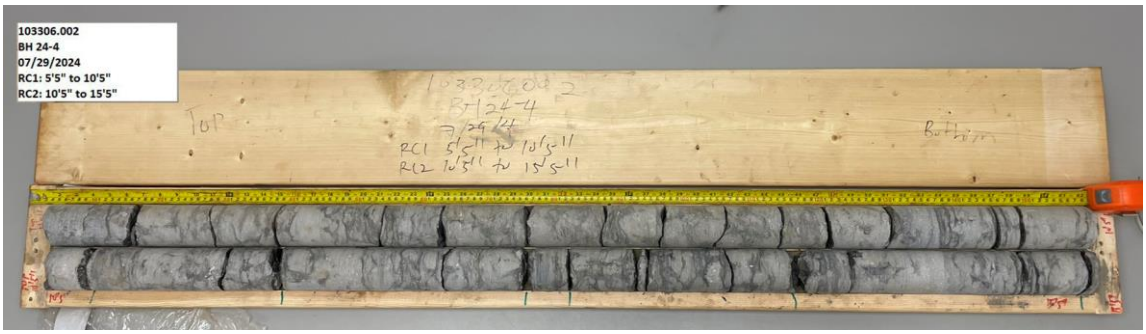


Photo 4: BH 24-4

PEC Community Partners Inc.
Village A, Base 31 Residential Subdivision
Picton, Prince Edwards County, Ontario



Photo 5: BH 24-5

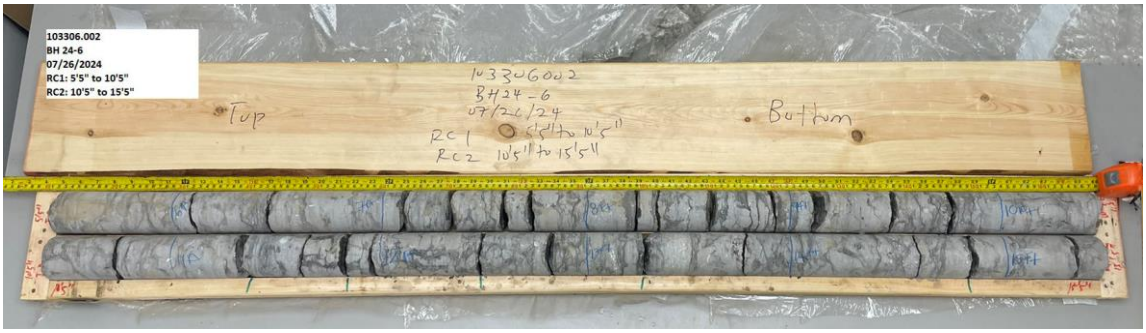


Photo 6: BH 24-6



Photo 7: BH 24-7

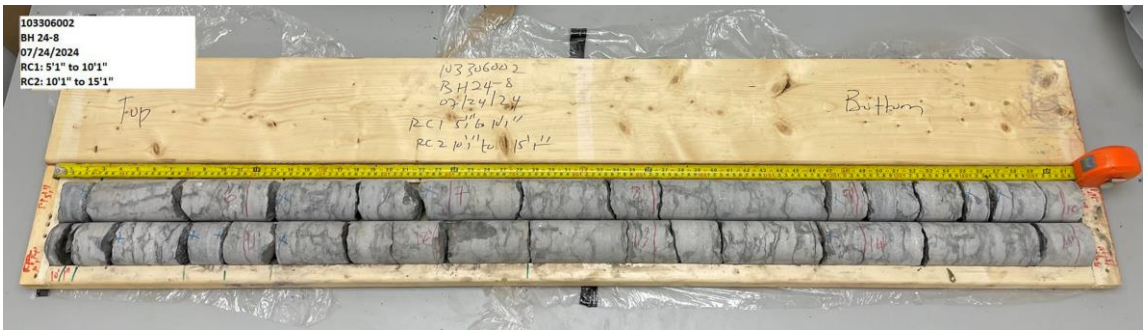


Photo 8: BH 24-8

PEC Community Partners Inc.
Village A, Base 31 Residential Subdivision
Picton, Prince Edwards County, Ontario



Photo 9: BH 24-9



Photo 10: BH 24-10

PEC Community Partners Inc.
Village A, Base 31 Residential Subdivision
Picton, Prince Edwards County, Ontario



Photo 11: BH 24-11



Photo 12: BH 24-12

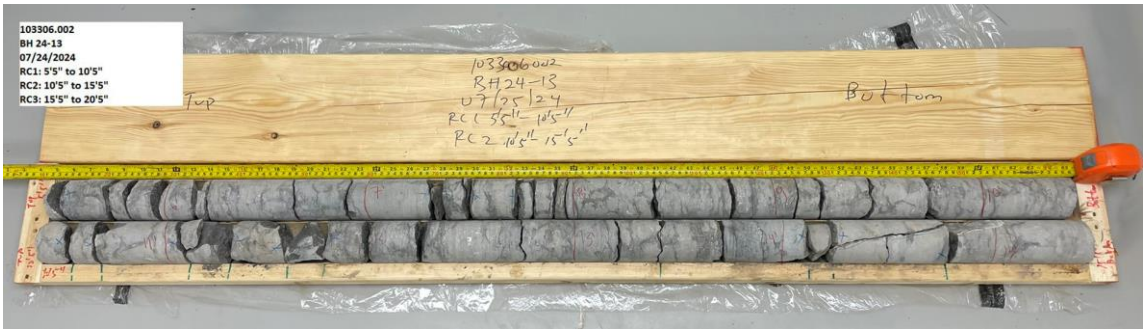


Photo 13: BH 24-13



Photo 14: BH 24-14



Photo 15: BH 24-15

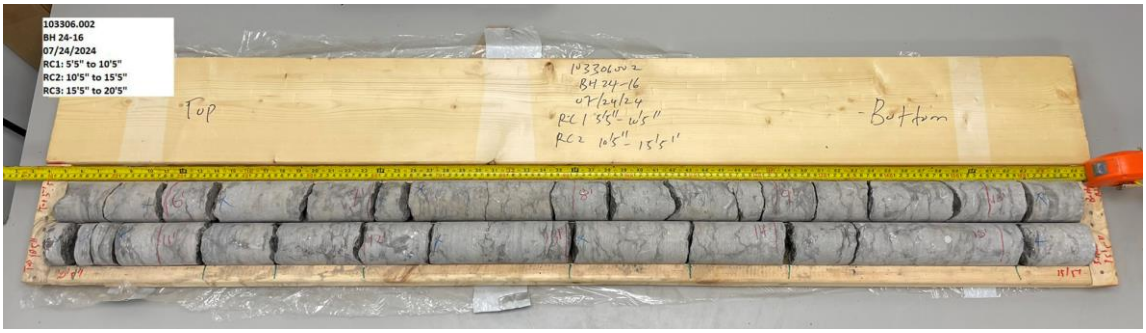


Photo 16: BH 24-16

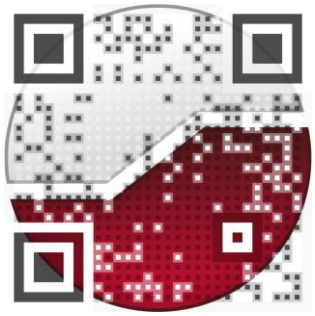


Photo 17: BH 24-17



Photo 18: BH 24-18

experience • knowledge • integrity

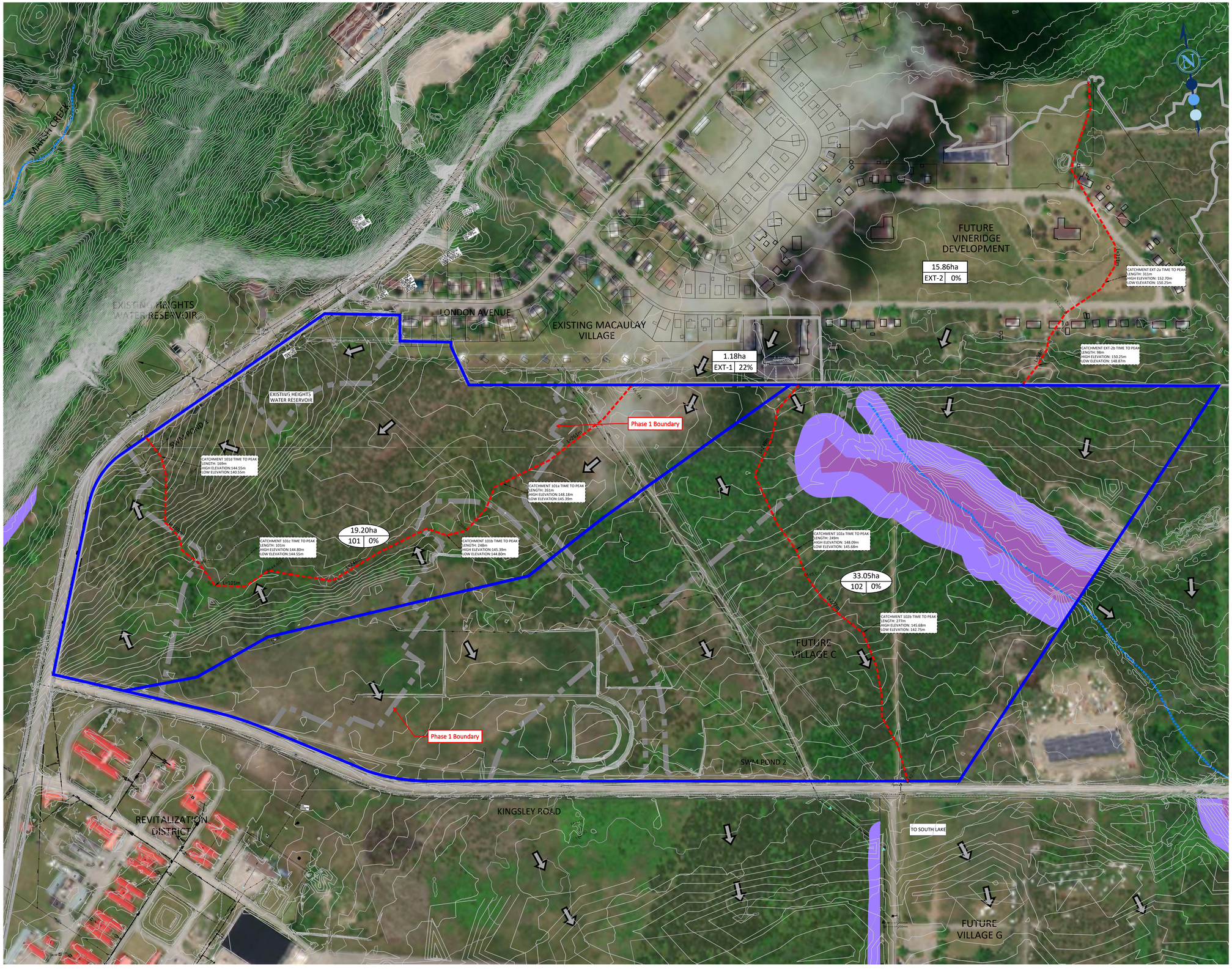


civil	civil
geotechnical	géotechnique
environmental	environnement
structural	structures
field services	surveillance de chantier
materials testing	service de laboratoire des matériaux

expérience • connaissance • intégrité

Appendix B2 FSSR (SCS, August 2025)





LEGEND:

- LIMIT OF DEVELOPMENT
- DRAINAGE FEATURE (PALMER, 2023)
- HIGH CONSTRAINT AREA (PALMER ENGINEERING, 2023)
- HIGH CONSTRAINT SETBACK (PALMER ENGINEERING, 2023)
- OVERLAND FLOW DIRECTION
- STORM DRAINAGE BOUNDARY
- EXTERNAL STORM DRAINAGE BOUNDARY
- L=XXm — TIME OF PEAK FLOW PATH AND LENGTH

15.86ha / EXT-2 / 22% — EXTERNAL STORM DRAINAGE AREA (HECTARES); PERCENT (%) IMPERVIOUS; CATCHMENT ID

19.20ha / 102 / 0% — DRAINAGE AREA (HECTARES); PERCENT (%) IMPERVIOUS; CATCHMENT ID

SCS consulting group ltd
30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475-1900
FAX: (905) 475-8335

PICTON AIRPORT - PRINCE EDWARD COUNTY COMMUNITY PARTNERS INC.

EXISTING STORM DRAINAGE PLAN

DESIGNED BY:	R.B.	CHECKED BY:	A.R.K.
SCALE:	1:2000	DATE:	AUGUST 2025
PROJECT No:	2365	FIGURE No:	5.1

File: P:\2365 Picton Airport – Tercot\Drawings\Village A\FSP\Fig\Report Figures\2365P–5.1–VLGA–STRM–EXST.dwg – Revised by <SOZDEMIR> : Wed, Aug 20 2025 – 1:53pm

Existing Conditions
VO Parameter Summary

Picton Airport Village A
Project Number: 2365
Date: August 2025
Designer Initials: R.B.

NASHYD

Number	102	101	EXT-2
Description			
DT(min)	1	1	1
Area (ha)	33.05	19.2	15.86
CN*	7.2	55.0	62.0
IA(mm)	10.0	9.1	4.6
TP Method	Uplands	Uplands	Uplands
TP (hr)	0.64	1.32	0.40

STANDHYD

Number	EXT-1
Description	
DT(min)	1
Area (ha)	1.18
TIMP[2]	0.22
XIMP[1,2]	0.22
CN*	54.0
IA(mm)	5.0
SLPP(%)	2
LGP(m)	40
MNP	0.25
DPSI (mm)	2.0
SLPI(%)	1
LGI(m)	88.84
MNI	0.013

CN & Ia values apllied to post-pevelopment conditions

[1]Note that where there is NO directly connected area (ie: roof runoff to grassed areas), the hydrology program does not accept XIMP=0%, therefore, XIMP = 1% has been used
[2]Note that where there is NO pervious area, the hydrology program does not accept TIMP and XIMP=100%, therefore, TIMP and XIMP = 99% has been usec

Total Area = 69.3 ha

Drainage Area and Release Rate Summmary - Pond 1

Picton Airport - Village A
Project Number: 2365
Date: August 2025
Designer Initials: R.B.

Weighted Impervious

Catchment ID	Total Area	Imperviousness[1]	Impervious Area
	(ha)	(%)	(ha)
201	19.50	62%	12.13

[1] Refer to **Appendix E** for weighted impervious area calulcations

Allowable Release Rate to Marsh Creek

Storm Event	4 Hour Chicago	6 Hour SCS	12 Hour SCS	24 Hour SCS
	(m^3/s)	(m^3/s)	(m^3/s)	(m^3/s)
2 Year	0.038	0.053	0.076	0.106
5 Year	0.068	0.100	0.137	0.187
10 Year	0.094	0.136	0.184	0.248
25 Year	0.133	0.189	0.253	0.335
50 Year	0.165	0.233	0.310	0.406
100 Year	0.199	0.280	0.369	0.480

*Per Pre-development VO Hydrology Modelling in **Appendix E**.

Target flow rate established for Village A - Phase 1

Controlled Release Rates to Marsh Creek

Storm Event	4 Hour Chicago	6 Hour SCS	12 Hour SCS	24 Hour SCS
	(m^3/s)	(m^3/s)	(m^3/s)	(m^3/s)
2 Year	0.038	0.049	0.066	0.087
5 Year	0.068	0.087	0.119	0.159
10 Year	0.093	0.121	0.160	0.216
25 Year	0.133	0.169	0.225	0.289
50 Year	0.163	0.212	0.272	0.345
100 Year	0.198	0.251	0.319	0.401

*Per Post-development VO Hydrology Modelling in **Appendix E**.

Comparison of Controlled Flows to Allowable

Storm Event	4 Hour Chicago	6 Hour SCS	12 Hour SCS	24 Hour SCS
	(m^3/s)	(m^3/s)	(m^3/s)	(m^3/s)
2 Year	0.000	-0.004	-0.010	-0.019
5 Year	0.000	-0.013	-0.018	-0.028
10 Year	-0.001	-0.015	-0.024	-0.032
25 Year	0.000	-0.020	-0.028	-0.046
50 Year	-0.002	-0.021	-0.038	-0.061
100 Year	-0.001	-0.029	-0.050	-0.079

The comparison of the total post-development controlled peak flow to Marsh Creek to the pre-develoment values show the proposed stormwater management strategy meets quantity control criteria.

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Proposed Conditions
VO Parameter Summary

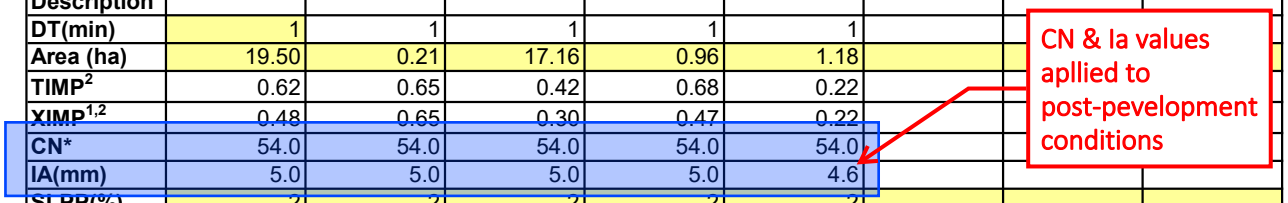
Picton Airport - Village A
Project Number: 2365
Date: August 2025
Designer Initials: R.B.

NASHYD

Number		205	EXT-2					
Description								
DT(min)		0	0					
Area (ha)		14.5	15.86					
CN*		58.0	62.0					
IA(mm)		10.0	4.6					
TP Method		Uplands	Uplands					
TP (hr)		0.44	0.40					

STANDHYD

Number	201	202	203	204	EXT-1			
Description								
DT(min)	1	1	1	1	1			
Area (ha)	19.50	0.21	17.16	0.96	1.18			
TIMP[2]	0.62	0.65	0.42	0.68	0.22			
XIMP[1,2]	0.48	0.65	0.30	0.47	0.22			
CN*	54.0	54.0	54.0	54.0	54.0			
IA(mm)	5.0	5.0	5.0	5.0	4.6			
SLPP(%)	2	2	2	2	2			
LGP(m)	40	40	40	40	40			
MNP	0.25	0.25	0.25	0.25	0.25			
DPSI (mm)	2.0	2.0	2.0	2.0	2.0			
SLPI(%)	1	1	1	1	1			
LGI(m)	360.56	37.42	338.23	80.00	88.84			
MNI	0.013	0.013	0.013	0.013	0.013			



[1]Note that where there is NO directly connected area (ie: roof runoff to grassed areas), the hydrology program does not accept XIMP=0%, therefore, XIMP = 1% has been used

[2]Note that where there is NO pervious area, the hydrology program does not accept TIMP and XIMP=100%, therefore, TIMP and XIMP = 99% has been used

Proposed Conditions
CN Calculations

Picton Airport - Village A
Project Number: 2365
Date: August 2025
Designer Initials: R.B.

Site Soils: (per Prince Edward County Soils Mapping)

Soil Type	Hydrologic Soil Group
Rockland	B
Farmington Loam	B

TABLE OF CURVE NUMBERS (CN's)**									
Land Use	Hydrologic Soil Type							Manning's 'n'	Source
	A	AB	B	BC	C	CD	D		
Meadow "Good"	30	44	58	64.5	71	74.5	78	0.40	MTO
Woodlot "Fair"	36	48	60	66.5	73	76	79	0.40	MTO
Gravel	76	80.5	85	87	89	90	91	0.30	USDA
Lawns "Good"	39	50	61	67.5	74	77	80	0.25	USDA
Pasture/Range	58	61.5	65	70.5	76	78.5	81	0.17	MTO
Crop	66	70	74	64	54	70	86	0.13	MTO
Fallow (Bare)	77	82	86	89	4.6408318	93	94	0.05	MTO
Low Density Residences	57	64.5	72	76.5	81	83.5	86	0.25	USDA
Streets, paved	98	98	98	98	98	98	98	0.01	USDA

1. MTO Drainage Manual (1997), Design Chart 1.09-Soil/Land Use Curve Numbers
2. USDA (1986), Urban Hydrology for Small Watersheds, Table 2.2-Runoff Curve Numbers for Urban Areas

HYDROLOGIC SOIL TYPE (%) - Proposed Conditions								
Catchment	Hydrologic Soil Type							TOTAL
	A	AB	B	BC	C	CD	D	
201	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100
202	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100
203	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100
204	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100
204	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100
205	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100
EXT-1	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100
EXT-2	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100
0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
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HYDROLOGIC SOIL TYPE (%) - Proposed Conditions								
Catchment	Hydrologic Soil Type							TOTAL
	A	AB	B	BC	C	CD	D	
201			100					100
202			100					100
203			100					100
204			100					100
204			100					100
205			100					100
EXT-1			100					100
EXT-2			100					100
								0
								0
								0
								0

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Proposed Conditions
CN Calculations

Picton Airport - Village A
Project Number: 2365
Date: August 2025
Designer Initials: R.B.

LAND USE (%) - Proposed Conditions

Catchment	Meadow	Woodlot	Gravel	Lawns	Pasture Range	Crop	Fallow (Bare)	Low Density Residences	Impervious	Total
201	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
202	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
203	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
204	0.0	0.0	0.0	100.0	100.0	0.0	0.0	0.0	0.0	200.0
204	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
205	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
EXT-1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
EXT-2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
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0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Note: Where STANDHYD command used (shaded), impervious fraction is not considered in CN determination, since %Imp directly input in STANDHYD command

LAND USE (%) - Proposed Conditions

Catchment	Meadow	Woodlot	Gravel	Lawns	Pasture Range	Crop	Fallow (Bare)	Low Density Residences	Impervious	Total
201				100.0						100.0
202				100.0						100.0
203				100.0						100.0
204				0.0	100.0					100.0
204				100.0						100.0
205				100.0						100.0
EXT-1										0.0
EXT-2										0.0
0										0.0
0										0.0
0										0.0
0										0.0

Note: Where STANDHYD command used (shaded), impervious fraction is not considered in CN determination, since %Imp directly input in STANDHYD command

CURVE NUMBER (CN) - Proposed Conditions

Catchment	Meadow	Woodlot	Gravel	Lawns	Pasture Range	Crop	Fallow (Bare)	Low Density Residences	Impervious	Weighted CN
201	0.0	0.0	0.0	61.0	0.0	0.0	0.0	0.0	0.0	61
202	0.0	0.0	0.0	61.0	0.0	0.0	0.0	0.0	0.0	61
203	0.0	0.0	0.0	61.0	0.0	0.0	0.0	0.0	0.0	61
204	0.0	0.0	0.0	61.0	65.0	0.0	0.0	0.0	0.0	126
204	0.0	0.0	0.0	61.0	0.0	0.0	0.0	0.0	0.0	61
205	0.0	0.0	0.0	61.0	0.0	0.0	0.0	0.0	0.0	61
EXT-1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
EXT-2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

** AMC II assumed

Proposed Conditions
CN Calculations

Picton Airport - Village A
Project Number: 2365
Date: August 2025
Designer Initials: R.B.

Step	Input Values													
	Subcatchment:	201		202	203	204	204	EXT-1	0	0	0	210	0	EXT-2
1	**CN (AMC II):**	**61**		**61**	**61**	**126**	**61**	**61**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
2	CN (AMC III) =	78		78	78	100	78	78	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	100 Year Precipitation, P =	119.65	mm	119.65	119.65	119.65	119.65	119.65	119.65	119.65	119.65	119.65	119.65	119.65

$$Q = \frac{(P - Ia)^2}{(P - Ia) + S}$$

Q = rainfall excess or runoff, mm
S = potential maximum retention or available storage, mm

$$CN = \frac{25400}{S + 254}$$

CN* = modified SCS curve # that better reflects Ia conditions in Ontario

	Output Values													
	Subcatchment:	201		202	203	204	204	EXT-1	0	0	0	210	0	EXT-2
	S_{III} =	71.64	mm	71.64	71.64	0.00	71.64	71.64	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	SCS Assumption of 0.2 S = Ia =	14.33	mm	14.33	14.33	0.00	14.33	14.33	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	Q_{III} =	62.68	mm	62.68	62.68	119.65	62.68	62.68	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Preferred Initial Abstraction, Ia =	5.0	mm	5.0	5.0	8.0	5.0	#REF!	0.0	0.0	0.0	0.0	4.6	0.0
5	S^*_{III} =	95.05	mm	95.05	95.05	-7.47	95.05	#REF!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	CN^*_{III} =	72.77	mm	72.77	72.77	103.03	72.77	#REF!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	CN^*_{III}=	**73**	Rounded	**73**	**73**	**103**	**73**	**#REF!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
7	**CN^*_{II}=**	**54**	convert	**54**	**54**	**100**	**54**	**#REF!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**

Explanation of Procedure

1 Determine CN based on typical AMC II conditions (attached)
2 Convert CN from AMC II to AMC III conditions (standard SCS tables)
3 Get precipitation depth P for 100 year storm
4 Using CN_{III} with Ia = 0.2S, compute Q_{III} for 100 year precipitation
5 For the same Q_{III}, compute S^*_{III} using Ia=1.5mm (or otherwise determined)
6 Compute CN^*_{III} using S^*_{III}
7 Calculate CN^*_{II} using SCS conversion table

Proposed Conditions
CN Calculations

Picton Airport - Village A
Project Number: 2365
Date: August 2025
Designer Initials: R.B.

HYDROLOGIC SOIL TYPE (ha) - Proposed Conditions

Catchment	Hydrologic Soil Type A	AB	B	BC	C	CD	D	TOTAL
201			19.50					19.50
202			0.21					0.21
203			17.16					17.16
204			4.85					4.85
204			0.96					0.96
205			14.50					14.50
EXT-1			1.18					1.18
EXT-2			15.86					15.86
								0.00
								0.00
								0.00
								0.00

HYDROLOGIC SOIL TYPE (%) - Proposed Conditions

Catchment	Hydrologic Soil Type A	AB	B	BC	C	CD	D	TOTAL
201	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
202	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
203	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
204	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
204	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
205	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
EXT-1	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
EXT-2	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

HYDROLOGIC SOIL TYPE (%) - Proposed Conditions

Catchment	Hydrologic Soil Type A	AB	B	BC	C	CD	D	TOTAL
201			100.0					100.0
202			100.0					100.0
203			100.0					100.0
204			100.0					100.0
204			100.0					100.0
205			100.0					100.0
EXT-1			100.0					100.0
EXT-2			100.0					100.0
0								0.0
0								0.0
0								0.0
0								0.0

Proposed Conditions
CN Calculations

Picton Airport - Village A
Project Number: 2365
Date: August 2025
Designer Initials: R.B.

LAND USE (ha) - Proposed Conditions

Catchment	Meadow	Woodlot	Gravel	Lawns	Pasture Range	Crop	Fallow (Bare)	Low Density Residences	Impervious	Total
201				19.50						19.50
202				0.21						0.21
203				17.16						17.16
204					4.85					4.85
204				0.96						0.96
205				14.50						14.50
EXT-1										0.00
EXT-2										0.00
0										0.00
0										0.00
0										0.00
0										0.00

LAND USE (%) - Proposed Conditions

Catchment	Meadow	Woodlot	Gravel	Lawns	Pasture Range	Crop	Fallow (Bare)	Low Density Residences	Impervious	Total
201	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
202	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
203	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
204	0.0	0.0	0.0	100.0	100.0	0.0	0.0	0.0	0.0	200.0
204	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
205	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
EXT-1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
EXT-2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

LAND USE (%) - Proposed Conditions

Catchment	Meadow	Woodlot	Gravel	Lawns	Pasture Range	Crop	Fallow (Bare)	Low Density Residences	Impervious	Total
201				100.0						100.0
202				100.0						100.0
203				100.0						100.0
204					100.0					100.0
204				100.0						100.0
205				100.0						100.0
EXT-1										0.0
EXT-2										0.0
0										0.0
0										0.0
0										0.0
0										0.0

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Proposed Conditions
IA Calculations

Picton Airport - Village A
Project Number: 2365
Date: August 2025
Designer Initials: R.B.

LAND USE (%) - Proposed Conditions										
Catchment	Meadow	Woodlot	Gravel	Lawns	Pasture Range	Crop	Fallow (Bare)	Low Density Residences	Impervious	Total
201				100.0						100.0
202				100.0						100.0
203				100.0						100.0
204				0.0	100.0					100.0
204				100.0						100.0
205				100.0						100.0
EXT-1										0.0
EXT-2										0.0
0										0.0
0										0.0
0										0.0
0										0.0

IA VALUES (mm) - Proposed Conditions										
Catchment	Meadow	Woodlot	Gravel	Lawns	Pasture Range	Crop	Fallow (Bare)	Low Density Residences	Impervious	Total
IA (mm)	8	10	2	5	8	8	3	2	2	
201				5.0						5.0
202				5.0						5.0
203				5.0						5.0
204				0.0	8.0					8.0
204				5.0						5.0
205				5.0						5.0
EXT-1										0.0
EXT-2										0.0
0										0.0
0										0.0
0										0.0
0										0.0

* IA values based on LSRCA guidelines

Proposed Conditions
Time to Peak Calculations

Picton Airport - Village A
Project Number: 2365
Date: August 2025
Designer Initials: R.B.

Uplands Method:

Catchment ID	High Elevation	Low Elevation	Length (m)	Slope (%)	Land Cover Type	Velocity (m/s)	Time of Concentration (s)	Time of Concentration (hr)	Time to Peak (hr)
205	146.75	142.70	375	1.08	Woodland	0.16	2386.8	0.66	0.44

Proposed Conditions
Percent Impervious Calculations

			201	202	203	204	205
Catchment Area (ha)			19.50	0.21	17.16	4.85	0.96
Land Use Areas	**Timp**	**Ximp**					
Parks	7%	7%	2.08				
Road Widening	65%	65%		0.21			
SWM Pond	50%	50%	0.90		0.82		
High Density Block	99%	99%					
18m ROW	67%	67%					
Single Houses	66%	47%	8.17		8.50		0.74
23.5m ROW	64%	64%					
Walkway	50%	50%					
Townhouses	71%	46%	4.40		1.66		0.22
Laneway	71%	71%					
Future Phase (Medium Density)	75%	75%	3.95				
Asphalt	90%	90%					
Rooftop	90%	90%				54	
Open Space	0%	0%			6.18	4.64	
		Total Land Use =	19.50	0.21	17.16	58.64	0.96
		Timp =	62%	65%	42%	1002%	68%
		Ximp =	48%	65%	30%	1002%	47%

Percent Impervious (Timp) Calculations per Figure 5.2

Land Use	**Lot Type**				
Single Houses	**9.20x30m**	**11.6x30m**	**13.4x30m**	**Max. Timp**	**Max. Ximp**
18m ROW	65%	65%	65%	66%	47%
23.5m ROW	66%	66%	66%		
Townhouses	**Street**	**Back to back**	**Laneway**	**Max. Timp**	**Max. Ximp**
7.5m ROW	-	-	71%	71%	46%
18m ROW	66%	0%	-		
23.5m ROW	68%	-	-		

***Ximp calculations based on total impervious areas directly connected**

Appendix B3 Wetland Memo (SCS, July 2025)

SCS consulting group ltd

File #:	**2365**
Date:	**July 10, 2025**

Mr. Tyler Lasko
Prince Edward County
332 Picton Main Street
Picton, Ontario, K0K 2T0

Dear Mr. Lasko:

Re:	**Village A, Base31 Development Area** **Picton, Prince Eward County** **Wetland Stormwater Management Facility Information**

The purpose of this letter is to provide information regarding the specification of wetland Stormwater Management (SWM) facilities to service Village A of the Base31 Development Area instead of the originally proposed wet ponds.

SCS Consulting Group has previously designed and constructed multiple wetland SWM Facilities across southern Ontario. Two recent examples of wetland SWM facilities are located in the municipalities of Woodstock and Barrie. The wetland facility in Woodstock is approximately 1.13 ha and services a total drainage area of 19.72 ha consisting of residential land uses. The wetland facility in Barrie is approximately 2.84 ha and services a drainage area of 33.80 ha, also consisting of residential land uses. Please refer to Attachment A for engineering drawings of these two wetland SWM facilities.

The wetland facilities provide quality, erosion and quantity controls for the drainage areas contributing to the facilities. In both locations, the wetland type facility was chosen due to shallow groundwater elevations and the improved phosphorus removal achieved from a wetland SWM facility in comparison to other SWM facility options such as a wet pond. Both wetland facilities were designed in accordance with the Ministry of Environment (MOE) Stormwater Management Planning and Design Guidelines (2003).

The design of a wetland SWM facility is very similar to the design of a wet pond. The outlet design is the same between the two options. This will include a reverse slope pipe to draw cooler water from the bottom of the SWM facility for low flow events and a control structure in a maintenance hole with a combination of orifices and weirs to provide erosion control (25 mm rainfall event extended detention) and quantity control (2 through 100 year storm event post to pre) control. Both facilities will have a forebay with a minimum depth of 1 m for water quality control and an emergency spillway should the outlet become blocked.

The main difference between the two options is the depth of the facility. A wet pond requires a permanent pool with a mean depth between 1 and 2 m, whereas a wetland has an average depth between 150 mm to 300 mm with a deeper pool (1 m) only at the outlet. The side slopes differ as well, with a wet pond having 7:1 sloping at the permanent pool elevation (for safety) and 4:1 elsewhere, and a wetland having 5:1 at the permanent pool and 3:1 elsewhere. The shallower permanent pool and steeper slopes for the wetland result in less excavation into the bedrock, which is why a wetland SWM facility is being recommended at this time.

When looking further at the block size required for a wetland versus a wet pond, the two are comparable. Specific to the Village A SWM facilities, the block sizes have reduced in size since the first Draft Plan submission. There are multiple reasons for this but it is mainly due to revisiting the storm sewer and grading design to minimize deep excavation into the bedrock. The permanent pool elevations of the Phase 1 and 2 SWM facilities have been raised approximately 1 m and 0.75 m, respectively. Additionally, the inlet and outlet locations have been reconfigured, and the length to width ratio increased to elongate both SWM facilities. This has reduced the block sizes and minimized the amount of excavation required for both SWM facilities. The block sizes will be reduced in the current Draft Plan and next submission regardless as to whether the facilities will be designed as wetlands or wet ponds.

In terms of operations and maintenance of a wetland facility, regular inspections for erosion, vegetation health and sediment buildup are necessary for a wetland, but the level of effort would not be in excess of what is required for a wet pond. Vegetation health monitoring which involves controlling weeds and the removal of invasive species from the wetland area is important to ensure appropriate function.

Similar to wet ponds that provide a quality control function, the sediment accumulated within a wetland SWM facility is to be removed to ensure proper continued performance. In accordance with MOE Guidelines (2003), maintenance of a SWM facility, wetland or wet pond, is required when total suspended solids removal efficiency decreases by 5%. In the case of the Village A Phase 1 SWM facility, it will take approximately 56 years for the removal efficiency to drop to 75% for both the wetland and wet pond facility.

It is typically recommended to perform maintenance at regular 10-year intervals to reduce the amount of material to be removed. A wetland will accumulate approximately 365 m^3 of sediment in a 10-year period, compared to a wet pond, which will accumulate 350 m^3 in the same time frame. A wetland facility will therefore accumulate marginally less sediment over this timeframe; however, the real advantage to a wetland SWM facility from a maintenance perspective is that the removal of sediment from a wetland facility is easier due to shallower depths and a smaller volume of water to be drained or pumped from the facility. In both wetland and wet pond facilities, the vegetation would need to be restored after maintenance is completed.

Wetland SWM facilities are now being proposed for Village A of the Camp31 Development Area instead of wet ponds to minimize the amount of deep excavation into the bedrock. This memorandum has shown that the design, operations and maintenance of wetland SWM facilities are similar to that of wet ponds, although wetlands are generally easier to maintain due to the shallower depth and smaller permanent pool volume.

We trust that the information provided sufficiently addresses your concerns regarding wetland SWM facilities. Please provide confirmation that wetland SWM facilities are acceptable to Prince Edward County so that we can proceed with revising the FSSR with the supporting calculations and modelling, looking towards making our second submission and obtaining Draft Plan approval

Please contact the undersigned if you have any questions or require any additional information.

Sincerely,

SCS Consulting Group Ltd.

Andrea Keeping, P.Eng.
akeeping@ scsconsultinggroup.com

Attachments

Attachment A Example Engineering Drawings of Wetland SWM Facilities

P:\2365 Picton Airport - Tercot\Correspondence\Letters\Prince Edward County - 2025 07(Jul)10 - ak - Wetland SMW Facility Letter.docx

Attachment A
Example Engineering Drawings for Wetland SWM Facilities

30 Centurian Drive, Suite 100 Markham, Ontario L3R 8B8 Phone **905 475 1900** Fax **905 475 8335**
www.scsconsultinggroup.com

FOR STORMWATER MANAGEMENT POND CROSS-SECTIONS REFER TO DWGS SWM2 & SWM3

1500mmø PRECAST CONCRETE MANHOLE DDHW9057 (MH25) AS PER OPSD 701.011
TOP 261.55
S600ø INV. 259.15
E600ø INV. 259.15
N600ø INV. 260.10
325mmø ORIFICE PLATE AT INV. 259.15
390mmø ORIFICE PLATE AT INV. 260.10

8.43m–600ø CONC STM (CL.65–D) @ 0.00%

ANTI–SEEPAGE COLLAR (REFER TO DETAIL ON DWG SWM3)

600mmø PRECAST CONCRETE HEADWALL DDHW9055 (HW3) AS PER OPSD 804.030
GRATE AS PER OPSD 804.050
TOP 260.30
INV. 259.15
WITH 1.2m HIGH BLACK VINYL CHAIN LINK FENCE AS PER OPSD 972.130

13.8m²x0.675m DEEP PLUNGE POOL WITH SPLASH PAD CONSISTING OF 100–300mmø RIP–RAP PLACED 450mm DEEP OVERLYING "TERRAFIX 270R" FILTER CLOTH (OR APPROVED EQUIVALENT) REFER TO DETAIL ON DWG SWM3

LINE OF STAKES AS

7.58m–675ø CONC STM (CL.65–D) @ 2.37%

600mmø PRECAST CONCRETE HEADWALL DDHW9057 (HW5) AS PER OPDF 804.030 AS PER OPSD 804.050
TOP 261.04
S600ø INV. 259.79

7.20m–600ø CONC STM (CL.65–D) @ 0.50%

JF12–20–5 (3600mmø) JELLYFISH SYSTEM
TOP 261.55
W600mmø INV. 259.12
E600mmø INV. 258.97

6.2m–600ø CONC STM (CL.65–D) @ 5.00%

4.63m–600ø CONC STM (CL.65–D) @ 0.50%

13.8m²x0.675m DEEP PLUNGE POOL WITH SPLASH PAD CONSISTING OF 100–300mmø RIP–RAP PLACED 450mm DEEP OVERLYING "TERRAFIX 270R" FILTER CLOTH (OR APPROVED EQUIVALENT) REFER TO DETAIL ON DWG SWM3

675mmø PRECAST CONCRETE HEADWALL DDHW9056 (HW4) AS PER OPSD 804.030
GRATE AS PER OPSD 804.050
TOP 260.09
INV. 258.75
WITH 1.2m HIGH BLACK VINYL CHAIN LINK FENCE AS PER OPSD 972.130

1500mmø PRECAST CONCRETE MANHOLE DDHW9045 (MH26)
AS PER OPSD 701.011
TOP 261.55
S600ø INV. 259.03
W450ø INV. 258.93
N675ø INV. 258.93

7.17m–600ø CONC STM (CL.65–D) @ 3.00%

ANTI–SEEPAGE COLLAR (REFER TO DETAIL ON DWG SWM3)

600mmx1200mm PRECAST CONCRETE DITCH INLET TYPE A DDHW9058 (DICB1)
(OPSD 705.030 TYPE B 6H:1V
GRATE PER OPSD 403.010)
GRATE INV. 260.77
N600mmø 259.30 INV.
390ø ORIFICE PLATE AT INV. 259.30

63.2m² EROSION PROTECTION CONSISTING OF LAYFIELD VMAX(R) S200 (OR APPROVED EQUIVALENT)

ACCESS TO BE PROVIDED BY VEHICULAR CONTROL GATE AS PER CITY OF BARRIE STANDARD BSD–1215 AND BSD–1216 (REFER TO DETAIL ON DWG SWM4)

118.2m² EROSION PROTECTION CONSISTING OF LAYFIELD VMAX(R) S200 (OR APPROVED EQUIVALENT)

2400mm x 1200mm PRECAST CONCRETE HEADWALL DDHW9053 (HW1) AS PER OPSD 804.040
CHUTE BLOCKS REQUIRED
GRATE AS PER OPSD 804.050
TOP 261.35
INV. 259.15
WITH 1.2m HIGH BLACK VINYL CHAIN LINK FENCE AS PER OPSD 972.130

FOREBAY BOTTOM TO BE LINED WITH 177m³ OF 150mm DEEP 50mmø CRUSHED RUN LIMESTONE COMPACTED TO 95% SPMDD

1.0m WIDE FOREBAY DEWATERING SUMP WITH 300mmø PVC (SDR–35) WITH 25mmø HOLES SPACED 75mm C/C AND WRAPPED IN TERRAFIX '270R' FILTER FABRIC (OR APPROVED EQUIVALENT) AS PER THE DETAIL ON DWG SWM4, PERFORATED SECTION TO EXTEND FROM ELEVATION 259.25 TO 256.50.

382.9m² EROSION PROTECTION CONSISTING OF LAYFIELD VMAX(R) S200 (OR APPROVED EQUIVALENT)

5.0m WIDE MULTI–USE PATH/MAINTENANCE ACCESS ROAD (REFER TO DETAILS ON DWG SWM3)

54.0m² EROSION PROTECTION CONSISTING OF 100–300mmø RIP–RAP PLACED 450mm DEEP OVERLYING "TERRAFIX 270R" FILTER CLOTH (OR APPROVED EQUIVALENT)

SEDIMENT DRYING AREA B2 – ACCESS ROAD – 30m³

131.9m² EROSION PROTECTION CONSISTING OF 100–300mmø RIP–RAP PLACED 450mm DEEP OVERLYING "TERRAFIX 270R" FILTER CLOTH (OR APPROVED EQUIVALENT)

1.0m WIDE FOREBAY DEWATERING SUMP WITH 300mmø PVC (SDR–35) WITH 25mmø HOLES SPACED 75mm C/C AND WRAPPED IN TERRAFIX '270R' FILTER FABRIC (OR APPROVED EQUIVALENT) AS PER THE DETAIL ON DWG SWM4, PERFORATED SECTION TO EXTEND FROM ELEVATION 259.25 TO 256.85.

FOREBAY BOTTOM TO BE LINED WITH 103.70m³ OF 150mm DEEP 50mmø CRUSHED RUN LIMESTONE COMPACTED TO 95% SPMDD

SEDIMENT DRYING AREA B1 – EAST FOREBAY – 114m³

95.8m² EROSION PROTECTION CONSISTING OF 100–300mmø RIP–RAP PLACED 450mm DEEP OVERLYING "TERRAFIX 270R" FILTER CLOTH (OR APPROVED EQUIVALENT)

975mm PRECAST CONCRETE HEADWALL DDHW9054 (HW2) AS PER OPSD 804.040
CHUTE BLOCKS REQUIRED
GRATE AS PER OPSD 804.050
TOP 260.56
INV. 259.15
WITH 1.2m HIGH BLACK VINYL CHAIN LINK FENCE AS PER OPSD 972.130

22.9m–975ø CONC STM (CL.65–D) @ 0.90%

SEDIMENT DRYING AREA A – WEST FOREBAY – 759m³

BLOCK 19 (NATURAL HERITAGE BUFFER)

BLOCK 20 (SWM POND)

BLOCK 21

KNEESHAW DRIVE

METROLINX RAILWAY CORRIDOR

WOODSDALE CRESCENT

WARNING SIGNAGE AS PER CITY OF BARRIE STANDARD BSD–83 (REFER TO DETAIL ON DWG SWM4)

19.3m–2400x1200 CONC BOX STM @ 0.60%

196.36m² EROSION PROTECTION CONSISTING OF 100–300mmø RIP–RAP PLACED 450mm DEEP OVERLYING "TERRAFIX 270R" FILTER CLOTH (OR APPROVED EQUIVALENT)

1.0m WIDE FOREBAY DEWATERING SUMP WITH 300mmø PVC (SDR–35) WITH 25mmø HOLES SPACED 75mm C/C AND WRAPPED IN TERRAFIX '270R' FILTER FABRIC (OR APPROVED EQUIVALENT) AS PER THE DETAIL ON DWG SWM4, PERFORATED SECTION TO EXTEND FROM ELEVATION 259.25 TO 256.35.

94.4m² EROSION PROTECTION CONSISTING OF 100–300mmø RIP–RAP PLACED 450mm DEEP OVERLYING "TERRAFIX 270R" FILTER CLOTH (OR APPROVED EQUIVALENT)

30.08m @ 1.50%

92.75m @ 0.50%

87.49m @ 1.50%

1.50m CONC. SIDEWALK

ACCESS TO BE PROVIDED BY VEHICULAR CONTROL GATE AS PER CITY OF BARRIE STANDARD BSD–1215 AND BSD–1216 (REFER TO THE DETAIL ON DWG SWM4)

WARNING SIGNAGE AS PER CITY OF BARRIE STANDARD BSD–83 (REFER TO DETAIL ON DWG SWM4)

0.0m @ 0.50%

KEY PLAN
NOT TO SCALE

SITE

MAPLEVIEW DRIVE EAST

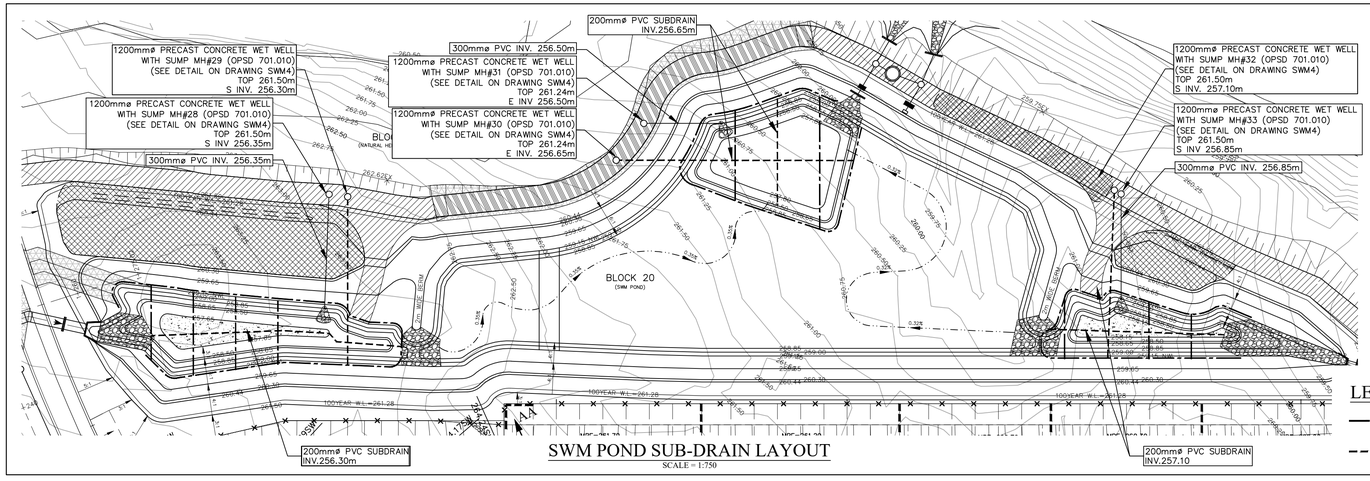
MADELAINE DRIVE

WOODSDALE CRESCENT

LOCKHART ROAD

GENERAL NOTES:

1. THIS STORMWATER FACILITY DESIGN IS TO BE REVIEWED IN CONJUNCTION WITH THE REPORT ENTITLED "750 LOCKHART ROAD, BALLYMORE SWM REPORT" DATED JULY 2023, PREPARED BY SCS CONSULTING GROUP LIMITED.
2. ALL SUBSTITUTIONS IN MATERIAL SPECIFICATIONS TO BE APPROVED BY ENGINEER PRIOR TO USE.
3. ALL DIMENSIONS SHOWN IN METRES (m) UNLESS OTHERWISE NOTED.
4. REFER TO DRAWINGS SWM2 AND SWM3 FOR POND DETAILS.
5. REGULAR CONSTRUCTION MONITORING BY THE GEOTECHNICAL ENGINEER SHOULD BE CARRIED OUT DURING POND CONSTRUCTION.
6. EROSION CONTROL BLANKETS AND TURF REINFORCEMENT MATS TO BE INSTALLED AS PER MANUFACTURER'S GUIDELINES.
7. RESTORATION, SEED MIX AND PLANTING TO BE CARRIED OUT AS PER LANDSCAPE RESTORATION DRAWINGS PREPARED BY THE LANDSCAPE ARCHITECT.
8. TOPSOIL RESTORATION DEPTH 0.30 m FOR ALL AREAS EXTENDING 3.0m INTO THE PERMANENT POOL.
9. GEOTECHNICAL CONSULTANT TO CERTIFY POND CONSTRUCTION AND FILL MATERIAL PLACEMENT.
10. POND SIDES SLOPES TO BE COMPACTED TO THE APPROVAL OF THE GEOTECHNICAL ENGINEER.



SWM POND SUB-DRAIN LAYOUT

SCALE = 1:750

	SWM FACILITY SUMMARY: SWM POND (2.27ha)				
	VOLUME (m³)		ELEVATION (m)	FREEBOARD (m)	OUTLET FLOW (Q) (m³/s)
	REQUIRED	PROVIDED			
PERMANENT POOL	3,310	3,917	259.15	2.45	–
Extended Detention	5,841	5,876	259.80	1.80	0.166
2 YEAR	N/R	9,753	260.16	1.44	0.223
5 YEAR	N/R	14,033	260.51	1.09	0.430
10 YEAR	N/R	17,046	260.73	0.87	0.524
25 YEAR	N/R	20,353	260.96	0.64	0.894
50 YEAR	N/R	22,901	261.13	0.47	1.124
100 YEAR	N/R	25,222	261.28	0.32	1.187

N/R – NOT REQUIRED

BENCH MARKS

TOPOGRAPHIC SURVEY PROVIDED BY JD BARNES LIMITED (DATE: 12–DEC–2017)
ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM BENCHMARK No. 03120110025. HAVING A PUBLISHED ELEVATION OF 266.687 METRES.
CITY OF BARRIE CONTROL MONUMENTS:
1. MONUMENT No.: 03120110014 – LOCATED ON YONGE STREET ON THE WEST SIDE OF THE STREET, APPROXIMATELY 75m NORTH OF THE LOCKHART ROAD AND YONGE INTERSECTION
VERTICAL AND HORIZONTAL
N: 4910284.662 E: 609772.678 EL: 268.680
2. MONUMENT No.: 03120110025 – LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 410m EAST OF THE THE LOCKHART ROAD AND YONGE INTERSECTION
VERTICAL AND HORIZONTAL
N: 4910364.775 E: 610203.171 EL: 266.687

LEGEND:
- 100mmø SUBDRAIN 1.3m BELOW POND BOTTOM IN DRAINAGE BLANKET
- SUBDRAIN AT CONSTANT ELEVATION

SCALE 5 0 10 20 30 40

LEGEND

- LIMIT OF SUBDIVISION
- LIMIT OF PHASE
- PROPOSED STORM MANHOLE/SEWER
- SINGLE/DOUBLE CATCHBASIN WITH NO ICD AND WITH CB SHIELD (SEE DETAIL ON DWG. DET3)
- 300.25 EXISTING CONTOUR AND ELEVATION
- ×223.23 PROPOSED GRADE ELEVATION
- ×223.23FUT FUTURE GRADE ELEVATION
- ×229.66Ex EXISTING GRADE ELEVATION
- OVERLAND FLOW DIRECTION
- PROPOSED EMBANKMENT (MAX 3:1 SLOPE UNLESS OTHERWISE NOTED)
- RIP–RAP
- SPILLWAY MULTI–USE PATH/ MAINTENANCE ACCESS ROAD
- MULTI–USE PATH/MAINTENANCE ACCESS ROAD
- NORMAL WATER LEVEL
- EROSION MATTING HATCH
- SEDIMENT DRYING AREA
- 1.0m THICK CLAY LINER
- BH16 BOREHOLE LOCATION
- BLACK VINYL 9 GAUGE CHAIN LINK FENCE AS PER CITY OF BARRIE STANDARD BSD–1211
- 217.60 PROPOSED CONTOUR AND POND ELEVATION
- 218.65 100 YEAR WATER LEVEL AND ELEVATION
- LOW FLOW CHANNEL
- 60 LOT NUMBER

SCS consulting group ltd
30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475–1900
FAX: (905) 475–8335

Ballymore HOMES
12840 YONGE STREET
SUITE 200
RICHMOND HILL, ON. L4E 4H1
TEL: (905) 773–1048

BALLYMORE BUILDING (BARRIE) CORPORATION

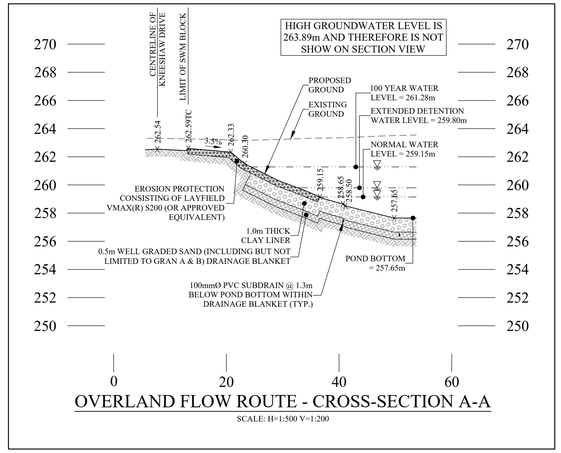
750 LOCKHART ROAD

STORMWATER MANAGEMENT FACILITY PLAN

Barrie
ENGINEERING DEPARTMENT

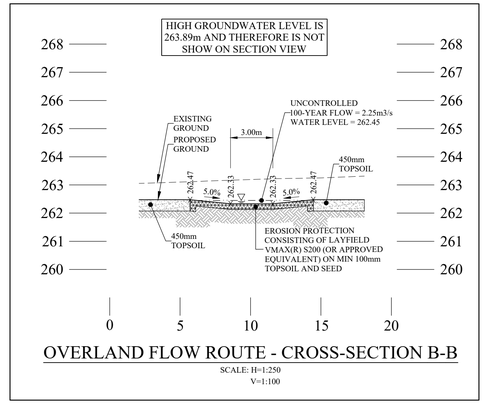
SCALE	1:500	CONTRACT NO.	1964
DESIGN	M.G.V.	DRAWN M.J.O.	SHEET NO. SWM1
REVIEWED	J.M.P.	DATE OCTOBER 2024	

File: P:\1964 750 Lockhart Road – Ballymore – Barrie\Drawings\Phase 1\Swm\1964D–SWMN–SWM1.dwg – Revised by <AWANG> : Wed, Apr 24 2024 – 10:12am



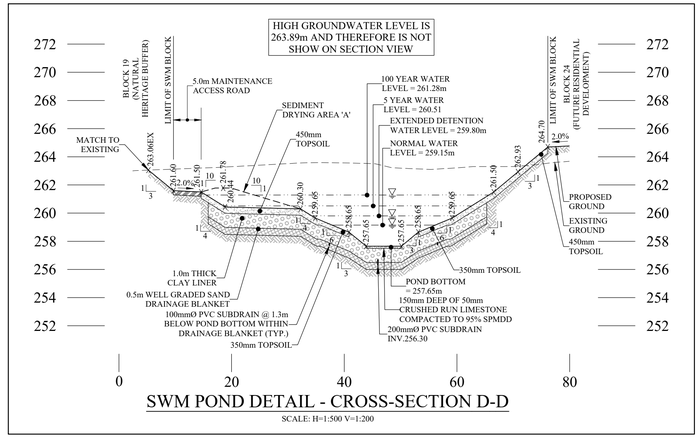
OVERLAND FLOW ROUTE - CROSS-SECTION A-A

SCALE: H=1:500 V=1:200



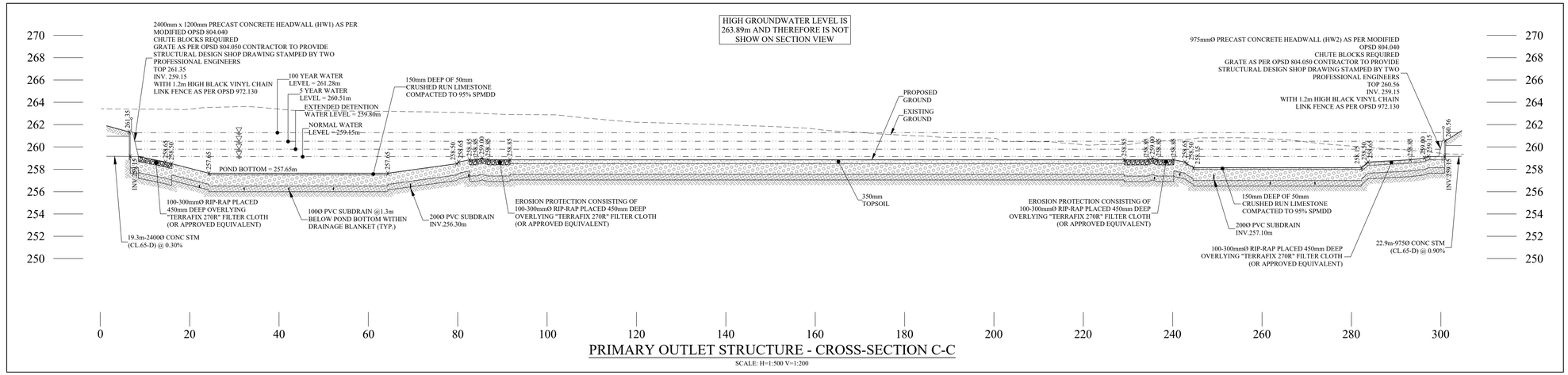
OVERLAND FLOW ROUTE - CROSS-SECTION B-B

SCALE: H=1:250
V=1:100



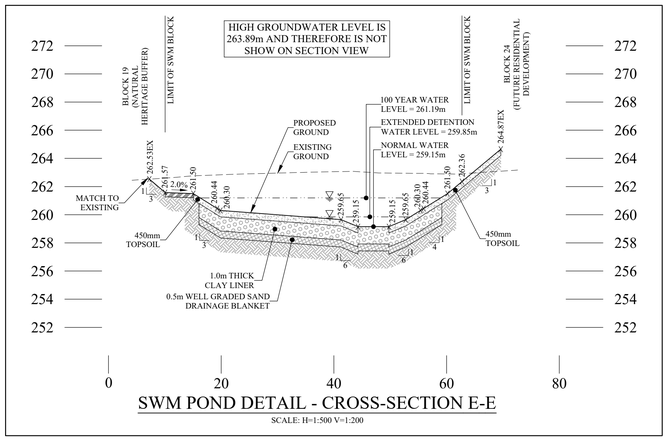
SWM POND DETAIL - CROSS-SECTION D-D

SCALE: H=1:500 V=1:200



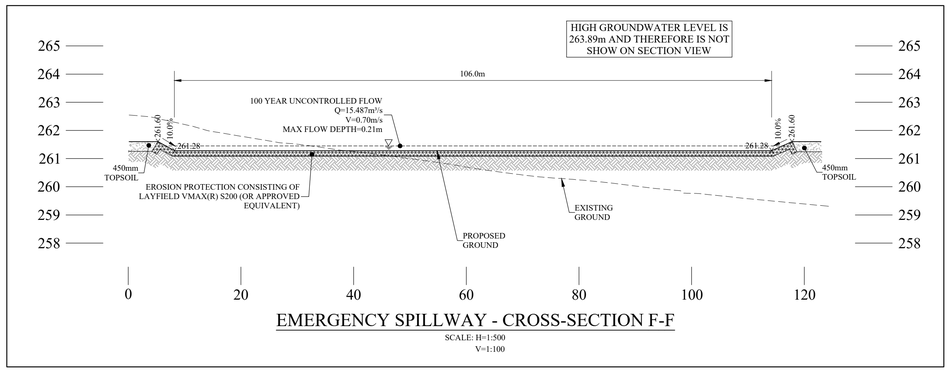
PRIMARY OUTLET STRUCTURE - CROSS-SECTION C-C

SCALE: H=1:500 V=1:200



SWM POND DETAIL - CROSS-SECTION E-E

SCALE: H=1:500 V=1:200



EMERGENCY SPILLWAY - CROSS-SECTION F-F

SCALE: H=1:500
V=1:100

GENERAL NOTES

REFER TO CURRENT CITY OF BARRIE STANDARDS FOR APPLICABLE GENERAL NOTES.

BENCH MARKS

TOPOGRAPHIC SURVEY PROVIDED BY JD BARNES LIMITED (DATE: 12-DEC-2017)
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CITY OF BARRIE CONTROL MONUMENTS:

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2. MONUMENT No.: 03120110025 – LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 410m EAST OF THE THE LOCKHART ROAD AND YONGE INTERSECTION
   VERTICAL AND HORIZONTAL
   N: 4910364.775 E: 610203.171 EL: 266.687

NO.	REVISIONS	DATE	APPROVED
1.	FIRST SUBMISSION	FEB. 2022	
1.	SECOND SUBMISSION	NOV. 2022	
1.	THIRD SUBMISSION	JUL. 2023	

SCS consulting group ltd
30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475-1900
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BALLYMORE BUILDING (BARRIE) CORPORATION

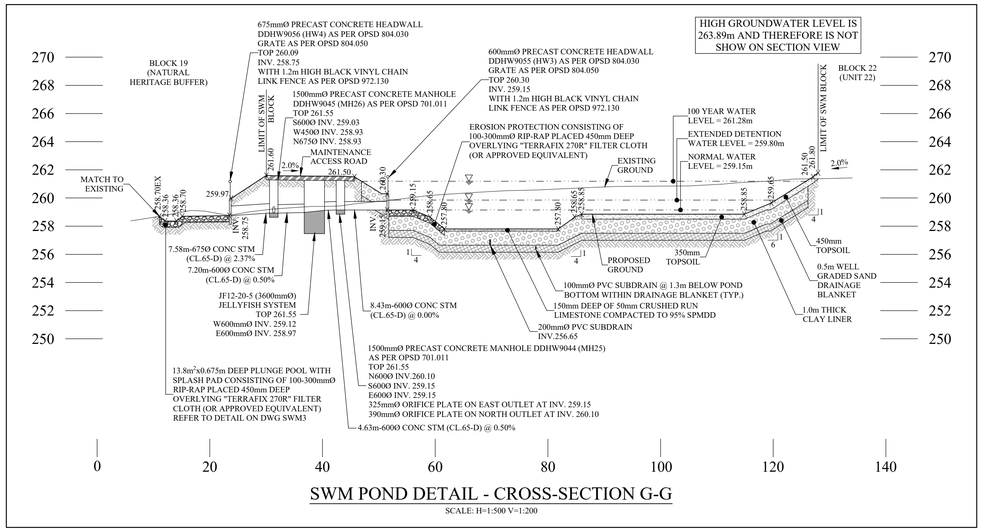
750 LOCKHART ROAD

STORMWATER MANAGEMENT FACILITY CROSS SECTIONS 1

Barrie
ENGINEERING DEPARTMENT

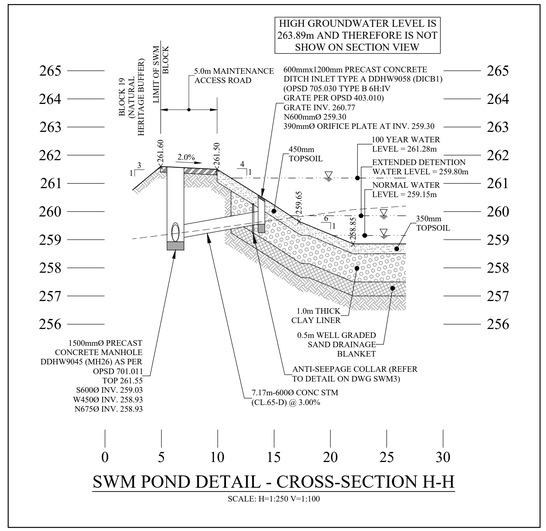
SCALE HOR.	AS SHOWN		CONTRACT NO. 1964
DESIGN	M.G.V.	DRAWN M.J.O.	SHEET NO. SWM2
REVIEWED	J.M.P.	DATE OCTOBER 2024	

File: P:\1964 750 Lockhart Road – Ballymore – Barrie\Drawings\Phase 1\Swm\1964D-SWMN-SWM2.dwg – Revised by <DDLAYT> : Fri, Jul 21 2023 – 1:29pm



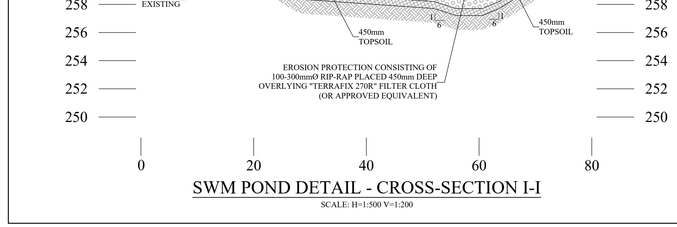
SWM POND DETAIL - CROSS-SECTION G-G

SCALE: H=1:500 V=1:200



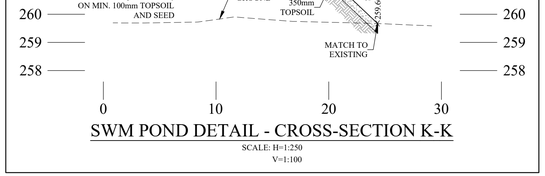
SWM POND DETAIL - CROSS-SECTION H-H

SCALE: H=1:250 V=1:100



SWM POND DETAIL - CROSS-SECTION I-I

SCALE: H=1:500 V=1:200



SWM POND DETAIL - CROSS-SECTION K-K

SCALE: H=1:250
V=1:100

GENERAL NOTES

REFER TO CURRENT CITY OF BARRIE STANDARDS FOR APPLICABLE GENERAL NOTES.

BENCH MARKS

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   N: 4910364.775 E: 610203.171 EL: 266.687

NO.	REVISIONS	DATE	APPROVED
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1.	THIRD SUBMISSION	JUL. 2023	

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RICHMOND HILL, ON. L4E 4H1
TEL: (905) 773-1048

BALLYMORE BUILDING (BARRIE) CORPORATION
750 LOCKHART ROAD

STORMWATER MANAGEMENT FACILITY CROSS SECTIONS 2

Barrie
ENGINEERING DEPARTMENT

SCALE HOR.	AS SHOWN		CONTRACT NO. 1964
DESIGN	M.G.V.	DRAWN M.J.O.	
REVIEWED	J.M.P.	DATE OCTOBER 2024	SHEET NO. SWM3

File: P:\1964 750 Lockhart Road – Ballymore – Barrie\Drawings\Phase 1\Swm\19640-SWMN-SWM3.dwg – Revised by <DDILAY> : Fri, Jul 21 2023 – 1:43pm

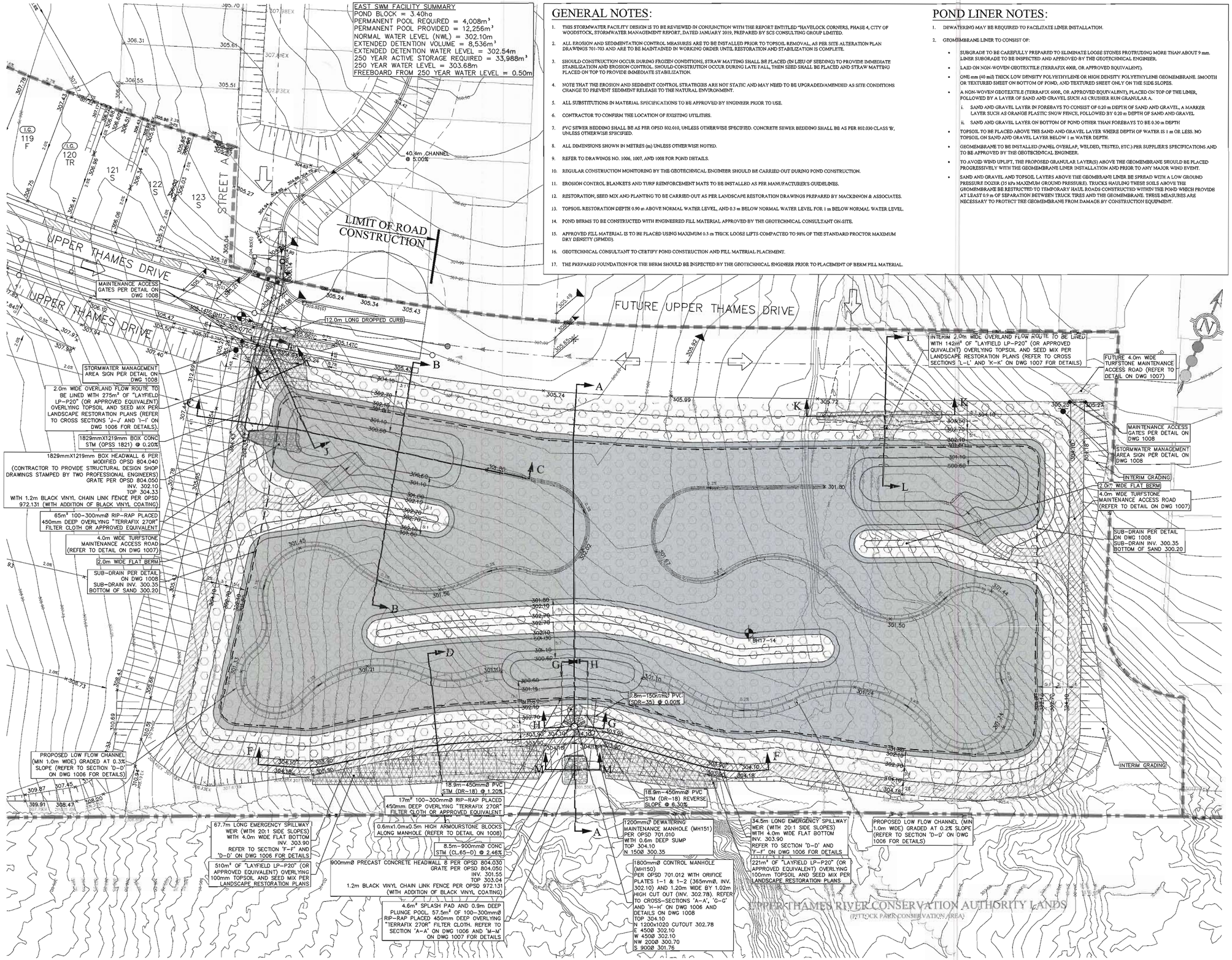
EAST SWM FACILITY SUMMARY
POND BLOCK = 3.40ha
PERMANENT POOL REQUIRED = 4,008m³
PERMANENT POOL PROVIDED = 12,256m³
NORMAL WATER LEVEL (NWL) = 302.10m
EXTENDED DETENTION VOLUME = 8,536m³
EXTENDED DETENTION WATER LEVEL = 302.54m
250 YEAR ACTIVE STORAGE REQUIRED = 33,988m³
250 YEAR WATER LEVEL = 303.68m
FREEBOARD FROM 250 YEAR WATER LEVEL = 0.50m

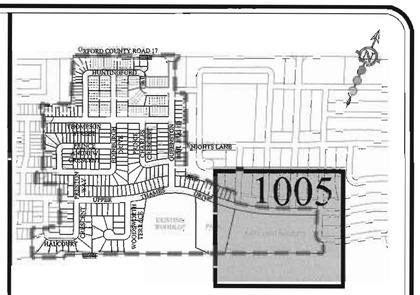
GENERAL NOTES:

1. THIS STORMWATER FACILITY DESIGN IS TO BE REVIEWED IN CONJUNCTION WITH THE REPORT ENTITLED "HAVELOCK CORNERS, PHASE 4, CITY OF WOODSTOCK, STORMWATER MANAGEMENT REPORT, DATED JANUARY 2019, PREPARED BY SCS CONSULTING GROUP LIMITED.
2. ALL EROSION AND SEDIMENTATION CONTROL MEASURES ARE TO BE INSTALLED PRIOR TO TOPSOIL REMOVAL, AS PER SITE ALTERATION PLAN DRAWINGS 701-703 AND ARE TO BE MAINTAINED IN WORKING ORDER UNTIL RESTORATION AND STABILIZATION IS COMPLETE.
3. SHOULD CONSTRUCTION OCCUR DURING FROZEN CONDITIONS, STRAW MATTING SHALL BE PLACED (IN LIEU OF SEEDING) TO PROVIDE IMMEDIATE STABILIZATION AND EROSION CONTROL. SHOULD CONSTRUTION OCCUR DURING LATE FALL, THEN SEED SHALL BE PLACED AND STRAW MATTING PLACED ON TOP TO PROVIDE IMMEDIATE STABILIZATION.
4. NOTE THAT THE EROSION AND SEDIMENT CONTROL STRATEGIES ARE NOT STATIC AND MAY NEED TO BE UPGRADED/AMENDED AS SITE CONDITIONS CHANGE TO PREVENT SEDIMENT RELEASE TO THE NATURAL ENVIRONMENT.
5. ALL SUBSTITUTIONS IN MATERIAL SPECIFICATIONS TO BE APPROVED BY ENGINEER PRIOR TO USE.
6. CONTRACTOR TO CONFIRM THE LOCATION OF EXISTING UTILITIES.
7. PVC SEWER BEDDING SHALL BE AS PER OPSD 802.010, UNLESS OTHERWISE SPECIFIED. CONCRETE SEWER BEDDING SHALL BE AS PER 802.030 CLASS 'B', UNLESS OTHERWISE SPECIFIED.
8. ALL DIMENSIONS SHOWN IN METRES (m) UNLESS OTHERWISE NOTED.
9. REFER TO DRAWINGS NO. 1006, 1007, AND 1008 FOR POND DETAILS.
10. REGULAR CONSTRUCTION MONITORING BY THE GEOTECHNICAL ENGINEER SHOULD BE CARRIED OUT DURING POND CONSTRUCTION.
11. EROSION CONTROL BLANKETS AND TURF REINFORCEMENT MATS TO BE INSTALLED AS PER MANUFACTURER'S GUIDELINES.
12. RESTORATION, SEED MIX AND PLANTING TO BE CARRIED OUT AS PER LANDSCAPE RESTORATION DRAWINGS PREPARED BY MACKINNON & ASSOCIATES.
13. TOPSOIL RESTORATION DEPTH 0.90 m ABOVE NORMAL WATER LEVEL, AND 0.3 m BELOW NORMAL WATER LEVEL FOR 1 m BELOW NORMAL WATER LEVEL.
14. POND BERMS TO BE CONSTRUCTED WITH ENGINEERED FILL MATERIAL APPROVED BY THE GEOTECHNICAL CONSULTANT ON-SITE.
15. APPROVED FILL MATERIAL IS TO BE PLACED USING MAXIMUM 0.3 m THICK LOOSE LIFTS COMPACTED TO 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD).
16. GEOTECHNICAL CONSULTANT TO CERTIFY POND CONSTRUCTION AND FILL MATERIAL PLACEMENT.
17. THE PREPARED FOUNDATION FOR THE BERM SHOULD BE INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF BERM FILL MATERIAL.

POND LINER NOTES:

1. DEWATERING MAY BE REQUIRED TO FACILITATE LINER INSTALLATION.
2. GEOMEMBRANE LINER TO CONSIST OF:
   - SUBGRADE TO BE CAREFULLY PREPARED TO ELIMINATE LOOSE STONES PROTRUDING MORE THAN ABOUT 9 mm. LINER SUBGRADE TO BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER.
   - LAID ON NON-WOVEN GEOTEXTILE (TERRAFIX 600R, OR APPROVED EQUIVALENT).
   - ONE mm (40 mil) THICK LOW DENSITY POLYETHYLENE OR HIGH DENSITY POLYETHYLENE GEOMEMBRANE. SMOOTH OR TEXTURED SHEET ON BOTTOM OF POND, AND TEXTURED SHEET ONLY ON THE SIDE SLOPES.
   - A NON-WOVEN GEOTEXTILE (TERRAFIX 600R, OR APPROVED EQUIVALENT), PLACED ON TOP OF THE LINER, FOLLOWED BY A LAYER OF SAND AND GRAVEL SUCH AS CRUSHER RUN GRANULAR A.
     i. SAND AND GRAVEL LAYER IN FOREBAYS TO CONSIST OF 0.20 m DEPTH OF SAND AND GRAVEL, A MARKER LAYER SUCH AS ORANGE PLASTIC SNOW FENCE, FOLLOWED BY 0.20 m DEPTH OF SAND AND GRAVEL
     ii. SAND AND GRAVEL LAYER ON BOTTOM OF POND OTHER THAN FOREBAYS TO BE 0.30 m DEPTH
   - TOPSOIL TO BE PLACED ABOVE THE SAND AND GRAVEL LAYER WHERE DEPTH OF WATER IS 1 m OR LESS. NO TOPSOIL ON SAND AND GRAVEL LAYER BELOW 1 m WATER DEPTH.
   - GEOMEMBRANE TO BE INSTALLED (PANEL OVERLAP, WELDED, TESTED, ETC.) PER SUPPLIER'S SPECIFICATIONS AND TO BE APPROVED BY THE GEOTECHNICAL ENGINEER.
   - TO AVOID WIND UPLIFT, THE PROPOSED GRANULAR LAYER(S) ABOVE THE GEOMEMBRANE SHOULD BE PLACED PROGRESSIVELY WITH THE GEOMEMBRANE LINER INSTALLATION AND PRIOR TO ANY MAJOR WIND EVENT.
   - SAND AND GRAVEL AND TOPSOIL LAYERS ABOVE THE GEOMBRANE LINER BE SPREAD WITH A LOW GROUND PRESSURE DOZER (55 kPa MAXIMUM GROUND PRESSURE). TRUCKS HAULING THESE SOILS ABOVE THE GEOMEMBRANE BE RESTRICTED TO TEMPORARY HAUL ROADS CONSTRUCTED WITHIN THE POND WHICH PROVIDE AT LEAST 0.9 m OF SEPARATION BETWEEN TRUCK TIRES AND THE GEOMEMBRANE. THESE MEASURES ARE NECESSARY TO PROTECT THE GEOMEMBRANE FROM DAMAGE BY CONSTRUCTION EQUIPMENT.





KEY PLAN
N.T.S.

BENCHMARK: No.00119663385 ELEV. 299.824m

ELEVATIONS ARE GEODETIC AND ARE REFERRED TO THE GEODETIC SURVEY OF CANADA FIRST-ORDER BENCHMARK No. 00119663385 HAVING AN ELEVATION OF 299.824 METRES LOCATED NORTHEAST CORNER OF THE INTERSECTION OF VANSITTART AVENUE AND DEVON SHIRE AVENUE IN WOODSTOCK, ONTARIO. BENCHMARK IS APPROXIMATELY 22.2m NORTHEAST OF THE INTERSECTION OF CNETRELINE OF THE AVENUE, 4.7m SOUTH OF THE SOUTHWEST CORNER OF VANSITTART MANOR, 15.3m SOUTHWEST OF THE SOUTHEAST CORNER OF THE SAMS MANOR, 40.2m WSW OF THE SW CORNER OF VAN DEVON MANOR AND 4.6m NORTH OF A LIGHT POLE MARKED BY A BROWN TABLET SET IN A CONCRETE MONUMENT.

LEGEND:

- LIMIT OF DEVELOPMENT
- LIMIT OF PHASE
- PROPOSED SANITARY MANHOLE/SEWER
- PROPOSED STORM MANHOLE/SEWER
- PROPOSED FUTURE SANITARY MANHOLE/SEWER
- PROPOSED SUB-DRAIN
- × 303.90 PROPOSED GRADE
- × 305.15TC PROPOSED TOP OF CURB GRADE
- × 304.89(G) PROPOSED GUTTER GRADE
- × 305.99 INT PROPOSED INTERIM GRADE
- × 304.67EX EXISTING GRADE
- 304.10 PROPOSED ULTIMATE CONTOUR AND ELEVATION
- 304.10 PROPOSED INTERIM CONTOUR AND ELEVATION
- 301 EXISTING CONTOUR AND ELEVATION
- OVERLAND FLOW DIRECTION
- GEOMEMBRANE LINER
- TURFSTONE MAINTENANCE ACCESS ROAD
- RIP-RAP
- TURF REINFORCEMENT MATTING
- PROPOSED SLOPING (MAX 3:1)
- PROPOSED 1.5m HIGH CHAIN LINK FENCE
- BH17-14 APPROXIMATE BOREHOLE LOCATION
- CURB CUT

REVISIONS

No.	DESCRIPTION	DATE	BY	APPROVED

SCS consulting group ltd
30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475-1900
FAX: (905) 475-8335

City of Woodstock
500 DUNDAS STREET
WOODSTOCK, ONTARIO N4S 0A7
TEL: (519) 539-1291

THAMES DEVELOPMENTS INC.

HAVELOCK CORNERS WOODSTOCK PHASE 4

EAST STORMWATER MANAGEMENT FACILITY

DATE: JANUARY 2019	DESIGNED BY: E.S.D.	CHECKED BY: S.E.K.
SCALE: 1:500	DRAWN BY: E.S.D.	CHECKED BY: M.R.C.

APPROVED AS TO FORM IN RELIANCE UPON THE PROFESSIONAL SKILL AND ABILITY OF SCS CONSULTING GROUP AS TO DESIGN AND SPECIFICATION.

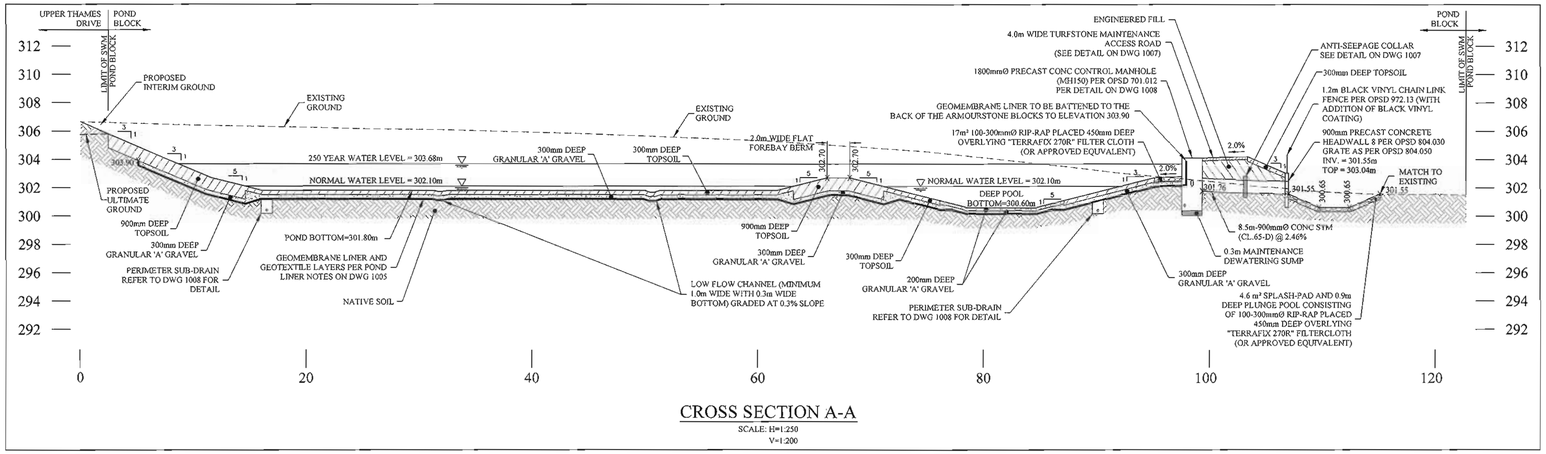
Harold de Haan, P.Eng., City Engineer — Date

PROJECT No: 1344

DRAWING No: 1005

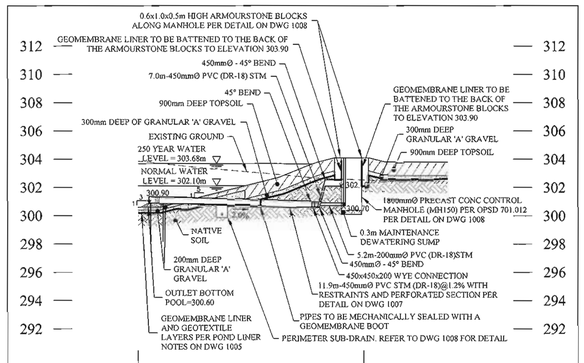
LICENSED PROFESSIONAL ENGINEER — E.T.C. KNECHTEL — 100157433 — PROVINCE OF ONTARIO

File: P:\1344 - Havelock Corners\Drawings\Phase 4\Swm\13440-PH54-SWMM-1005.dwg - Revised by <LUN> : Tue, Jan 15 2019 - 10:08am



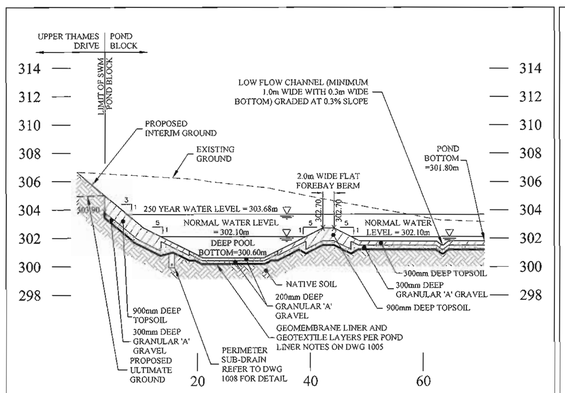
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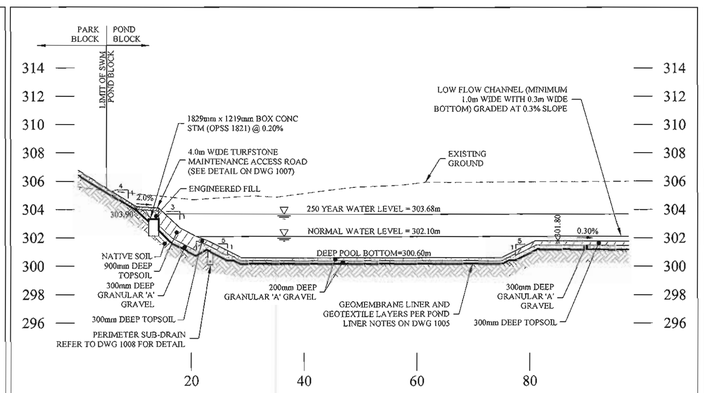
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V=1:200



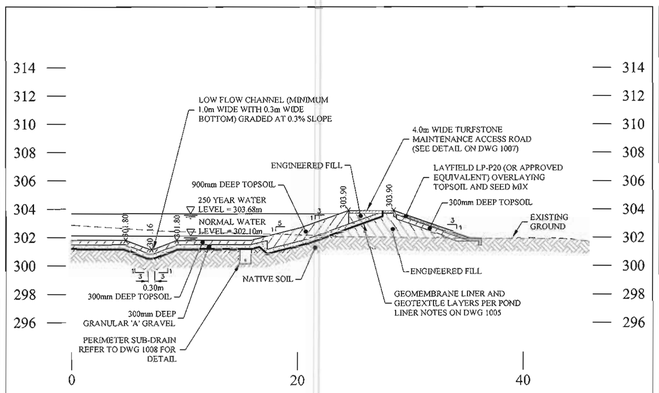
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V=1:200



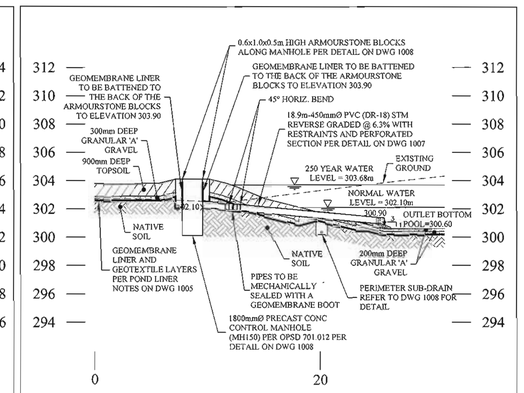
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V=1:200



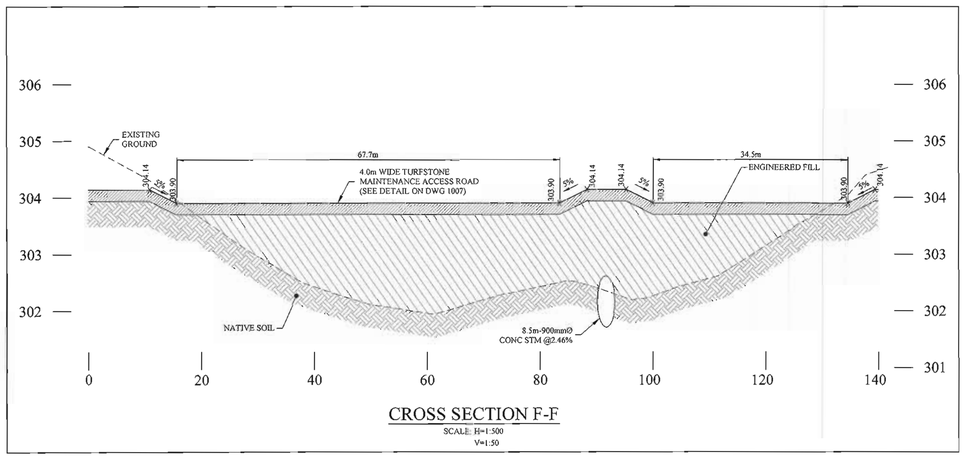
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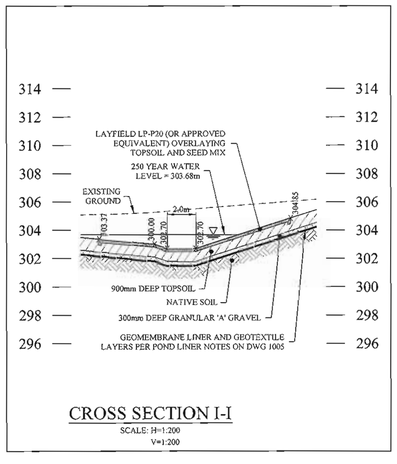
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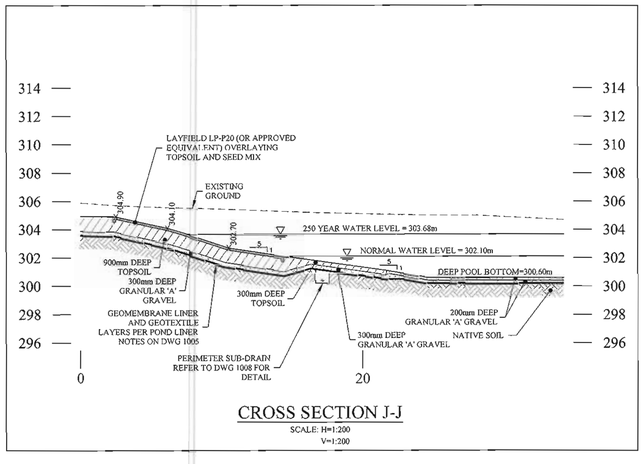
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SCALE: H=1:500
V=1:50



CROSS SECTION I-I

SCALE: H=1:200
V=1:200



CROSS SECTION J-J

SCALE: H=1:200
V=1:200

REVISIONS

No.	DESCRIPTION	DATE	BY	APPROVED

scs consulting group ltd
30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475-1900
FAX: (905) 475-8335

City of Woodstock
500 DUNDAS STREET
WOODSTOCK, ONTARIO N4S 0A7
TEL: (519) 539-1291

THAMES DEVELOPMENTS INC.

HAVELOCK CORNERS WOODSTOCK PHASE 4

EAST STORMWATER MANAGEMENT FACILITY SECTIONS AND DETAILS 1

LICENSED PROFESSIONAL ENGINEER
Nov 15/19
E.T.C. KWECHTEL
100157435
PROVINCE OF ONTARIO

DATE: JANUARY 2019	DESIGNED BY: E.K./E.S.D.	CHECKED BY: S.E.K.
SCALE: AS SHOWN	DRAWN BY: D.M.D.	CHECKED BY: M.R.C.

APPROVED AS TO FORM IN RELIANCE UPON THE PROFESSIONAL SKILL AND ABILITY OF SCS CONSULTING GROUP AS TO DESIGN AND SPECIFICATION.

Harold de Haan, P.Eng., City Engineer — Date

PROJECT No: 1344

DRAWING No: 1006

File: P:\1344 - Havelock Corners\Drawings\Phase 4\Swm\1344D-PH54-SWMH-1006.dwg - Revised by <LEADKE> : Wed, Nov 21 2018 - 12:00pm

Brockie, Ryan

From: Keeping, Andrea
Sent: July 25, 2025 9:47 AM
To: Tyler Lasko; Costa, Cosimo
Cc: Schaefer, Steve; David MacPherson; Christopher Marchese; Alexandra De Gasperis; Brockie, Ryan
Subject: RE: Picton - Wetland Stormwater Management Facility Information

Tyler, thank you for the confirmation. We will proceed as directed.

Regards,

Please be advised that I will be away on vacation from Friday August 1, 2025 to Monday August 11, 2025.

Andrea Keeping, P.Eng.

SCS consulting group ltd
Land Development Consultants

905 475 1900 *x2542*
416 997 4040
30 Centurian Drive, Suite 100,
Markham, ON, L3R 8B8
akeeping@scsconsultinggroup.com

CELEBRATING 20 YEARS

From: Tyler Lasko <tlasko@pecounty.on.ca>
Sent: July 24, 2025 4:10 PM
To: Keeping, Andrea <akeeping@scsconsultinggroup.com>; Costa, Cosimo <ccosta@scsconsultinggroup.com>
Cc: Schaefer, Steve <sschaefer@scsconsultinggroup.com>; David MacPherson <dmacpherson@pecounty.on.ca>; Christopher Marchese <cmarchese@decocommunities.ca>; Alexandra De Gasperis <alexandra@decocommunities.ca>; Tyler Lasko <tlasko@pecounty.on.ca>
Subject: FW: Picton - Wetland Stormwater Management Facility Information

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Hi Cosimo and Andrea.

Thank you for the info supplied in the attached and further via email below. County staff have reviewed and have no objections to the Village A proposal proceeding with a proposed wet land approach within the SWM facility treatment. Samples from other areas in Ontario are appreciated. As has been discussed to date, it is expected that the updated FSSR for Village A will include these updates to the SWM approach. We suggest including the attached memo in the updated FSSR as appendix to track this adjustment in conceptual planning.

Note that Village A SWM cannot serve as precedent for future Villages within the Base31 Master Plan; let's assess and agree on approach as further development comes in the future.

If any questions then please contact me direct.

With thanks,

Tyler

Tyler Lasko, P.Eng.
Lead Engineer – Heights Development Area, Development Services
The Corporation of the County of Prince Edward
T: 613.476.2148 ext. 2039
tlasko@pecounty.on.ca

TheCounty™
The Edward Building, 280 Picton Main Street, Picton, ON, K0K 2T0
Mailing Address: 332 Picton Main Street, Picton, ON K0K 2T0
www.thecounty.ca | **facebook** | **twitter**

This communication is intended for the addressee indicated above. The information contained in the email will be used for municipal purposes and will be managed in accordance with *The Municipal Act* and *The Municipal Freedom of Information and Protection of Privacy Act*. If you have received this in error, please notify us immediately.

From: Keeping, Andrea <akeeping@scsconsultinggroup.com>
Sent: July 23, 2025 9:50 AM
To: Tyler Lasko <tlasko@pecounty.on.ca>
Cc: Costa, Cosimo <ccosta@scsconsultinggroup.com>; Schaefer, Steve <sschaefer@scsconsultinggroup.com>; David MacPherson <dmacpherson@pecounty.on.ca>
Subject: RE: Picton - Wetland Stormwater Management Facility Information

Hi Tyler, the only real difference with maintaining a wetland is that there will be less water in the wetland to drain/pump prior to removal of accumulated sediment. This is a benefit to PEC as it will take less time and a lower cost to maintain a wetland versus a wet pond, especially if there are rain events while maintenance is occurring. Otherwise, the maintenance of a wetland facility is not any different from maintaining a wet pond noting that MOE combines wet ponds and wetlands into one maintenance category for this reason (Chapter 6 of the MOE Manual, 2003).

Prior to assumption by PEC, the wetland facility will be drained and sediment removed just as with a wet pond. An engineering certification will then be completed to certify that the facility has been constructed in accordance with the approved engineering drawings (sufficient volume, inlet structures, overland flow route, outlet control structure design, spillway etc.).

PEC would then be required to maintain the facility per the Operations and Maintenance Manual which will provide direction on inspections, maintenance activities including garbage removal and plantings, and sediment removal frequency and methodology. The general sediment removal procedure will be as follows:

1. Install ESC measures to ensure the maintenance activities will not cause downstream erosion problems or sediment/dust problems with adjacent residences.
2. Inspect all inlets, outlets, control structure, overland flow route, spillway etc. If there are any deficiencies, maintain the infrastructure as required.

3. Drain the wetland facility. (As we work through the design details of the wetland facilities, we will look to incorporate gravity drains for the permanent pool; however, if this is not feasible, the permanent pool will need to be pumped.)
4. Remove sediment (and vegetation) via long reach backhoes. (Dependent on the frequency of maintenance and the amount of sediment accumulation, removal of sediment can be isolated to the forebay; however, it is recommended to maintain the main cell if vegetation grows to the point of impacting the available flood storage).
5. Restore vegetation as per the approved Landscape Restoration Plan.

Please don't hesitate to give me a call on my cell phone if you would like to discuss further.

Regards,

Please be advised that I will be away on vacation from Friday August 1, 2025 to Monday August 11, 2025.

Andrea Keeping, P.Eng.

SCS consulting group ltd
Land Development Consultants

905 475 1900 *x2542*
416 997 4040
30 Centurian Drive, Suite 100,
Markham, ON, L3R 8B8
akeeping@scsconsultinggroup.com

CELEBRATING 20 YEARS

From: Tyler Lasko <tlasko@pecounty.on.ca>
Sent: July 23, 2025 8:38 AM
To: Keeping, Andrea <akeeping@scsconsultinggroup.com>
Cc: Costa, Cosimo <ccosta@scsconsultinggroup.com>; Schaefer, Steve <sschaefer@scsconsultinggroup.com>; David MacPherson <dmacpherson@pecounty.on.ca>; Tyler Lasko <tlasko@pecounty.on.ca>
Subject: RE: Picton - Wetland Stormwater Management Facility Information

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Hi Andrea. Thanks for following up. Discussion internally has noted we don't have a hold on how to maintain this type of facility or what to expect. Can you provide some commentary on what a wetland facility would mean from a maintenance perspective, comparative to a wet pond. This would help us.
Tyler

From: Keeping, Andrea <akeeping@scsconsultinggroup.com>
Sent: July 21, 2025 8:19 AM
To: Tyler Lasko <tlasko@pecounty.on.ca>
Cc: Costa, Cosimo <ccosta@scsconsultinggroup.com>; Schaefer, Steve <sschaefer@scsconsultinggroup.com>
Subject: RE: Picton - Wetland Stormwater Management Facility Information

You don't often get email from akeeping@scsconsultinggroup.com. Learn why this is important

Good morning, Tyler. I'm following up on your review of the wetland SWM facility letter. Did you have any questions? I'm happy to meet if you wish to discuss further.

Regards,

Please be advised that I will be away on vacation from Friday August 1, 2025 to Monday August 11, 2025.

Andrea Keeping, P.Eng.

SCS consulting group ltd
Land Development Consultants

905 475 1900 *x2542*
416 997 4040
30 Centurian Drive, Suite 100,
Markham, ON, L3R 8B8
akeeping@scsconsultinggroup.com

CELEBRATING 20 YEARS

From: Tyler Lasko <tlasko@pecounty.on.ca>
Sent: July 10, 2025 1:34 PM
To: Keeping, Andrea <akeeping@scsconsultinggroup.com>
Cc: Costa, Cosimo <ccosta@scsconsultinggroup.com>; Schaefer, Steve <sschaefer@scsconsultinggroup.com>
Subject: RE: Picton - Wetland Stormwater Management Facility Information

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Received and starting review - thank you! Tyler

From: Keeping, Andrea <akeeping@scsconsultinggroup.com>
Sent: July 10, 2025 12:33 PM
To: Tyler Lasko <tlasko@pecounty.on.ca>
Cc: Costa, Cosimo <ccosta@scsconsultinggroup.com>; Schaefer, Steve <sschaefer@scsconsultinggroup.com>
Subject: Picton - Wetland Stormwater Management Facility Information

You don't often get email from akeeping@scsconsultinggroup.com. Learn why this is important

Good afternoon, Tyler. Per your recent discussions with Steve and Cosimo, we are pleased to provide a letter addressing your comments and concerns regarding wetland SWM facilities. Please don't hesitate to call me on my cell if you have any further questions or would like to discuss the specific design of the Village A facilities.

Regards,

Andrea Keeping, P.Eng.

SCS consulting group ltd
Land Development Consultants

905 475 1900 *x2542*
416 997 4040
30 Centurian Drive, Suite 100,
Markham, ON, L3R 8B8
akeeping@scsconsultinggroup.com

CELEBRATING 20 YEARS

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Appendix B4 Master Servicing Concept (SCS, November 2023)

SCS consulting group ltd

Base 31 Area Concept Plan
Prince Edward County

Master Servicing Concept

November 2023

Submitted by:

SCS Consulting Group Ltd
30 Centurian Drive, Suite 100
Markham, ON, L3R 8B8
Phone 905 475 1900
Fax 905 475 8335

Project Number: 2365

2.0 STORMWATER MANAGEMENT

2.1 Stormwater Runoff Control Criteria

The following stormwater runoff control criteria have been established based on the design guidelines and standards listed in **Section 1.3**. The stormwater runoff criteria are summarized below in **Table 2.1**:

Table 2.1 – Stormwater Runoff Control Criteria

Criteria	Control Measure
Quantity Control	Control to existing peak flows for the 2 through 100-year storm events (BQRAP).
Quality Control	Control the 90th percentile storm event. Control is in the following hierarchical order, with each step exhausted before proceeding to the next: 1) retention (infiltration, reuse, or evapotranspiration), 2) LID filtration, and 3) conventional stormwater management (MECP). At a minimum, Enhanced Level Protection (80% TSS Removal) through conventional stormwater management (BQRAP).
Erosion Control	Detention of the 25 mm rainfall runoff for a minimum of 24 hours (MECP).

2.2 Existing Drainage

The existing high-level storm drainage pattern is shown on **Figure 2.1**.

Marsh Creek

As illustrated, runoff from the northwest portion of the study area and external flows from an existing residential development north of the study area (Catchments 102 and EXT-2, 47.0 ha and 1.3 ha) drain west via overland flow to Marsh Creek within the Picton subwatershed. Flows from Marsh Creek ultimately discharge to the Picton Harbour in Lake Ontario.

East Lake

Runoff from the southeast portion of the study area and external flows from an existing residential development and rural area north of the study area (Catchments 101, EXT-1, and EXT-3, 258.9 ha, 15.9 ha, and 62.5 ha) drain south via overland flow to an existing watercourse in the east portion of the study area. As illustrated on **Figure 2.1**, a portion of the existing watercourse is piped east and south of the decommission hospital. Piped flows discharge via an existing dual headwall located south of the decommissioned

hospital. The watercourse continues to convey flows south and ultimately discharges to East Lake, southwest of the study area, which outlets to Lake Ontario.

2.2.1 Existing Site Characterization

As discussed in **Section 1.2**, the majority of the study area is a decommissioned WWII air training base, which was transitioned to the Loch-Sloy Business Park. The existing topography is generally sloping southeast and southwest with slopes ranging from 0.28% to 0.85%.

As indicated in the Preliminary Geotechnical Investigation (Palmer, 2021), the soils within the proposed development are predominantly disturbed native fill soils consisting of organics, clayey silt, sandy silt, and gravel underlain with limestone bedrock. Bedrock was measured throughout the proposed development between 0.3 m to 2.4 m below existing ground. Groundwater levels were measured between 1.5 m to 3.1 m below existing ground surface.

2.3 Proposed Storm Drainage

The proposed storm drainage plan is illustrated on **Figure 2.2**. As illustrated, eight (8) SWM facilities are proposed to treat runoff from the proposed development prior to discharging to the existing outlets.

Marsh Creek

Runoff from 50.5 ha of the proposed development (Catchment 201), including the proposed Revitalization District, will be conveyed southwest to SWM Pond 1. SWM Pond 1 is proposed to discharge west to Marsh Creek. Marsh Creek ultimately conveys flows to Picton Harbour, within Lake Ontario.

Runoff from Catchment 202 (12.9 ha) will be conveyed northwest to SWM Pond 2. Runoff from Catchment 203 (9.1 ha) and external Catchment EXT-1 (1.3 ha) will be conveyed northwest to SWM Pond 3. SWM Pond 2 and SWM Pond 3 are proposed to discharge flows northwest, on the northwest side of County Road 22, to Marsh Creek, and ultimately to Picton Harbour.

Runoff from Catchment 209 (5.0 ha) will be conveyed to on-site SWM controls prior to discharging west to Marsh Creek and ultimately to Picton Harbour via the SWM Pond 2/3 outfall route.

East Lake

Runoff from Catchment 204 (23.6 ha), Catchment 205 (15.5 ha), and Catchment 206 (28.6 ha) will be conveyed southwest to SWM Pond 4, SWM Pond 5, and SWM Pond 6,

respectively. SWM Pond 4, SWM Pond 5, and SWM Pond 6 are proposed to discharge to an existing watercourse south of Village D and Village G, which discharges to East Lake.

Runoff from Catchment 207 (61.7 ha) will be conveyed southeast to SWM Pond 7. Runoff from Catchment 208 (45.5 ha) will be conveyed southwest to SWM Pond 8. SWM Pond 7 and SWM Pond 8 are proposed to discharge to an existing watercourse at the south limit of the proposed development, between Village H and future Village K, which discharges to East Lake.

External runoff from Catchment EXT-1 (15.9 ha) is proposed to be controlled via a future SWM pond within the future Vineridge development before discharging to the existing watercourse within the proposed development and ultimately to East Lake.

Catchments 210, 211, 212, 213, and EXT-3 (8.5 ha, 10.1 ha, 17.1 ha, 16.4 ha, and 62.5 ha) are proposed to remain undeveloped. Runoff from these areas is proposed to continue to be conveyed to the existing watercourse within the proposed development and ultimately discharge to East Lake.

2.4 Quality Control

As listed in **Table 2.1**, control of the 90th percentile storm event is required to provide quality control for the proposed development. Control is in the following hierarchal order:

1) Retention;
2) LID filtration; and
3) Conventional stormwater management.

Due to the shallow bedrock throughout the proposed development, retention via infiltration is not feasible. Retention via water re-use may be possible on proposed residential lots (e.g. through rain barrels). Water re-use may also be feasible within the high-density areas of the proposed development, if underground SWM facilities are proposed. Water re-use opportunities can be explored at the functional servicing and detailed design phases of the proposed development.

LID filtration is feasible within the proposed development, where there is sufficient depth to the storm sewer system. However, filtration LIDs require frequent maintenance to ensure proper operation. Considering the rural nature of the surrounding area, and the additional staffing and financial resources required for maintaining these facilities, LID filtration is not recommended as the primary quality control measure for the proposed development. LID filtration as part of a treatment train approach can be explored at the functional servicing and detailed design phases.

Therefore, it is recommended that conventional stormwater management methods be used as the primary quality control measure within the proposed development. As listed in **Table 2.1**, per the BQRAP SWM Guidelines, Enhanced Level Protection (80% TSS Removal) is required, which can be achieved via permanent pools within the proposed SWM ponds. Refer to **Section 2.5.1** for further discussion.

2.5 Stormwater Management Ponds

Eight (8) SWM ponds (SWM Pond 1 - SWM Pond 8) are proposed to provide quantity control, quality control, and erosion control for the proposed development. Refer to **Figure 2.2** for the preliminary proposed locations of the SWM Ponds.

Anticipated preliminary block areas for the proposed SWM ponds were calculated by considering 8% of their respective contributing drainage areas. Preliminary normal water levels were determined for each SWM pond based on their anticipated outfall location and the surrounding existing topography. **Table 2.2** provides a summary of the proposed SWM ponds, including the preliminary block areas, normal water levels, and outlets.

Table 2.2: SWM Pond Summary

SWM Facility ID	Contributing Drainage Area		Pond Area (ha)	Normal Water Level (masl)	Outlet
	Catchment ID	Area (ha)			
1	201	50.5	4.04	139.00	Marsh Creek
2	202	12.9	1.03	138.50	Marsh Creek
3	203	9.1	0.73	143.00	Marsh Creek
4	204	23.6	1.89	141.00	East Lake
5	205	15.5	1.24	139.00	East Lake
6	206	28.6	2.29	138.80	East Lake
7	207	61.7	4.93	135.00	East Lake
8	208	45.5	3.64	135.50	East Lake

Block sizing will be refined at the planning application stage for each phase, where a detailed Stormwater Management Report will be prepared to provide hydrologic and hydraulic analysis along with pond grading design drawings.

2.5.1 Permanent Pool

The function of the permanent pool is to provide sediment removal from the storm runoff conveyed to the pond.

The proposed SWM ponds will be designed to provide permanent pool storage based on MECP's Enhanced Level Protection for a wet pond (see Table 3.2, 2003 MECP Guidelines).

2.5.2 Extended Detention

The attenuation of the extended detention volume in the SWM ponds will provide erosion protection for the downstream watercourses, as well as promote sediment removal for water quality. The extended detention volume for the proposed SWM Ponds will be sized based on the detention of the 25 mm - 4 hour Chicago rainfall event. The volume calculated for the extended detention will be attenuated for a minimum of 24 hours.

2.5.3 Quantity Control

The proposed SWM ponds will control proposed peak flows from the proposed development to existing peak flow rates for the 2 through 100 year storm events. Proposed SWM Ponds 1-3 will outlet to Marsh Creek, with a combined release rate that will be less than the existing peak release rates to Marsh Creek. Proposed SWM Ponds 4-8 will outlet to East Lake, with a combined release rate from that will be less than the existing peak release rates to East Lake.

Hydrology modelling will be required at the subsequent planning application stages to determine the existing release rates, proposed release rates, and required active storage volumes for the proposed SWM ponds.

2.5.4 General Pond Design Criteria

The pond design will be established based on the following general criteria provided in the MOE SWM Design Guidelines (March 2003):

- A 4 m wide maintenance access road will be provided from a proposed municipal road with a maximum longitudinal slope of 10% and a crossfall of 2% (max). It will be used to facilitate machinery to access the forebay during scheduled maintenance as well as to access the outlet structure for maintenance purposes;
- A maximum slope of 3:1 from the pond bottom to 0.5 m below the normal water level will be provided;
- A maximum slope of 6:1 from 0.5 m below and above the normal water level will be provided; and
- A maximum slope of 3:1 will be provided from 0.5 m above the normal water level to the pond grading limits.

2.6 Storm Servicing

The storm sewer system (minor system) will be designed for the 5 year return period storm.

The major system flow drainage (up to the 100 year storm event) will generally be conveyed overland along the road rights-of-way and easements.

The storm sewer system will typically be designed with grades between 0.5% and 2%. Throughout the site, the storm sewer will be constructed at a minimum depth of 1.2 m to provide frost protection. The proposed residential units will have basements, therefore sump pumps or additional storm sewer depth to capture basement foundation drainage will be required. The preliminary layout for the proposed storm sewer within the proposed development is provided on **Figure 2.2**.

The storm drainage system will be designed in accordance with the PEC, MECP, and OBC guidelines (where applicable), including the following:

- Pipes to be sized to accommodate runoff from a 5 year storm event,
- Minimum Pipe Size: 250 mm diameter,
- Maximum Flow Velocity: 6.0 m/s,
- Minimum Flow Velocity: 0.6 m/s,
- Minimum Pipe Depth: 1.2 m to obvert.

The rainfall intensity will be calculated in accordance with the PEC design guidelines. Rainfall intensity was determined using the City of Belleville 2012 IDF curves provided by Quinte Conservation and a minimum time to concentration of 15 minutes. The rainfall intensity will be calculated as follows, where 'i' is the rainfall intensity (mm/hour) and A, B, and C are as per **Table 2.3**:

$$i = A * T_c^C$$

Table 2.3 – Rainfall Intensity Parameters

Return Period Storm	A	C
2 Year	20.3	0.677
5 Year	26.4	0.677
10 Year	30.4	0.678
25 Year	35.5	0.678
50 Year	39.3	0.678
100 Year	43.0	0.678

2.7 Overland Flow

Major system flows will be conveyed within the road right-of-ways to the proposed SWM ponds.

In the event that the outlet structures on the SWM Ponds become blocked, the uncontrolled 100 year flows will be conveyed via emergency spillways within the proposed SWM ponds to the adjacent watercourses.

EXISTING RESIDENTIAL

MARSH CREEK

LONDON AVENUE

COUNTY ROAD 22

EXISTING HEIGHTS WATER RESERVOIR

EXISTING MACAULAY VILLAGE

EXT-1
15.9ha

EXT-2
1.3ha

MACAULAY MOUNTAIN CONSERVATION AREA

EXT-3
62.5ha

102
47.0ha

KINGSLEY ROAD

COUNTY ROAD 22

EXISTING AIRPORT

101
258.9ha

DECOMISSIONED HOSPITAL/ EXISTING PAINTBALL FACILITY

COUNTY ROAD 22

AIRPORT LANE

EXISTING DUAL STORM HEADWALL

URBAN BOUNDARY

FUTURE DEVELOPMENT AREA OUTSIDE OF URBAN BOUNDARY (NOT SUBJECT TO THIS OPA APPLICATION)

CLARKE ROAD

WATERCOURSE DISCHARGES TO EAST LAKE FURTHER SOUTH

N

LEGEND:

- LIMIT OF DEVELOPMENT
- LIMIT OF FUTURE DEVELOPMENT (NOT SUBJECT TO THIS APPLICATION)
- URBAN BOUNDARY
- STORM DRAINAGE BOUNDARY
- EXTERNAL STORM DRAINAGE BOUNDARY
- DRAINAGE FEATURE (PALMER, 2023)
- PIPED DRAINAGE FEATURE (PALMER, 2023)
- 270.25 — EXISTING CONTOUR AND ELEVATION
- OVERLAND FLOW DIRECTION
- 102 / 47.0ha — CATCHMENT ID / DRAINAGE AREA (HECTARES)
- EXT-1 / 15.9ha — CATCHMENT ID / EXTERNAL STORM DRAINAGE AREA (HECTARES)
- HIGH CONSTRAINT AREA (PALMER ENGINEERING, 2023)
- HIGH CONSTRAINT SETBACK (PALMER ENGINEERING, 2023)

SCS consulting group ltd
30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475-1900
FAX: (905) 475-8335

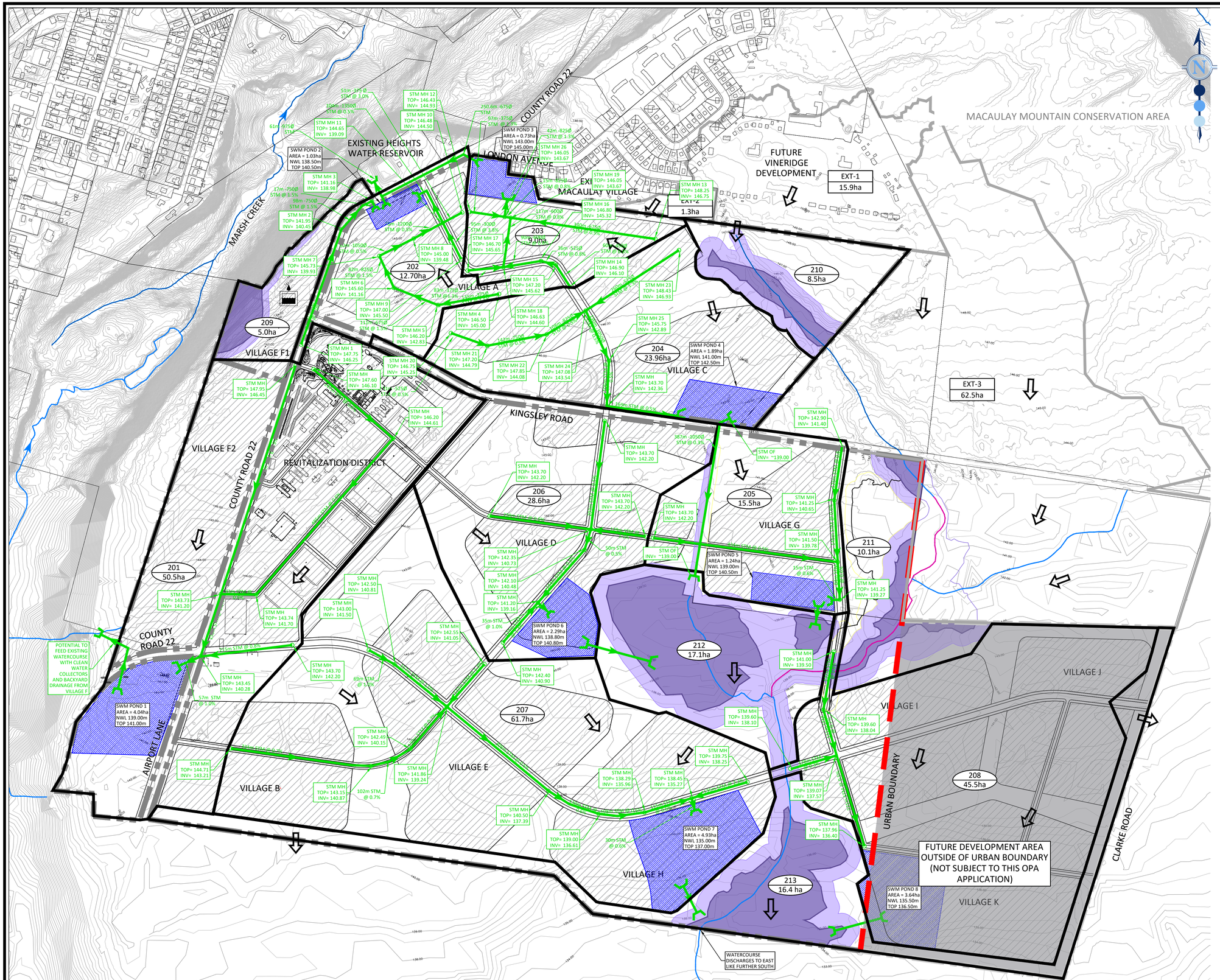
PEC COMMUNITY PARTNERS INC.

BASE31 AREA CONCEPT PLAN

PRELIMINARY EXISTING STORM DRAINAGE PLAN

DESIGNED BY:	J.L.B.	CHECKED BY:	S.M.S.
SCALE:	1:4000	DATE:	NOVEMBER 2023
PROJECT No:	2365	FIGURE No:	2.1

File: P:\2365 Picton Airport – Tercot\Drawings\Prelim Eng\Fig\Report Figures\2365P-STRM-EXST-2.1.dwg – Revised by <CTZUMERKAS> : Thu, Nov 16 2023 – 3:01pm



LEGEND:

- LIMIT OF DEVELOPMENT
- LIMIT OF FUTURE DEVELOPMENT (NOT SUBJECT TO THIS APPLICATION)
- URBAN BOUNDARY
- STORM DRAINAGE BOUNDARY
- EXTERNAL STORM DRAINAGE BOUNDARY
- DRAINAGE FEATURE (PALMER, 2023)
- PIPED DRAINAGE FEATURE (PALMER, 2023)
- HIGH CONSTRAINT AREA (PALMER ENGINEERING, 2023)
- HIGH CONSTRAINT SETBACK (PALMER ENGINEERING, 2023)
- 270.25 EXISTING CONTOUR AND ELEVATION
- STORMWATER MANAGEMENT BLOCK
- MAJOR AND MINOR SYSTEM FLOW DIRECTION
- 203 / 9.1ha — CATCHMENT ID / DRAINAGE AREA (HECTARES)
- EXT-1 / 15.9ha — CATCHMENT ID / EXTERNAL STORM DRAINAGE AREA (HECTARES)
- ON-SITE STORMWATER CONTROLS
- STORM SEWER AND FLOW ARROW
- STORM MANHOLE

*NOTE: LAYOUT IS SCHEMATIC ONLY, DETAILS TO BE PROVIDED AT DETAILED DESIGN STAGE.

SCS consulting group ltd
30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475-1900
FAX: (905) 475-8335

PEC COMMUNITY PARTNERS INC.

BASE31 AREA CONCEPT PLAN

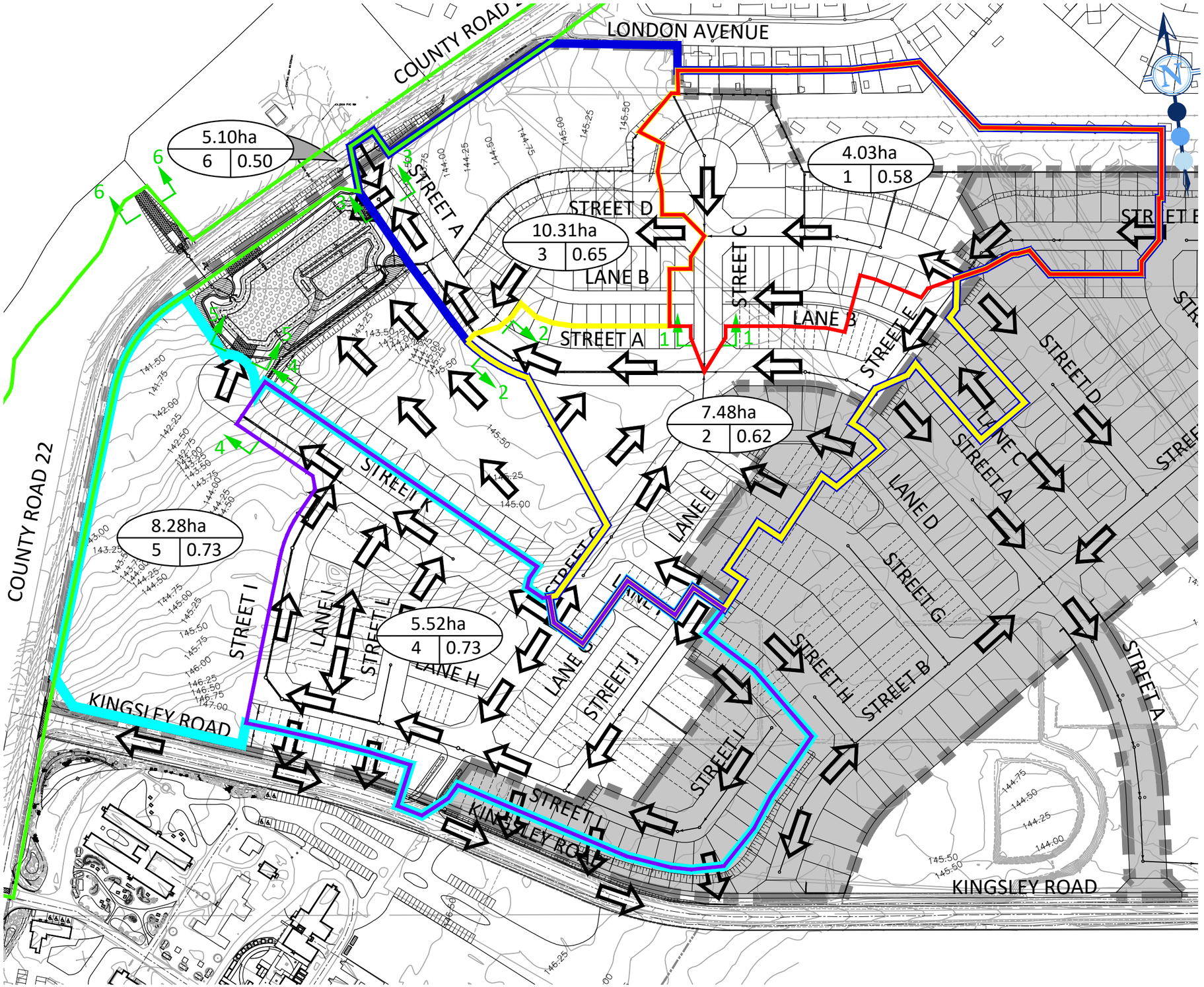
PRELIMINARY PROPOSED STORM SERVICING AND STORM DRAINAGE PLAN

DESIGNED BY: J.L.B.	CHECKED BY: S.M.S.
SCALE: 1:4000	DATE: NOVEMBER 2023
PROJECT No: 2365	FIGURE No: 2.2

File: P:\2365 Picton Airport - Tercot\Drawings\Prelim Eng\Fig\Report Figures\2365P-STRM-PROP-2.2.dwg - Revised by <CTZUMERKAS> : Thu, Nov 16 2023 - 2:26pm

Appendix C Minor and Major Flow Calculations

SCS consulting group ltd



LEGEND:

- PROPERTY OF DEVELOPMENT
- PROPERTY OF PHASE
- 270.00 — EXISTING CONTOUR ELEVATION
- MAJOR SYSTEM - OVERLAND FLOW
- 16.41ha / 301 | 58% — DRAINAGE AREA (HECTARES); 5-YEAR RUNOFF COEFFICIENT; CROSS SECTION ID
- 1 1 — CROSS SECTION LOCATION
- PHASE 2 LANDS
- STORM DRAINAGE BOUNDARY TO CROSS SECTION 1-1
- STORM DRAINAGE BOUNDARY TO CROSS SECTION 2-2
- STORM DRAINAGE BOUNDARY TO CROSS SECTION 3-3
- STORM DRAINAGE BOUNDARY TO CROSS SECTION 4-4
- STORM DRAINAGE BOUNDARY TO CROSS SECTION 5-5
- STORM DRAINAGE BOUNDARY TO CROSS SECTION 6-6 (EXTERNAL TO VILLAGE A)

*NOTE: LAYOUT IS SCHEMATIC ONLY, DETAILS TO BE PROVIDED AT DETAILED DESIGN STAGE.

SCS consulting group ltd
30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475-1900
FAX: (905) 475-8335

PICTON AIRPORT - PRINCE EDWARD COUNTY COMMUNITY PARTNERS INC.

VILLAGE A

OVERLAND FLOW ROUTE DRAINAGE PLAN

DESIGNED BY:	R.B.	CHECKED BY:	A.R.K.
SCALE:	1:2500	DATE:	DECEMBER 2025
PROJECT No:	2365	FIGURE No:	OLF

5 Year (Rational Method)	
Area (ha) =	4.03
Runoff Coeff. =	0.58
T_c (min) =	17.64
a=	**26.40**
b=	**0.000**
c=	**0.677**
Intensity (mm/hr) =	60.47
Runoff (m^3/s)=	**0.391**

100 year (Rational Method)	
Area (ha) =	4.03
Runoff Coeff. =	0.72
T_c (min) =	17.64
a=	**43.00**
b=	**0.000**
c=	**0.678**
Intensity (mm/hr) =	98.61
Runoff (m^3/s)=	**0.798**

T_C from SSDS (MH 11 to MH18)

Major to be conveyed via overland flow route (Q_{100} - Q_5) = **0.406** **m^3/s**

5 Year (Rational Method)	
Area (ha) =	7.48
Runoff Coeff. =	0.62
T_c (min) =	21.27
a=	**26.40**
b=	**0.000**
c=	**0.677**
Intensity (mm/hr) =	53.27
Runoff (m^3/s)=	**0.688**

100 year (Rational Method)	
Area (ha) =	7.48
Runoff Coeff. =	0.78
T_c (min) =	21.27
a=	**43.00**
b=	**0.000**
c=	**0.678**
Intensity (mm/hr) =	86.86
Runoff (m^3/s)=	**1.403**

T_C from SSDS (MH 25 to MH27)

Major to be conveyed via overland flow route (Q_{100} - Q_5) = **0.715 m^3/s**

5 Year (Rational Method)	
Area (ha) =	10.31
Runoff Coeff. =	0.65
T_c (min) =	22.68
a=	**26.40**
b=	**0.000**
c=	**0.677**
Intensity (mm/hr) =	51.01
Runoff (m^3/s)=	**0.943**

100 year (Rational Method)	
Area (ha) =	10.31
Runoff Coeff. =	0.81
T_c (min) =	22.68
a=	**43.00**
b=	**0.000**
c=	**0.678**
Intensity (mm/hr) =	83.16
Runoff (m^3/s)=	**1.922**

T_C from SSDS (MH 50 to HW1)

Major to be conveyed via overland flow route (Q_{100} - Q_5) = **0.979 m^3/s**

5 Year (Rational Method)	
Area (ha) =	5.52
Runoff Coeff. =	0.73
T_c (min) =	21.26
a=	**26.40**
b=	**0.000**
c=	**0.677**
Intensity (mm/hr) =	53.29
Runoff (m^3/s)=	**0.594**

100 year (Rational Method)	
Area (ha) =	5.52
Runoff Coeff. =	0.91
T_c (min) =	21.26
a=	**43.00**
b=	**0.000**
c=	**0.678**
Intensity (mm/hr) =	86.89
Runoff (m^3/s)=	**1.211**

T_C from SSDS (MH 47 to MH48)

Major to be conveyed via overland flow route (Q_{100} - Q_5) = **0.617 m^3/s**

OVERLAND FLOW ROUTE SIZING CALCULATIONS
Street 'K' (5-5)

Project Number: 2365A
Date: December 2025
Designer Initials: R.B.

5 Year (Rational Method)	
Area (ha) =	8.28
Runoff Coeff. =	0.73
T_c (min) =	21.26
a=	**26.40**
b=	**0.000**
c=	**0.677**
Intensity (mm/hr) =	53.29
Runoff (m^3/s)=	**0.897**

100 year (Rational Method)	
Area (ha) =	8.28
Runoff Coeff. =	0.91
T_c (min) =	21.26
a=	**43.00**
b=	**0.000**
c=	**0.678**
Intensity (mm/hr) =	86.89
Runoff (m^3/s)=	**1.827**

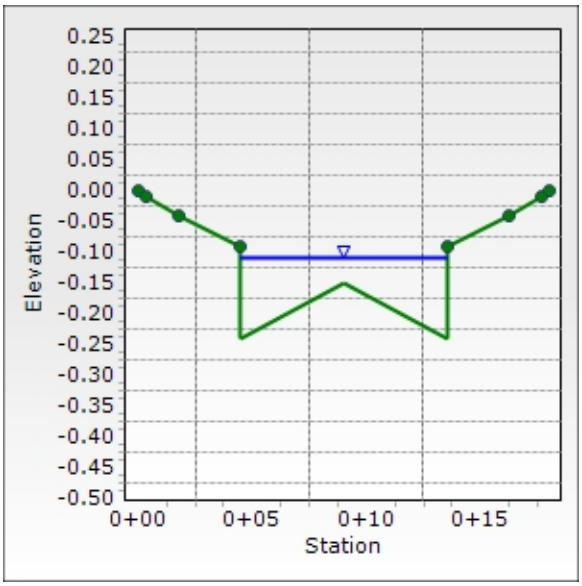
T_C from SSDS (MH 47 to MH48)

Major to be conveyed via overland flow route (Q_{100} - Q_5) = **0.931 m^3/s**

18.0 m ROW @ 0.5 % (1-1 & 4-4)

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Channel Slope	0.500 %
Normal Depth	128.0 mm
Discharge	0.76 m³/s



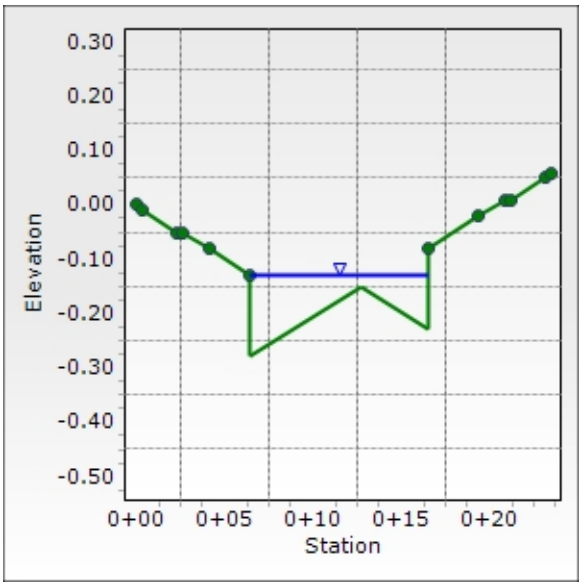
Total major flows expected to be conveyed towards Street 'C' (Section 1-1) is 0.406 m³/s, and the total major flows directed through Street 'K' (Section 4-4) is 0.617 m³/s.

The 18.0 m Right of Way, with a 0.50% grade can convey a total of 0.76 m³/s, and therefore, can safely convey the major flows through the right of way towards the SWM Pond.

23.5 m ROW - Street 'A' @ 1.0 % (2-2 & 3-3)

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Channel Slope	1.000 %
Normal Depth	146.4 mm
Discharge	1.00 m³/s



Total major flows expected to be conveyed towards Street 'A' (Section 2-2) is 0.715 m³/s and Street 'A' (Section 3-3) is 0.979 m³/s.

The 23.5 m Right of Way, with a minimum grade of 1.0% can convey a total of 1.00 m³/s, and therefore, can safely convey the major flows through the right of way towards the SWM Pond.

Weir Report

Major Flows Over Boulevard to Main Cell of Pond - Street 'A' (H-H)

Rectangular Weir

Crest	= Broad
Bottom Length (m)	= 7.0000
Total Depth (m)	= 0.1500

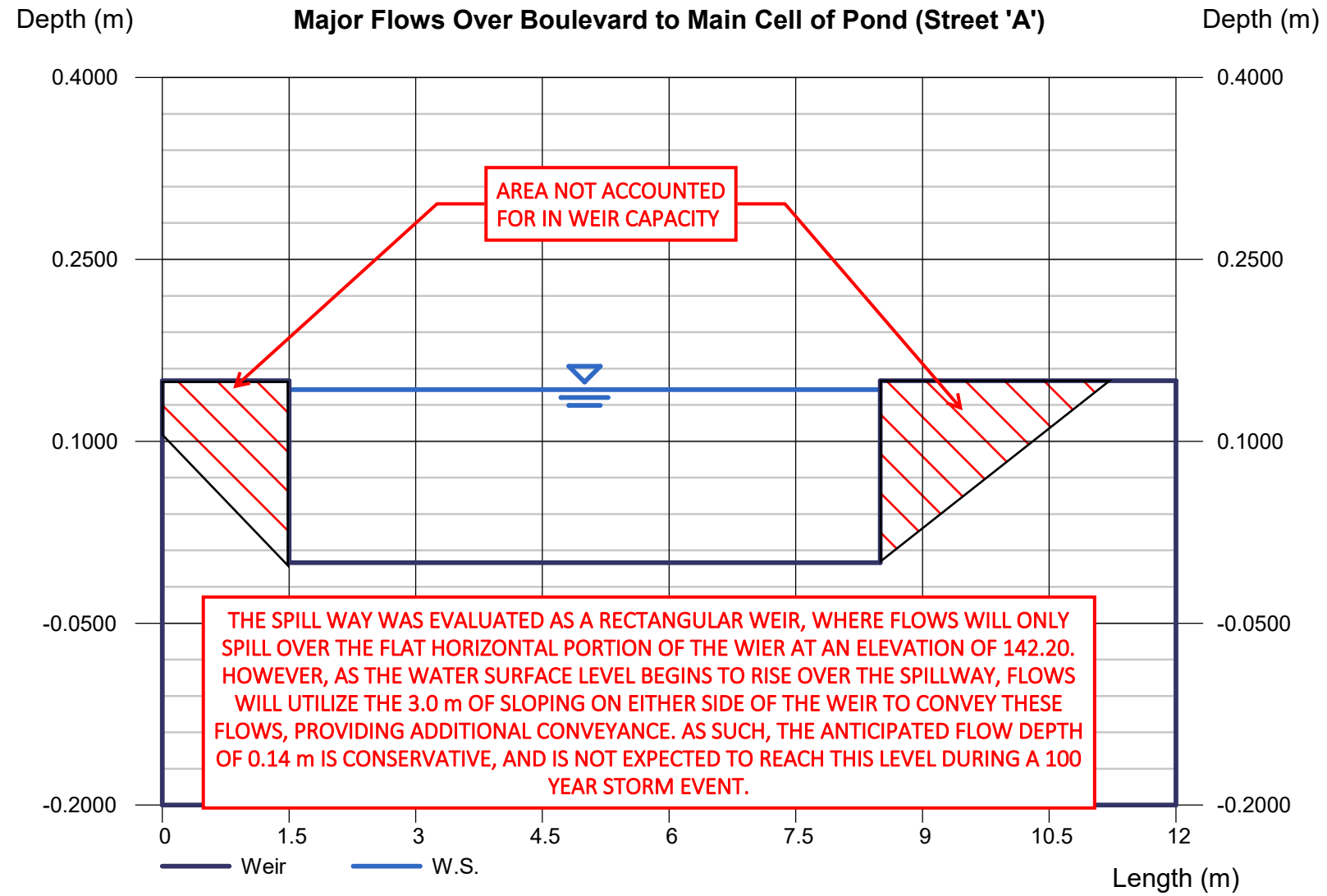
Calculations

Weir Coeff. Cw	= 2.6000
Compute by:	Known Depth
Known Depth (m)	= 0.1425

Highlighted

Depth (m)	= 0.1425
Q (cms)	= 0.9790
Area (sqm)	= 0.9975
Velocity (m/s)	= 0.9815
Top Width (m)	= 7.0000

DURING A 100 YEAR STORM EVENT, 0.979 m^3/s WILL BE DIRECTED TO THE LOW POINT ALONG STREET 'A' AND SPILL INTO THE SWM POND AT AN ELEVATION OF 142.20. THE BOULEVARD WILL FORM A 7.0m LONG WEIR WHICH WILL CONVEY THE MAJOR FLOWS WITH A MAXIMUM PONDING ELEVATION OF 142.34m AND WILL THEREFORE BE CONTAINED WITHIN THE RIGHT OF WAY AND SAFELY CONVEYED TO THE SWM POND.



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, Dec 11 2025

Conveyance of Major Flows Down 3:1 Slope to Main Cell of Pond (Street 'A')

Rectangular

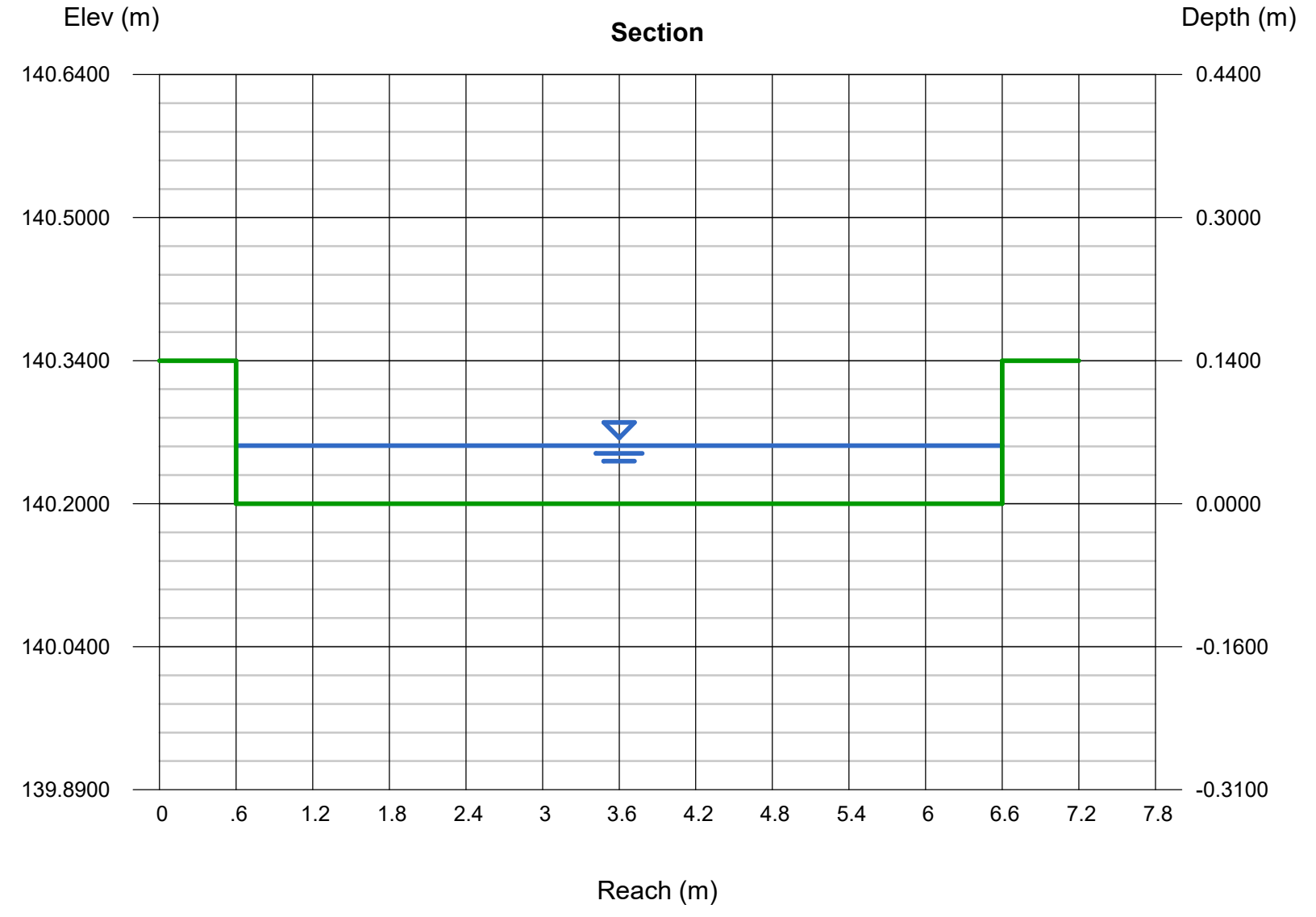
Bottom Width (m)	= 6.0000
Total Depth (m)	= 0.1500
Invert Elev (m)	= 140.2000
Slope (%)	= 33.3330
N-Value	= 0.032

Calculations

Compute by:	Known Q
Known Q (cms)	= 0.9790

Highlighted

Depth (m)	= 0.0610
Q (cms)	= 0.9790
Area (sqm)	= 0.3658
Velocity (m/s)	= 2.6766
Wetted Perim (m)	= 6.1219
Crit Depth, Yc (m)	= 0.1402
Top Width (m)	= 6.0000
EGL (m)	= 0.4264



Weir Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, Dec 18 2025

Major Flows Over Boulevard to Main Cell of Pond (Street 'K')

Rectangular Weir

Crest	= Broad
Bottom Length (m)	= 10.0000
Total Depth (m)	= 0.1500

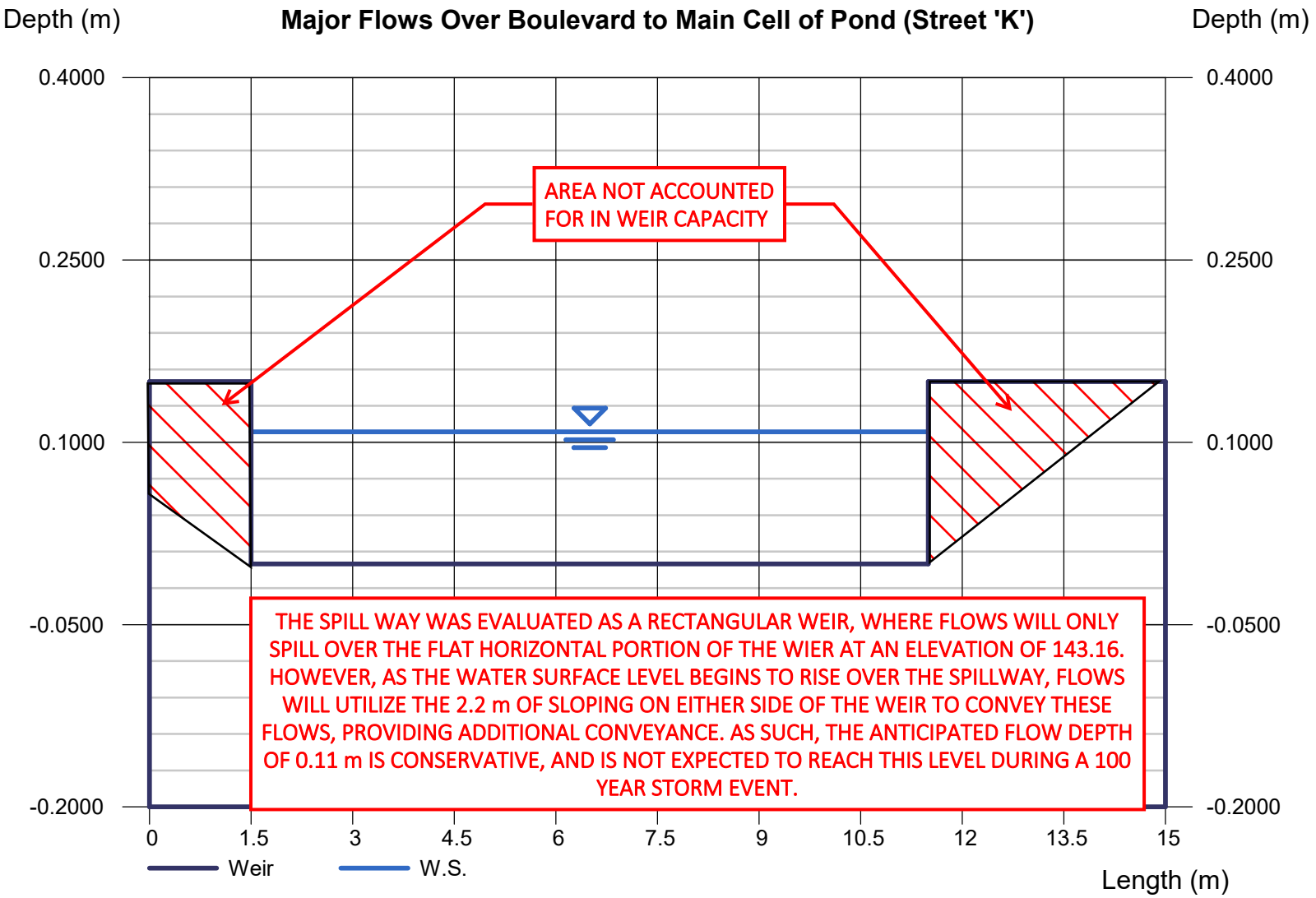
Calculations

Weir Coeff. Cw	= 2.6000
Compute by:	Known Depth
Known Depth (m)	= 0.1086

Highlighted

Depth (m)	= 0.1086
Q (cms)	= 0.9310
Area (sqm)	= 1.0864
Velocity (m/s)	= 0.8570
Top Width (m)	= 10.0000

DURING A 100 YEAR STORM EVENT, 0.931 m^3/s WILL BE DIRECTED TO THE LOW POINT ALONG STREET 'A' AND SPILL INTO THE SWM POND AT AN ELEVATION OF 143.16. THE BOULEVARD WILL FORM A 10.0m LONG WEIR WHICH WILL CONVEY THE MAJOR FLOWS WITH A MAXIMUM PONDING ELEVATION OF 143.27m AND WILL THEREFORE BE CONTAINED WITHIN THE RIGHT OF WAY AND SAFELY CONVEYED TO THE SWM POND.



Channel Report

Conveyance of Major Flows Down 3:1 Slope to Main Cell of Pond (Street 'K')

Rectangular

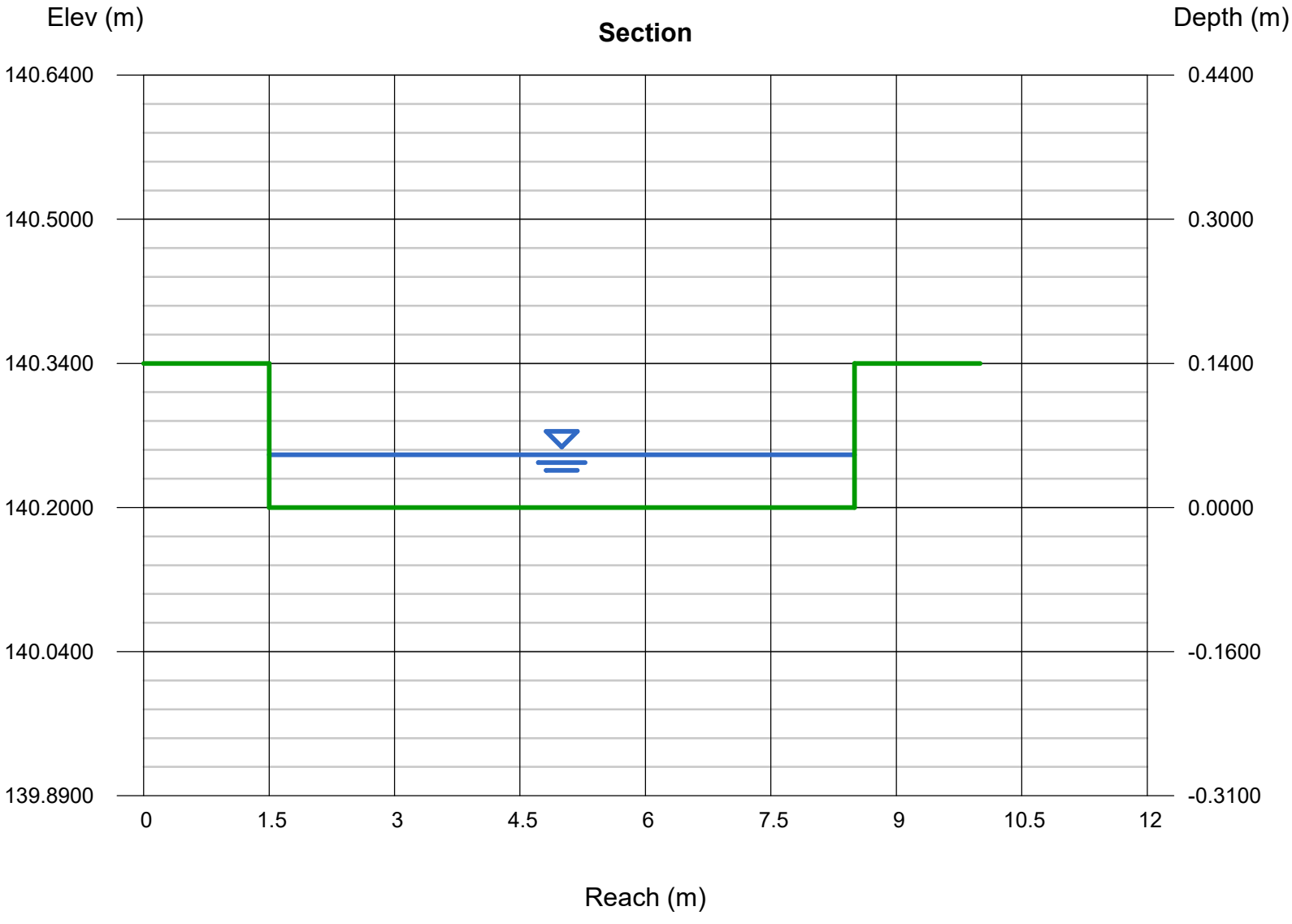
Bottom Width (m)	= 7.0000
Total Depth (m)	= 0.1500
Invert Elev (m)	= 140.2000
Slope (%)	= 33.3330
N-Value	= 0.032

Calculations

Compute by:	Known Q
Known Q (cms)	= 0.9310

Highlighted

Depth (m)	= 0.0549
Q (cms)	= 0.9310
Area (sqm)	= 0.3840
Velocity (m/s)	= 2.4242
Wetted Perim (m)	= 7.1097
Crit Depth, Yc (m)	= 0.1219
Top Width (m)	= 7.0000
EGL (m)	= 0.3546



5-Year Storm Design
Base 31 Subdivision - Village A Phase 1
Storm Drainage to Phase 1 SWM Pond Facility
Picton, Prince Edward County

Rainfall Intensity (i) = $\frac{A}{(T_c+B)^c}$

A= 26.4
B= 0
c= 0.677

External Areas

Starting T_c (min)= 15

Project: Base 31 Subdivision - Village A Phase 1
Project No. 2365
Date: 22-Dec-25
Designed By: Y.A
Reviewed By: J.S

P:\2365 Picton Airport - Tercot\Design\Pipe Design\Storm\Village A Storm Design\[Storm Design Sheet - MASTER.xlsm]Design

LOCATION			5 YEAR						EXTERNAL FLOWS				TOTAL FLOW	PIPE DATA						
STREET	MAINTENANCE HOLE		5-YEAR AREA	RUNOFF COEFF.	"AR"	ACCUM. "AR"	RAINFALL INTENSITY	ACCUM. FLOW	AREA	FLOW RATE	EXT. FLOW	ACCUM. EXT. FLOW	TOTAL (Qdes)	LENGTH	SLOPE	PIPE DIAMETER	FULL FLOW CAPACITY	FULL FLOW VELOCITY	TIME OF CONC.	ACCUM. TIME OF CONC.
	FROM	TO	(ha)	(R)			(mm/hr)	(m3/s)	(ha)	(l/s/ha)	(m3/s)	(m3/s)	(m3/s)	(m)	(%)	(mm)	(m3/s)	(m/s)	(min)	(min)
REAR YARD AREA	RYCB1	MH1	0.17	0.47	0.08	0.08	67.48	0.015	0.000	0.000	0.000	0.000	0.015	41.0	0.50	300	0.068	0.967	0.71	15.71
STREET E	MH1	MH78	0.31	0.65	0.20	0.28	65.41	0.051	0.000	0.000	0.000	0.000	0.051	52.5	1.00	300	0.097	1.368	0.64	16.35
REAR YARD AREA	RYCB2	MH78	0.24	0.46	0.11	0.11	67.48	0.021	0.000	0.000	0.000	0.000	0.021	41.0	0.50	300	0.068	0.967	0.71	15.71
STREET E	MH78	MH2	0.11	0.65	0.07	0.46	63.67	0.082	0.000	0.000	0.000	0.000	0.082	27.0	0.50	375	0.124	1.123	0.40	16.75
STREET E	MH2	MH3	0.12	0.65	0.08	0.54	62.63	0.094	0.000	0.000	0.000	0.000	0.094	20.6	0.50	450	0.201	1.268	0.27	17.02
STREET E	MH3	MH4	0.06	0.70	0.04	0.58	61.96	0.100	0.000	0.000	0.000	0.000	0.100	56.3	0.50	450	0.201	1.268	0.74	17.76
STREET E	MH4	MH5	0.47	0.71	0.33	0.92	60.20	0.153	0.000	0.000	0.000	0.000	0.153	55.8	0.50	525	0.304	1.405	0.66	18.42
STREET A	MH5	MH6	0.09	0.75	0.07	0.98	58.72	0.161	0.000	0.000	0.000	0.000	0.161	20.8	0.50	525	0.304	1.405	0.25	18.67
STREET A	MH6	MH7	0.14	0.76	0.11	1.09	58.20	0.176	0.000	0.000	0.000	0.000	0.176	26.7	0.50	525	0.304	1.405	0.32	18.98
STREET A	MH7	MH18	0.28	0.75	0.21	1.30	57.54	0.208	0.000	0.000	0.000	0.000	0.208	64.1	0.50	600	0.434	1.536	0.70	19.68
REAR YARD AREA	RYCB3	MH8	0.57	0.46	0.26	0.26	67.48	0.049	0.000	0.000	0.000	0.000	0.049	48.9	0.50	375	0.124	1.123	0.73	15.73
STREET D	MH8	MH9	0.39	0.67	0.26	0.52	65.36	0.095	0.000	0.000	0.000	0.000	0.095	28.2	1.00	375	0.175	1.587	0.30	16.02
STREET D	MH9	MH79	0.09	0.67	0.06	0.58	64.54	0.105	0.000	0.000	0.000	0.000	0.105	20.6	0.50	450	0.201	1.268	0.27	16.29
REAR YARD AREA	RYCB4	MH79	0.58	0.43	0.25	0.25	67.48	0.047	0.000	0.000	0.000	0.000	0.047	40.2	1.00	300	0.097	1.368	0.49	15.49
STREET D	MH79	MH11 (S)	0.23	0.67	0.15	0.99	63.81	0.175	0.000	0.000	0.000	0.000	0.175	63.7	0.50	525	0.304	1.405	0.76	17.05
REAR YARD AREA	RYCB5	MH10	0.29	0.53	0.15	0.15	67.48	0.029	0.000	0.000	0.000	0.000	0.029	43.3	0.50	300	0.068	0.967	0.75	15.75
STREET C	MH10	MH11 (S)	0.37	0.65	0.24	0.39	65.30	0.072	0.000	0.000	0.000	0.000	0.072	51.1	1.00	375	0.175	1.587	0.54	16.28
STREET C	MH11 (S)	MH18	0.50	0.73	0.37	1.75	61.88	0.300	0.000	0.000	0.000	0.000	0.300	86.3	0.40	750	0.704	1.594	0.90	17.95
STREET C	MH12	MH13	0.28	0.80	0.22	0.22	67.48	0.042	0.000	0.000	0.000	0.000	0.042	30.4	1.00	375	0.175	1.587	0.32	15.32
STREET C	MH13	MH15	0.35	0.70	0.25	0.47	66.53	0.087	0.000	0.000	0.000	0.000	0.087	78.5	1.40	450	0.337	2.121	0.62	15.94
STREET G	MH14	MH15	0.73	0.73	0.53	0.53	67.48	0.100	0.000	0.000	0.000	0.000	0.100	45.7	1.00	375	0.175	1.587	0.48	15.48
STREET C	MH15	MH16	0.05	0.70	0.04	1.04	64.77	0.187	0.000	0.000	0.000	0.000	0.187	21.5	1.00	450	0.285	1.793	0.20	16.14
STREET C	MH16	MH18	0.06	0.70	0.04	1.08	64.23	0.192	0.000	0.000	0.000	0.000	0.192	23.1	1.25	450	0.319	2.004	0.19	16.33
STREET A	MH18	MH20	0.33	0.70	0.23	4.36	56.15	0.680	0.000	0.000	0.000	0.000	0.680	94.1	0.50	825	1.014	1.899	0.83	20.51
STREET A	MH20	MH21	0.10	0.70	0.07	4.43	54.61	0.672	0.000	0.000	0.000	0.000	0.672	28.0	0.50	825	1.014	1.899	0.25	20.75
STREET A	MH21	MH25	0.08	0.67	0.05	4.48	54.17	0.674	0.000	0.000	0.000	0.000	0.674	29.6	2.00	825	2.029	3.798	0.13	20.88

5-Year Storm Design
Base 31 Subdivision - Village A Phase 1
Storm Drainage to Phase 1 SWM Pond Facility
Picton, Prince Edward County

Rainfall Intensity (i) = $\frac{A}{(T_c+B)^c}$

A= 26.4
B= 0
c= 0.677

External Areas

Starting T_c (min)= 15

Project: Base 31 Subdivision - Village A Phase 1
Project No. 2365
Date: 22-Dec-25
Designed By: Y.A
Reviewed By: J.S

P:\2365 Picton Airport - Tercot\Design\Pipe Design\Storm\Village A Storm Design\[Storm Design Sheet - MASTER.xlsm]Design

LOCATION			5 YEAR						EXTERNAL FLOWS				TOTAL FLOW	PIPE DATA						
STREET	MAINTENANCE HOLE		5-YEAR AREA	RUNOFF COEFF.	"AR"	ACCUM. "AR"	RAINFALL INTENSITY	ACCUM. FLOW	AREA	FLOW RATE	EXT. FLOW	ACCUM. EXT. FLOW	TOTAL (Qdes)	LENGTH	SLOPE	PIPE DIAMETER	FULL FLOW CAPACITY	FULL FLOW VELOCITY	TIME OF CONC.	ACCUM. TIME OF CONC.
	FROM	TO	(ha)	(R)			(mm/hr)	(m3/s)	(ha)	(l/s/ha)	(m3/s)	(m3/s)	(m3/s)	(m)	(%)	(mm)	(m3/s)	(m/s)	(min)	(min)
STREET D	MH80	MH22	0.34	0.68	0.23	0.23	67.48	0.043	0.000	0.000	0.000	0.000	0.043	13.9	2.30	300	0.147	2.075	0.11	15.11
STREET D	MH22	MH23	0.11	0.66	0.07	0.30	67.15	0.057	0.000	0.000	0.000	0.000	0.057	21.2	2.30	300	0.147	2.075	0.17	15.28
STREET D	MH23	MH24	0.51	0.69	0.35	0.66	66.64	0.121	0.000	0.000	0.000	0.000	0.121	53.2	1.90	375	0.242	2.188	0.41	15.69
STREET D	MH24	MH25	0.00	0.00	0.00	0.66	65.47	0.119	0.000	0.000	0.000	0.000	0.119	14.7	0.70	375	0.147	1.328	0.18	15.87
BLOCK 296 - PARK	MH19	MH25	0.49	0.35	0.17	0.17	67.48	0.032	0.000	0.000	0.000	0.000	0.032	8.9	1.00	300	0.097	1.368	0.11	15.11
STREET A	MH25	MH27	0.41	0.67	0.27	5.58	53.94	0.837	0.000	0.000	0.000	0.000	0.837	54.2	3.15	900	3.211	5.050	0.18	21.06
BLOCK 294 - MEDIUM DENSITY	MH26	MH27	1.27	0.74	0.94	0.94	67.48	0.176	0.000	0.000	0.000	0.000	0.176	15.6	1.00	450	0.285	1.793	0.15	15.15
STREET I	MH28	MH29	0.50	0.70	0.35	0.35	67.48	0.066	0.000	0.000	0.000	0.000	0.066	78.1	1.00	375	0.175	1.587	0.82	15.82
STREET I	MH29	MH30	0.06	0.70	0.04	0.39	65.10	0.071	0.000	0.000	0.000	0.000	0.071	14.3	0.50	375	0.124	1.123	0.21	16.03
STREET I	MH30	MH31	0.10	0.70	0.07	0.46	64.51	0.083	0.000	0.000	0.000	0.000	0.083	25.5	0.50	375	0.124	1.123	0.38	16.41
STREET I	MH31	MH34	0.25	0.70	0.18	0.64	63.50	0.112	0.000	0.000	0.000	0.000	0.112	50.8	0.60	375	0.136	1.230	0.69	17.10
REAR YARD AREA	RYCB6	MH32	0.20	0.70	0.14	0.14	67.48	0.026	0.000	0.000	0.000	0.000	0.026	33.6	1.00	300	0.097	1.368	0.41	15.41
STREET J	MH32	MH33	0.56	0.77	0.43	0.57	66.26	0.105	0.000	0.000	0.000	0.000	0.105	59.8	1.00	450	0.285	1.793	0.56	15.97
STREET J	MH33	MH34	0.22	0.75	0.17	0.74	64.69	0.132	0.000	0.000	0.000	0.000	0.132	59.7	0.50	525	0.304	1.405	0.71	16.67
STREET I	MH34	MH36	0.64	0.79	0.51	1.88	61.76	0.322	0.000	0.000	0.000	0.000	0.322	72.7	0.50	600	0.434	1.536	0.79	17.89
STREET I	MH36	MH38	0.33	0.76	0.25	2.13	59.90	0.354	0.000	0.000	0.000	0.000	0.354	52.8	0.50	675	0.594	1.661	0.53	18.42
STREET L	MH37	MH38	0.33	0.76	0.25	0.25	67.48	0.047	0.000	0.000	0.000	0.000	0.047	37.6	1.40	300	0.114	1.619	0.39	15.39
STREET I	MH38	MH39	0.25	0.78	0.20	2.58	58.73	0.420	0.000	0.000	0.000	0.000	0.420	63.3	0.50	750	0.787	1.782	0.59	19.01
STREET I	MH39	MH40	0.06	0.80	0.05	2.62	57.48	0.419	0.000	0.000	0.000	0.000	0.419	17.1	0.50	750	0.787	1.782	0.16	19.17
STREET I	MH40	MH41	0.28	0.70	0.20	2.82	57.16	0.448	0.000	0.000	0.000	0.000	0.448	83.9	0.50	750	0.787	1.782	0.78	19.96
STREET I	MH41	MH43	0.06	0.70	0.04	2.86	55.62	0.442	0.000	0.000	0.000	0.000	0.442	20.4	3.15	750	1.975	4.472	0.08	20.03
BLOCK 295 - MEDIUM DENSITY	MH42	MH43	2.76	0.74	2.04	2.04	67.48	0.383	0.000	0.000	0.000	0.000	0.383	7.2	1.00	600	0.614	2.172	0.06	15.06
STREET I	MH43	MH45	0.09	0.70	0.06	4.97	55.48	0.765	0.000	0.000	0.000	0.000	0.765	31.4	0.50	825	1.014	1.899	0.28	20.31
STREET K	MH44	MH45	1.14	0.69	0.79	0.79	67.48	0.147	0.000	0.000	0.000	0.000	0.147	90.7	2.95	375	0.301	2.727	0.55	15.55
STREET K	MH45	MH47	0.23	0.65	0.15	5.90	54.97	0.901	0.000	0.000	0.000	0.000	0.901	71.1	1.00	900	1.809	2.846	0.42	20.72
BLOCK 296	MH47	MH48	0.00	0.00	0.00	5.90	54.22	0.889	0.000	0.000	0.000	0.000	0.889	44.0	1.85	900	2.461	3.870	0.19	20.91
BLOCK 296	MH48	HW1	0.00	0.00	0.00	5.90	53.89	0.884	0.000	0.000	0.000	0.000	0.884	90.6	0.35	900	1.070	1.683	0.90	21.81
STREET A	MH27	HW1	0.05	0.70	0.04	6.66	53.63	0.993	0.000	0.000	0.000	0.000	0.993	28.8	0.50	900	1.279	2.012	0.24	21.30

5-Year Storm Design
Base 31 Subdivision - Village A Phase 1
Storm Drainage to Phase 1 SWM Pond Facility
Picton, Prince Edward County

Rainfall Intensity (i) = $\frac{A}{(T_c+B)^c}$

A= 26.4
B= 0
c= 0.677

External Areas

Starting T_c (min)= 15

Project: Base 31 Subdivision - Village A Phase 1
Project No. 2365
Date: 22-Dec-25
Designed By: Y.A
Reviewed By: J.S

P:\2365 Picton Airport - Tercot\Design\Pipe Design\Storm\Village A Storm Design\[Storm Design Sheet - MASTER.xlsm]Design

LOCATION			5 YEAR						EXTERNAL FLOWS				TOTAL FLOW	PIPE DATA						
STREET	MAINTENANCE HOLE		5-YEAR AREA	RUNOFF COEFF.	"AR"	ACCUM. "AR"	RAINFALL INTENSITY	ACCUM. FLOW	AREA	FLOW RATE	EXT. FLOW	ACCUM. EXT. FLOW	TOTAL (Qdes)	LENGTH	SLOPE	PIPE DIAMETER	FULL FLOW CAPACITY	FULL FLOW VELOCITY	TIME OF CONC.	ACCUM. TIME OF CONC.
	FROM	TO	(ha)	(R)			(mm/hr)	(m3/s)	(ha)	(l/s/ha)	(m3/s)	(m3/s)	(m3/s)	(m)	(%)	(mm)	(m3/s)	(m/s)	(min)	(min)
STREET A	CBMH50	MH51	0.15	0.70	0.11	0.11	67.48	0.020	0.000	0.000	0.000	0.000	0.020	14.2	1.00	375	0.175	1.587	0.15	15.15
STREET A	MH51	MH27	0.00	0.00	0.00	0.11	67.03	0.020	0.000	0.000	0.000	0.000	0.020	30.7	0.50	375	0.124	1.123	0.46	15.60
OUTLET	MH81	MH82	0.00	0.00	0.00	0.00	67.48	0.000	1.000	65.000	0.065	0.065	0.065	12.6	0.75	600	0.531	1.881	0.11	15.11
OUTLET	MH82	MH83	0.00	0.00	0.00	0.00	67.15	0.000	0.000	0.000	0.000	0.065	0.065	24.9	0.75	600	0.531	1.881	0.22	15.33
COUNTY ROAD 22	EXT1	MH83	1.89	0.75	1.42	1.42	67.48	0.266	0.000	0.000	0.000	0.000	0.266	100.0	1.00	600	0.614	2.172	0.77	15.77
VILLAGE F1	EXT2	MH83	3.21	0.35	1.12	1.12	67.48	0.211	0.000	0.000	0.000	0.000	0.211	100.0	1.00	600	0.614	2.172	0.77	15.77
OUTLET	MH83	HW2	0.00	0.00	0.00	2.54	65.24	0.460	0.000	0.000	0.000	0.065	0.525	6.8	0.75	900	1.567	2.464	0.05	15.81

scs consulting group ltd

100-Year Storm Design
Base 31 Subdivision - Village A Phase 1
Storm Drainage to Phase 1 SWM Pond Facility
Picton, Prince Edward County

Rainfall Intensity (i) = $\frac{A}{(T_c+B)^c}$

A= 43
B= 0
c= 0.678

External Areas

Starting T_c (min)= 15

Project: Base 31 Subdivision - Village A Phase 1
Project No. 2365
Date: 22-Dec-25
Designed By: Y.A
Reviewed By: J.S

P:\2365 Picton Airport - Tercot\Design\Pipe Design\Storm\Village A Storm Design\[Storm Design Sheet - MASTER.xlsm]Design

LOCATION			100 YEAR						CB FLOW			EXTERNAL FLOWS				TOTAL FLOW	PIPE DATA						
STREET	MAINTENANCE HOLE		100-YEAR AREA	RUNOFF COEFF.	"AR"	ACCUM. "AR"	RAINFALL INTENSITY	ACCUM. FLOW	CB's	FLOW	ACCUM. CB FLOW	AREA	FLOW RATE	EXT. FLOW	ACCUM. EXT. FLOW	TOTAL (Qdes)	LENGTH	SLOPE	PIPE DIAMETER	FULL FLOW CAPACITY	FULL FLOW VELOCITY	TIME OF CONC.	ACCUM. TIME OF CONC.
	FROM	TO	(ha)	"R"			(mm/hr)	(m3/s)	(#)	(m3/s)	(m3/s)	(ha)	(l/s/ha)	(m3/s)	(m3/s)	(m3/s)	(m)	(%)	(mm)	(m3/s)	(m/s)	(min)	(min)
REAR YARD AREA	RYCB1	MH1	0.170	0.590	0.100	0.100	110.07	0.031	0	0.000	0.000	0.000	0.000	0.000	0.000	0.031	41.0	0.50	300	0.068	0.967	0.71	15.71
STREET E	MH1	MH78	0.000	0.000	0.000	0.100	106.69	0.030	1	0.028	0.028	0.000	0.000	0.000	0.000	0.058	52.5	1.00	300	0.097	1.368	0.64	16.35
REAR YARD AREA	RYCB2	MH78	0.240	0.580	0.139	0.139	110.07	0.043	0	0.000	0.000	0.000	0.000	0.000	0.000	0.043	41.0	0.50	300	0.068	0.967	0.71	15.71
STREET E	MH78	MH2	0.000	0.000	0.000	0.240	103.84	0.069	1	0.028	0.057	0.000	0.000	0.000	0.000	0.126	27.0	0.50	375	0.124	1.123	0.40	16.75
STREET E	MH2	MH3	0.000	0.000	0.000	0.240	102.15	0.068	2	0.057	0.113	0.000	0.000	0.000	0.000	0.181	20.6	0.50	450	0.201	1.268	0.27	17.02
STREET E	MH3	MH4	0.000	0.000	0.000	0.240	101.04	0.067	0	0.000	0.113	0.000	0.000	0.000	0.000	0.180	56.3	0.50	450	0.201	1.268	0.74	17.76
STREET E	MH4	MH5	0.000	0.000	0.000	0.240	98.17	0.065	6	0.170	0.283	0.000	0.000	0.000	0.000	0.348	55.8	0.50	525	0.304	1.405	0.66	18.42
STREET A	MH5	MH6	0.000	0.000	0.000	0.240	95.76	0.064	0	0.000	0.283	0.000	0.000	0.000	0.000	0.347	20.8	0.50	525	0.304	1.405	0.25	18.67
STREET A	MH6	MH7	0.000	0.000	0.000	0.240	94.90	0.063	0	0.000	0.283	0.000	0.000	0.000	0.000	0.346	26.7	0.50	525	0.304	1.405	0.32	18.98
STREET A	MH7	MH18	0.000	0.000	0.000	0.240	93.82	0.062	2	0.057	0.340	0.000	0.000	0.000	0.000	0.402	64.1	0.50	600	0.434	1.536	0.70	19.68
REAR YARD AREA	RYCB3	MH8	0.570	0.580	0.331	0.331	110.07	0.101	0	0.000	0.000	0.000	0.000	0.000	0.000	0.101	48.9	0.50	375	0.124	1.123	0.73	15.73
STREET D	MH8	MH9	0.000	0.000	0.000	0.331	106.60	0.098	2	0.057	0.057	0.000	0.000	0.000	0.000	0.154	28.2	1.00	375	0.175	1.587	0.30	16.02
STREET D	MH9	MH79	0.000	0.000	0.000	0.331	105.26	0.097	2	0.057	0.113	0.000	0.000	0.000	0.000	0.210	20.6	0.50	450	0.201	1.268	0.27	16.29
REAR YARD AREA	RYCB4	MH79	0.580	0.540	0.313	0.313	110.07	0.096	0	0.000	0.000	0.000	0.000	0.000	0.000	0.096	40.2	1.00	300	0.097	1.368	0.49	15.49
STREET D	MH79	MH11 (S)	0.000	0.000	0.000	0.644	104.07	0.186	2	0.057	0.170	0.000	0.000	0.000	0.000	0.356	63.7	0.50	525	0.304	1.405	0.76	17.05
REAR YARD AREA	RYCB5	MH10	0.290	0.660	0.191	0.191	110.07	0.059	0	0.000	0.000	0.000	0.000	0.000	0.000	0.059	43.3	0.50	300	0.068	0.967	0.75	15.75
STREET C	MH10	MH11 (S)	0.000	0.000	0.000	0.191	106.51	0.057	2	0.057	0.057	0.000	0.000	0.000	0.000	0.113	51.1	1.00	375	0.175	1.587	0.54	16.28
STREET C	MH11 (S)	MH18	0.000	0.000	0.000	0.835	100.92	0.234	5	0.142	0.368	0.000	0.000	0.000	0.000	0.602	86.3	0.40	750	0.704	1.594	0.90	17.95
STREET C	MH12	MH13	0.000	0.000	0.000	0.000	110.07	0.000	4	0.113	0.113	0.000	0.000	0.000	0.000	0.113	30.4	1.00	375	0.175	1.587	0.32	15.32
STREET C	MH13	MH15	0.000	0.000	0.000	0.000	108.51	0.000	3	0.085	0.198	0.000	0.000	0.000	0.000	0.198	78.5	1.40	450	0.337	2.121	0.62	15.94
STREET G	MH14	MH15	0.000	0.000	0.000	0.000	110.07	0.000	6	0.170	0.170	0.000	0.000	0.000	0.000	0.170	45.7	1.00	375	0.175	1.587	0.48	15.48
STREET C	MH15	MH16	0.000	0.000	0.000	0.000	105.64	0.000	0	0.000	0.368	0.000	0.000	0.000	0.000	0.368	21.5	1.00	450	0.285	1.793	0.20	16.14
STREET C	MH16	MH18	0.000	0.000	0.000	0.000	104.75	0.000	2	0.057	0.425	0.000	0.000	0.000	0.000	0.425	23.1	1.25	450	0.319	2.004	0.19	16.33
STREET A	MH18	MH20	0.000	0.000	0.000	1.075	91.56	0.273	2	0.057	1.189	0.000	0.000	0.000	0.000	1.462	94.1	0.50	825	1.014	1.899	0.83	20.51
STREET A	MH20	MH21	0.000	0.000	0.000	1.075	89.05	0.266	0	0.000	1.189	0.000	0.000	0.000	0.000	1.454	28.0	0.50	825	1.014	1.899	0.25	20.75
STREET A	MH21	MH25	0.000	0.000	0.000	1.075	88.33	0.264	1	0.028	1.217	0.000	0.000	0.000	0.000	1.481	29.6	2.00	825	2.029	3.798	0.13	20.88
STREET D	MH80	MH22	0.000	0.000	0.000	0.000	110.07	0.000	2	0.057	0.057	0.000	0.000	0.000	0.000	0.057	13.9	2.30	300	0.147	2.075	0.11	15.11
STREET D	MH22	MH23	0.000	0.000	0.000	0.000	109.52	0.000	0	0.000	0.057	0.000	0.000	0.000	0.000	0.057	21.2	2.30	300	0.147	2.075	0.17	15.28
STREET D	MH23	MH24	0.000	0.000	0.000	0.000	108.69	0.000	4	0.113	0.170	0.000	0.000	0.000	0.000	0.170	53.2	1.90	375	0.242	2.188	0.41	15.69
STREET D	MH24	MH25	0.000	0.000	0.000	0.000	106.78	0.000	0	0.000	0.170	0.000	0.000	0.000	0.000	0.170	14.7	0.70	375	0.147	1.328	0.18	15.87
BLOCK 296 - PARK	MH19	MH25	0.000	0.000	0.000	0.000	110.07	0.000	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.9	1.00	300	0.097	1.368	0.11	15.11
STREET A	MH25	MH27	0.000	0.000	0.000	1.075	87.96	0.263	2	0.057	1.443	0.000	0.000	0.000	0.000	1.706	54.2	3.15	900	3.211	5.050	0.18	21.06
BLOCK 294 - MEDIUM DENSITY	MH26	MH27	0.000	0.000	0.000	0.000	110.07	0.000	0	0.000	0.000	1.000	176.170	0.176	0.176	0.176	15.6	1.00	450	0.285	1.793	0.15	15.15

scs consulting group ltd

100-Year Storm Design
Base 31 Subdivision - Village A Phase 1
Storm Drainage to Phase 1 SWM Pond Facility
Picton, Prince Edward County

Rainfall Intensity (i) = $\frac{A}{(T_c+B)^c}$

A= 43
B= 0
c= 0.678

External Areas

Starting T_c (min)= 15

Project: Base 31 Subdivision - Village A Phase 1
Project No. 2365
Date: 22-Dec-25
Designed By: Y.A
Reviewed By: J.S

P:\2365 Picton Airport - Tercot\Design\Pipe Design\Storm\Village A Storm Design\[Storm Design Sheet - MASTER.xlsm]Design

LOCATION			100 YEAR						CB FLOW			EXTERNAL FLOWS				TOTAL FLOW	PIPE DATA						
STREET	MAINTENANCE HOLE		100-YEAR AREA	RUNOFF COEFF.	"AR"	ACCUM. "AR"	RAINFALL INTENSITY	ACCUM. FLOW	CB's	FLOW	ACCUM. CB FLOW	AREA	FLOW RATE	EXT. FLOW	ACCUM. EXT. FLOW	TOTAL (Qdes)	LENGTH	SLOPE	PIPE DIAMETER	FULL FLOW CAPACITY	FULL FLOW VELOCITY	TIME OF CONC.	ACCUM. TIME OF CONC.
	FROM	TO	(ha)	"R"			(mm/hr)	(m3/s)	(#)	(m3/s)	(m3/s)	(ha)	(l/s/ha)	(m3/s)	(m3/s)	(m3/s)	(m)	(%)	(mm)	(m3/s)	(m/s)	(min)	(min)
STREET I	MH28	MH29	0.000	0.000	0.000	0.000	110.07	0.000	3	0.085	0.085	0.000	0.000	0.000	0.000	0.085	78.1	1.00	375	0.175	1.587	0.82	15.82
STREET I	MH29	MH30	0.000	0.000	0.000	0.000	106.17	0.000	0	0.000	0.085	0.000	0.000	0.000	0.000	0.085	14.3	0.50	375	0.124	1.123	0.21	16.03
STREET I	MH30	MH31	0.000	0.000	0.000	0.000	105.21	0.000	1	0.028	0.113	0.000	0.000	0.000	0.000	0.113	25.5	0.50	375	0.124	1.123	0.38	16.41
STREET I	MH31	MH34	0.000	0.000	0.000	0.000	103.56	0.000	2	0.057	0.170	0.000	0.000	0.000	0.000	0.170	50.8	0.60	375	0.136	1.230	0.69	17.10
REAR YARD AREA	RYCB6	MH32	0.200	0.880	0.176	0.176	110.07	0.054	0	0.000	0.000	0.000	0.000	0.000	0.000	0.054	33.6	1.00	300	0.097	1.368	0.41	15.41
STREET J	MH32	MH33	0.000	0.000	0.000	0.176	108.08	0.053	6	0.170	0.170	0.000	0.000	0.000	0.000	0.223	59.8	1.00	450	0.285	1.793	0.56	15.97
STREET J	MH33	MH34	0.000	0.000	0.000	0.176	105.51	0.052	2	0.057	0.226	0.000	0.000	0.000	0.000	0.278	59.7	0.50	525	0.304	1.405	0.71	16.67
STREET I	MH34	MH36	0.000	0.000	0.000	0.176	100.71	0.049	5	0.142	0.538	0.000	0.000	0.000	0.000	0.587	72.7	0.50	600	0.434	1.536	0.79	17.89
STREET I	MH36	MH38	0.000	0.000	0.000	0.176	97.68	0.048	2	0.057	0.594	0.000	0.000	0.000	0.000	0.642	52.8	0.50	675	0.594	1.661	0.53	18.42
STREET L	MH37	MH38	0.000	0.000	0.000	0.000	110.07	0.000	4	0.113	0.113	0.000	0.000	0.000	0.000	0.113	37.6	1.40	300	0.114	1.619	0.39	15.39
STREET I	MH38	MH39	0.000	0.000	0.000	0.176	95.77	0.047	5	0.142	0.849	0.000	0.000	0.000	0.000	0.896	63.3	0.50	750	0.787	1.782	0.59	19.01
STREET I	MH39	MH40	0.000	0.000	0.000	0.176	93.73	0.046	0	0.000	0.849	0.000	0.000	0.000	0.000	0.895	17.1	0.50	750	0.787	1.782	0.16	19.17
STREET I	MH40	MH41	0.000	0.000	0.000	0.176	93.20	0.046	2	0.057	0.906	0.000	0.000	0.000	0.000	0.951	83.9	0.50	750	0.787	1.782	0.78	19.96
STREET I	MH41	MH43	0.000	0.000	0.000	0.176	90.70	0.044	0	0.000	0.906	0.000	0.000	0.000	0.000	0.950	20.4	3.15	750	1.975	4.472	0.08	20.03
BLOCK 295 - MEDIUM DENSITY	MH42	MH43	0.000	0.000	0.000	0.000	110.07	0.000	0	0.000	0.000	1.000	382.857	0.383	0.383	0.383	7.2	1.00	600	0.614	2.172	0.06	15.06
STREET I	MH43	MH45	0.000	0.000	0.000	0.176	90.47	0.044	2	0.057	0.962	0.000	0.000	0.000	0.383	1.389	31.4	0.50	825	1.014	1.899	0.28	20.31
STREET K	MH44	MH45	0.000	0.000	0.000	0.000	110.07	0.000	8	0.226	0.226	0.000	0.000	0.000	0.000	0.226	90.7	2.95	375	0.301	2.727	0.55	15.55
STREET K	MH45	MH47	0.000	0.000	0.000	0.176	89.63	0.044	2	0.057	1.245	0.000	0.000	0.000	0.383	1.672	71.1	1.00	900	1.809	2.846	0.42	20.72
BLOCK 296	MH47	MH48	0.000	0.000	0.000	0.176	88.41	0.043	2	0.057	1.302	0.000	0.000	0.000	0.383	1.728	44.0	1.85	900	2.461	3.870	0.19	20.91
BLOCK 296	MH48	HW1	0.000	0.000	0.000	0.176	87.86	0.043	0	0.000	1.302	0.000	0.000	0.000	0.383	1.728	90.6	0.35	900	1.070	1.683	0.90	21.81
STREET A	MH27	HW1	0.000	0.000	0.000	1.075	87.45	0.261	0	0.000	1.592	0.000	0.000	0.000	0.176	2.029	28.8	0.50	900	1.279	2.012	0.24	21.30
STREET A	CBMH50	MH51	0.000	0.000	0.000	0.000	110.07	0.000	3	0.148	0.148	0.000	0.000	0.000	0.000	0.148	14.2	1.00	375	0.175	1.587	0.15	15.15
STREET A	MH51	MH27	0.000	0.000	0.000	0.000	109.33	0.000	0	0.000	0.148	0.000	0.000	0.000	0.000	0.148	30.7	0.50	375	0.124	1.123	0.46	15.60
OUTLET	MH81	MH82	0.000	0.000	0.000	0.000	110.07	0.000	0	0.000	0.000	1.000	443.000	0.443	0.443	0.443	12.6	0.75	600	0.531	1.881	0.11	15.11
OUTLET	MH82	MH83	0.000	0.000	0.000	0.000	109.52	0.000	0	0.000	0.000	0.000	0.000	0.000	0.443	0.443	24.9	0.75	600	0.531	1.881	0.22	15.33
COUNTY ROAD 22	EXT1	MH83	1.890	0.940	1.777	1.777	110.07	0.543	0	0.000	0.000	0.000	0.000	0.000	0.000	0.543	100.0	1.00	600	0.614	2.172	0.77	15.77
VILLAGE F1	EXT2	MH83	3.320	0.440	1.461	1.461	110.07	0.447	0	0.000	0.000	0.000	0.000	0.000	0.000	0.447	100.0	1.00	600	0.614	2.172	0.77	15.77
OUTLET	MH83	HW2	0.000	0.000	0.000	3.237	106.41	0.957	0	0.000	0.000	0.000	0.000	0.000	0.443	1.400	6.8	0.75	900	1.567	2.464	0.05	15.81

Erosion Control Summary

Project Number : 2365A
Date: December 2025
Designer Initials: R.R.B.

1. Emergency weir/channel

Velocity, through Emergency Spillway Channel = 1.11 m/s (As per Emergency Spillway Calculation in **Appendix E**)

Since velocity is less than 3.8 m/s, Rollmax VMax S200 turf reinforcement matting (or approved equivalent) is recommended to stabilize disturbed land and provide permanent erosion protection.

2. SWM Pond Inlets (HW1)

Velocity, through SWM Pond Inlet (HW1)= 1.88 m/s (Full flow velocity, Refer to SSDS in **Appendix C**)

Since the maximum velocity is 1.88 m/s, 150 mm to 300 mm diameter rip-rap is sufficient to provide erosion protection at the pond inlet (HW1).

3. SWM Pond Overland Flow Route (Street 'A')

Velocity, through 3:1 side slop of SWM Facility = 2.68 m/s (Refer to Hydaflow Calculation in **Appendix C**)

Since velocity is less than 3.8m/s, Rollmax VMaxS200 turf reinforcement matting (or approved equivalent) is recommended to stabilize disturbed land and provide permanent erosion protection.

4. SWM Pond Overland Flow Route (Street 'K')

Velocity, through 3:1 side slop of SWM Facility = 2.42 m/s (Refer to Hydaflow Calculation in **Appendix C**)

Since velocity is less than 3.8m/s, Rollmax VMaxS200 turf reinforcement matting (or approved equivalent) is recommended to stabilize disturbed land and provide permanent erosion protection.

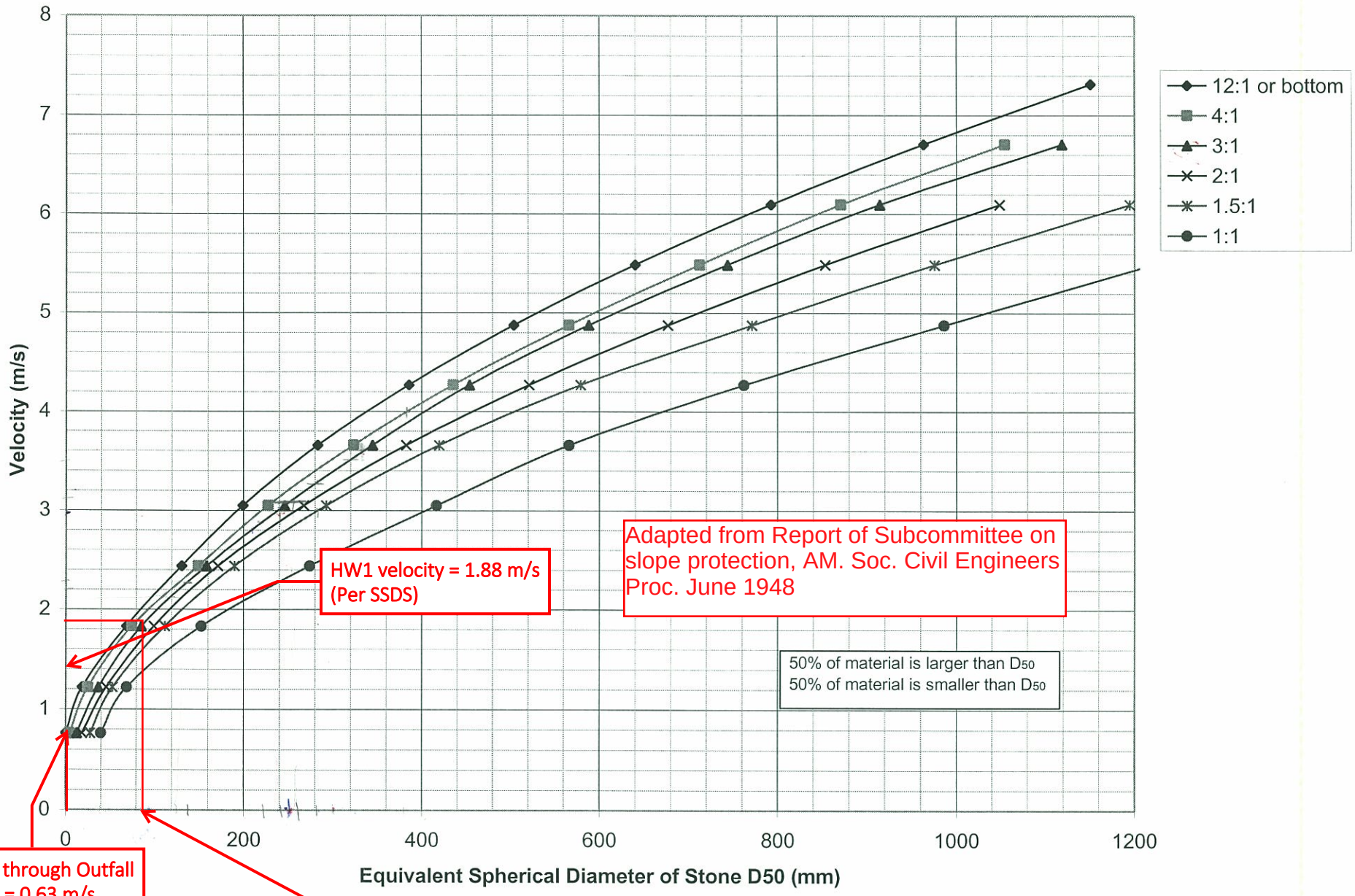
5. SWM Pond Outfall Channel

Velocity, controlled flows through Outfall Channel = 0.80 m/s (Refer to Hydaflow Calculation in **Appendix C**)

Velocity, uncontrolled flows through Outfall Channel = 1.28 m/s (Refer to Hydaflow Calculation in **Appendix C**)

Since velocity is less than 3.8m/s, Rollmax VMaxS200 turf reinforcement matting (or approved equivalent) is recommended to stabilize disturbed land and provide permanent erosion protection and the check dams made of 150 mm to 300 mm diameter rip-rap is sufficient to provide erosion protection.

RIP-RAP SIZING



Appendix D Stormwater Management Calculations & Operating Characteristics

Drainage Area and Release Rate Summmary - Pond 1

Picton Airport - Village A
Project Number: 2365
Date: December 2025
Designer Initials: R.B.

Weighted Impervious

Catchment ID	Total Area	Imperviousness[1]	Impervious Area
	(ha)	(%)	(ha)
2101	17.31	64%	11.08
3101-3103	2.89	68%	0.02
EXT-1	1.16	22%	0.00
Total	**21.36**	**62%**	**11.10**

[1] Refer to **Appendix C** for weighted impervious area calulcations

Pre-Development Release Rate to Marsh Creek

Storm Event	4 Hour Chicago	6 Hour SCS	12 Hour SCS	24 Hour SCS
	(m^3/s)	(m^3/s)	(m^3/s)	(m^3/s)
2 Year	0.038	0.053	0.076	0.106
5 Year	0.068	0.100	0.137	0.187
10 Year	0.094	0.136	0.184	0.248
25 Year	0.133	0.189	0.253	0.335
50 Year	0.165	0.233	0.310	0.406
100 Year	0.199	0.280	0.369	0.480

*Per Pre-development VO Hydrology Modelling established in FSSR (SCS, August 2025) refer to **Appendix B.2**.

Controlled Release Rates to Marsh Creek

Storm Event	4 Hour Chicago	6 Hour SCS	12 Hour SCS	24 Hour SCS
	(m^3/s)	(m^3/s)	(m^3/s)	(m^3/s)
2 Year	0.032	0.031	0.036	0.053
5 Year	0.043	0.039	0.046	0.067
10 Year	0.049	0.044	0.060	0.097
25 Year	0.057	0.058	0.123	0.212
50 Year	0.064	0.082	0.193	0.324
100 Year	0.075	0.156	0.270	0.465

*Per Post-development VO Hydrology Modelling in **Appendix C**.

Comparison of Controlled Flows to Allowable

Storm Event	4 Hour Chicago	6 Hour SCS	12 Hour SCS	24 Hour SCS
	(m^3/s)	(m^3/s)	(m^3/s)	(m^3/s)
2 Year	-0.006	-0.022	-0.040	-0.053
5 Year	-0.025	-0.061	-0.091	-0.120
10 Year	-0.045	-0.092	-0.124	-0.151
25 Year	-0.076	-0.131	-0.130	-0.123
50 Year	-0.101	-0.151	-0.117	-0.082
100 Year	-0.124	-0.124	-0.099	-0.015

The comparison of the total post-development controlled peak flow to Marsh Creek to the pre-develoment values show the proposed stormwater management strategy meets quantity control criteria.

Permanent Pool and Extended Detention Sizing - Pond 1

Picton Airport - Village A
Project Number: 2365
Date: December 2025
Designer Initials: R.B.

PERMANENT POOL

Level of Protection = Enhanced (Level 1)

Weighted Impervious = 62 %

Drainage Area = 21.36 ha

SWMP Type = 2. Wetlands

Required Permanent Pool (including 40m^3/ha for extended detention)= 112.3 m^3/ha
Required Permanent Pool (minus 40m^3/ha for extended detention)= 72 m^3/ha

Required Permanent Pool = 1543 m^3

TABLE 3.2 - WATER QUALITY STORAGE REQUIREMENTS
(FROM MECP SWM PLANNING AND DESIGN MANUAL - 2003)

Protection Level	SWMP Type	Storage Volume (m^3/ha) for Impervious Level			
		35%	55%	70%	85%
Enhanced (Level 1)	1. Infiltration	25	30	35	40
	2. Wetlands	80	105	120	140
	3. Hybrid Wet Pond/Wetland	110	150	175	195
	4. Wet Pond	140	190	225	250
Normal (Level 2)	1. Infiltration	20	20	25	30
	2. Wetlands	60	70	80	90
	3. Hybrid Wet Pond/Wetland	75	90	105	120
	4. Wet Pond	90	110	130	150
Basic (Level 3)	1. Infiltration	20	20	20	20
	2. Wetlands	60	60	60	60
	3. Hybrid Wet Pond/Wetland	60	70	75	80
	4. Wet Pond	60	75	85	95
	5. Dry Pond (Continuous Flow)	90	150	200	240

EXTENDED DETENTION

Using the 25mm - 4 hour Chicago Storm

Erosion Control Volume (V) = Runoff Depth (mm) x Drainage Area (ha) x 10 (m^3) / (mm)(ha)

Erosion Control Volume (V) = 11.27 mm x 21.36 ha x 10 m^3 / mm·ha

Erosion Control Volume (V) = 2406 m^3

Using 40m^3/ha

Extended Detention Volume (V) = 40m^3/ha x Drainage Area (ha)

Extended Detention Volume (V) = 40 m^3/ha 21.36 ha

Extended Detention Volume (V) = 854 m^3

Governing Volume (V) = 2406 m^3

Stage Storage - Pond 1

Elevation (m)	Area (m^2)	Area (m^2)	H (m)	Vol (m^3)	Volume (m^3)	Storage (m^3)	Depth (m)	
139	555				0		0	
		1318	0.7	922				
139.7	2080				922		0.7	
		3060	0.3	918				
140	**4040**				**1840**	**0**	**1**	**N.W.L.**
		4605	0.6	2763				
140.6	5170				4603	2763	1.6	
		5900	1.3	7670				
141.90	6630				12273	10433	2.9	
		6810	0.3	2043				
142.20	6990				14316	12476	3.2	

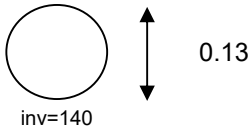
Permanent Pool Volume Required =	1543	m^3	
Permanent Pool Volume Provided =	1840	m^3	
Extended Detention volume required =	2406	m^3	
Extended Detention waterlevel =	140.52	m	
2 year control volume required =	5081	m^3	*24-hr SCS storm utilized per highest storage requirements.
2 year control waterlevel =	140.99	m	
2 year active fluctuation =	1.21	m	
5 year control volume required =	6691	m^3	*24-hr SCS storm utilized per highest storage requirements.
5 year control waterlevel =	141.27	m	
5 year active fluctuation =	0.93	m	
10 year control volume required =	7998	m^3	*24-hr SCS storm utilized per highest storage requirements.
10 year control waterlevel =	141.49	m	
10 year active fluctuation =	0.71	m	
25 year control volume required =	8854	m^3	*24-hr SCS storm utilized per highest storage requirements.
25 year control waterlevel =	141.63	m	
25 year active fluctuation =	0.57	m	
50 year control volume required =	9619	m^3	*24-hr SCS storm utilized per highest storage requirements.
50 year control waterlevel =	141.76	m	
50 year active fluctuation =	0.44	m	
100 year control volume required =	10375	m^3	*24-hr SCS storm utilized per highest storage requirements.
100 year waterlevel =	141.89	m	
Freeboard =	0.31	m	

Control Structure Summary

Project Number: 2365A
Date: December 2025
Designer Initials: R.R.B.

Orifice 1

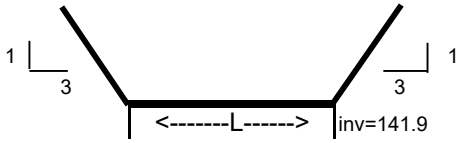
Invert =	140.00	m
Size =	0.130	m
Orifice Coefficient, C =	0.62	
Obvert =	140.13	m



Broad Crested Weir (Weir 1)

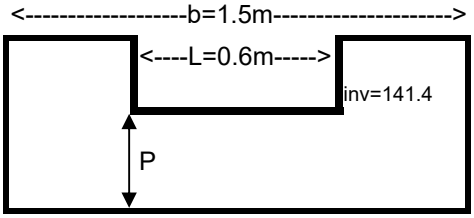
Length =	25.00	m
Elevation =	141.90	m
Crest Breadth =	1.0	m
Side Slope =	3.0	

(0 = vertical, 1 = 1H to 1V, 3 = 3H to 1 v)



Sharp Crested Weir (Weir 3)

Length =	0.60	m
Elevation =	141.40	m
Side Slope =	0.0	H:1V
Weir Blade Height, P =	0.20	m
Channel Width, b =	1.5	m



Outflow Summary

Project Number: 2365A
Date: November 2025
Designer Initials: R.R.B.

Starting Water Level (m) = 140.00
Elevation Increment (m) = 0.05

Shading represents Storage-Discharge pairings used in VO modelling

Upstream Elevation (m)	Orifice 1 Outflow (cms)	Orifice 2 Outflow (cms)	Weir 1 Outflow (cms)	Weir 3 Outflow (cms)	Stage (m)	Total Flow (cms)	Storage (m^3)	Detention Time (hrs)
140.00	0.000	0.000	0.000	0.000	140.00	0.000	0	0.0
140.05	0.002	0.000	0.000	0.000	140.05	0.002	204	0.0
140.10	0.007	0.000	0.000	0.000	140.10	0.007	413	13.6
140.15	0.011	0.000	0.000	0.000	140.15	0.011	627	20.4
140.20	0.013	0.000	0.000	0.000	140.20	0.013	846	25.4
140.25	0.016	0.000	0.000	0.000	140.25	0.016	1069	29.7
140.30	0.018	0.000	0.000	0.000	140.30	0.018	1297	33.5
140.35	0.019	0.000	0.000	0.000	140.35	0.019	1529	37.0
140.40	0.021	0.000	0.000	0.000	140.40	0.021	1767	40.2
140.45	0.023	0.000	0.000	0.000	140.45	0.023	2009	43.3
140.50	0.024	0.000	0.000	0.000	140.50	0.024	2255	46.2
140.55	0.025	0.000	0.000	0.000	140.55	0.025	2507	49.1
140.60	0.027	0.000	0.000	0.000	140.60	0.027	2763	51.8
140.65	0.028	0.000	0.000	0.000	140.65	0.028	3023	54.4
140.70	0.029	0.000	0.000	0.000	140.70	0.029	3286	57.0
140.75	0.030	0.000	0.000	0.000	140.75	0.030	3551	59.5
140.80	0.031	0.000	0.000	0.000	140.80	0.031	3819	61.9
140.85	0.032	0.000	0.000	0.000	140.85	0.032	4091	64.3
140.90	0.033	0.000	0.000	0.000	140.90	0.033	4364	66.6
140.95	0.034	0.000	0.000	0.000	140.95	0.034	4641	68.9
141.00	0.035	0.000	0.000	0.000	141.00	0.035	4921	71.1
141.05	0.036	0.000	0.000	0.000	141.05	0.036	5203	73.3
141.10	0.037	0.000	0.000	0.000	141.10	0.037	5488	75.5
141.15	0.038	0.000	0.000	0.000	141.15	0.038	5776	77.6
141.20	0.039	0.000	0.000	0.000	141.20	0.039	6067	79.7
141.25	0.040	0.000	0.000	0.000	141.25	0.040	6361	81.8
141.30	0.041	0.000	0.000	0.000	141.30	0.041	6657	83.9
141.35	0.041	0.000	0.000	0.000	141.35	0.041	6956	85.9
141.40	0.042	0.000	0.000	0.000	141.40	0.042	7258	87.9
141.45	0.043	0.000	0.000	0.013	141.45	0.055	7563	89.6
141.50	0.044	0.000	0.000	0.035	141.50	0.079	7871	90.9
141.55	0.044	0.000	0.000	0.066	141.55	0.110	8181	91.8
141.60	0.045	0.000	0.000	0.102	141.60	0.147	8494	92.5
141.65	0.046	0.000	0.000	0.144	141.65	0.190	8811	93.0
141.70	0.047	0.000	0.000	0.191	141.70	0.237	9129	93.4
141.75	0.047	0.000	0.000	0.242	141.75	0.290	9451	93.8
141.80	0.048	0.000	0.000	0.298	141.80	0.346	9776	94.0
141.85	0.049	0.000	0.000	0.358	141.85	0.407	10103	94.3
141.90	0.049	0.000	0.000	0.421	141.90	0.471	10433	94.5
141.95	0.050	0.000	0.402	0.488	141.95	0.940	10766	94.6
142.00	0.051	0.000	1.144	0.558	142.00	1.752	11102	94.7
142.05	0.051	0.000	2.114	0.630	142.05	2.796	11441	94.7
142.10	0.052	0.000	3.274	0.705	142.10	4.031	11783	94.8
142.15	0.053	0.000	4.764	0.782	142.15	5.598	12128	94.8
142.20	0.053	0.000	6.299	0.861	142.20	7.213	12476	94.8

FOREBAY SIZING CALCULATIONS

Project Number: 2365A
Date: December 2025
Designer Initials: R.R.B.

2. Forebay Settling Length

Dist = (r x Q_p / V_s)$^{0.5}$

Dist = (2.35 * 0.02 / 0.0003)^0.5

Dist = 13.4

where:
Dist = forebay length (m)
r = length to width ratio
= 2.35
Q_p = peak flow rate from pond during design quality storm (m^3/s) (25mm 4 hr Chicago (VO6)
= 0.023
V_s = settling velocity (m/s)*
= 0.0003

Minimum forebay length is (m) **13.4**
Actual forebay length is (m) **47.0**
CRITERIA SATISFIED

3. Forebay Dispersion Length

Dist = (8 x Q) / (d x V_f)

Dist = (8 * 1.279) / (1 * 0.5)

Dist = 20.5

where:
Dist = forebay length (m)
Q = inlet flow rate (m^3/s) (Total Pipe Cacacity MH27 to HW1)
= 1.279
d = depth of permanent pool in forebay (m)
= 1
V_f = desired velocity in forebay (m/s)*
0.5

Minimum forebay length is (m) **20.5**
Actual forebay length is (m) **47.0**
CRITERIA SATISFIED

4. Minimum Forebay Bottom Width

Width = Dist / 8

Width = 20.5 / 8

Width = 2.6

where:
Width = minimum forebay bottom width (m)
Dist = minimum forebay length (m)
= 20.5

Minimum bottom width is (m) **2.6**
Actual bottom width is (m) **14.6**
CRITERIA SATISFIED

5. Maximum Velocity Check

V = Q/A

V = 1.279 / 26.3650000000002

V = 0.05

where:
V = velocity (m/s)
Q = inlet flow rate (m^3/s) (Total Pipe Cacacity MH27 to HW1)
= 1.279
A = average cross-sectional area of entire forebay (m^2)
(see **Page 3**)
= 26.4

Maximum velocity permitted is (m/s) **0.15**
Actual velocity is (m/s) **0.05**
CRITERIA SATISFIED

*Value recommended by the MECP Stormwater Management Planning & Design Manual

FOREBAY SIZING CALCULATIONS

Project Number: 2365A
Date: December 2025
Designer Initials: R.R.B.

Distance (m)	Elevation (m)	Depth (m)	Incremental Area (m^2)
0.00	140.3	0.00	--
0.90	140.0	0.30	0.14
3.90	139.4	0.90	1.80
5.20	139.0	1.30	1.43
19.80	139.0	1.30	18.98
21.00	139.4	0.90	1.32
24.00	140.0	0.30	1.80
27.00	140.6	0.30	0.90

Area (m^2) = 26.37

Perforated Pipe Design

Project Number: 2365A
Date: December 2025
Designer Initials: R.R.B.

Orifice Area

The perforated pipe shall be sized to ensure that the orifice still controls with 50% blockage of the pipe.

Orifice Diameter = 130 mm
Orifice Area = πr^2 = 0.0133 m^2

Perforated Pipe

Assuming 50% blockage, the perforated pipe should provide an opening area greater 0.0133 m^2 x 2 = **0.0265 m^2**

Perforated Pipe Diameter = 500 mm
Perforated Pipe Length = 0.5 m (minimum)
1/2 Perforated Pipe Circumference = $\pi d/2$ = 0.785 m

Using 50 mm diameter holes spaced at 125 mm c/c

Holes per row =	0.785	m	/	125	mm spacing =	6.3	therefore,	6.0	holes per row
Rows per pipe length =	0.5	m	/	125	mm spacing =	4.0	therefore,	4.0	rows
Holes per pipe length =	6.0	holes/row	x	4	rows =	24.0	holes		

Area of one hole = $\pi r2$ = 0.00196 m^2
Total Perforated Pipe Opening Area = 0.00196 m^2 x 24 holes
= **0.0471 m^2**

0.0471 > 0.0265

Therefore, since the opening area of the perforated pipe is larger than the orifice area (assuming 50% blockage), the proposed 0.5 m long (minimum), 500 mm diameter perforated pipe (with 24 - 50 mm diameter holes spaced 125 mm c/c) is sufficient.

Weir Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Sunday, Dec 21 2025

Emergency Spillway Weir (F-F)

Rectangular Weir

Crest	= Broad
Bottom Length (m)	= 25.0000
Total Depth (m)	= 0.2000

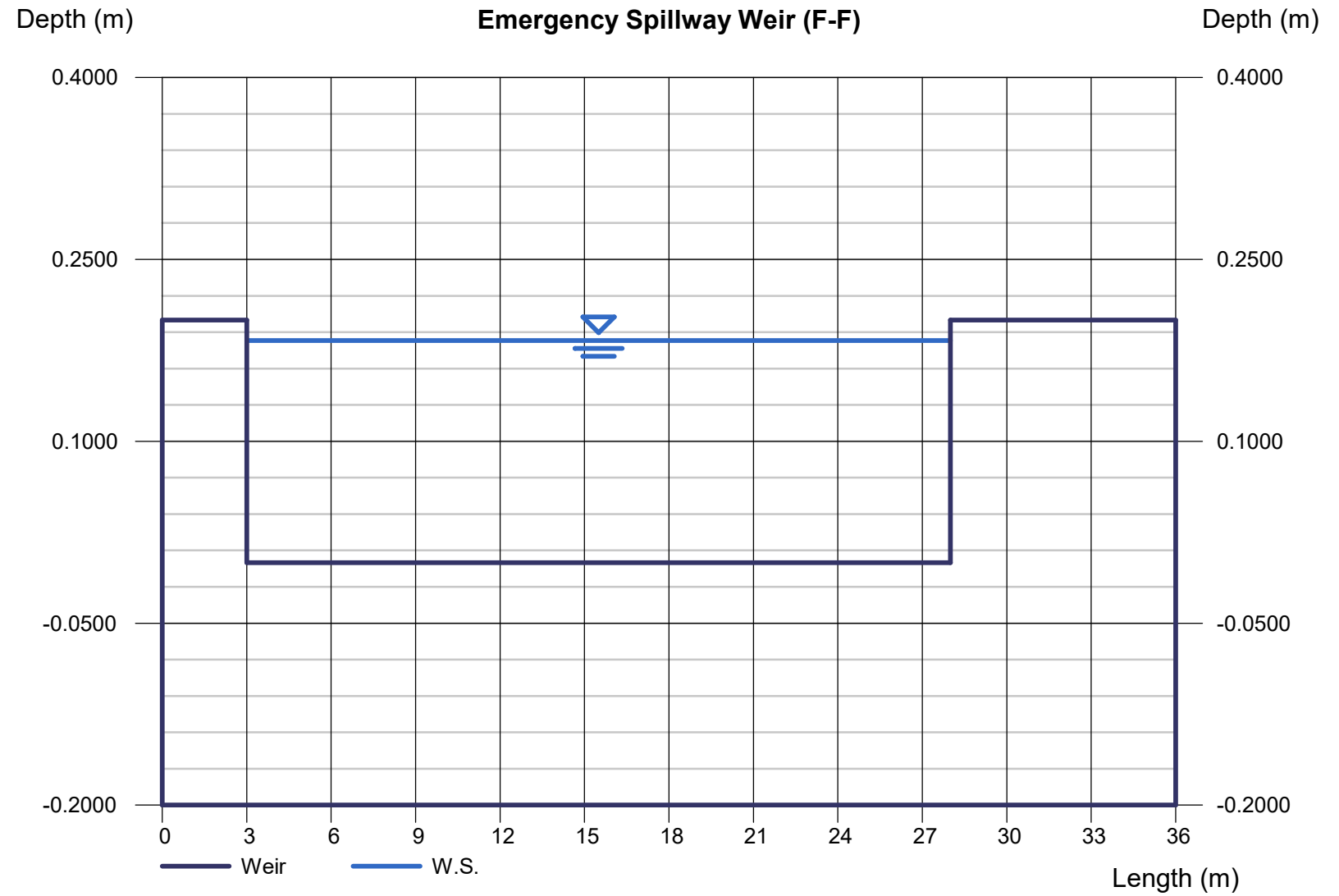
Calculations

Weir Coeff. Cw	= 2.6000
Compute by:	Known Depth
Known Depth (m)	= 0.1831

Highlighted

Depth (m)	= 0.1831
Q (cms)	= 5.0910
Area (sqm)	= 4.5765
Velocity (m/s)	= 1.1124
Top Width (m)	= 25.0000

A total uncontrolled flow of 5.091 m3/s during the 100 year 24 hour SCS Type II storm event is expected to be conveyed to the SWM Facility. Should the outlet become blocked, the emergency spillway will safely convey these flows to CR 22 with a flow depth of 0.18 m, resulting in a maximum water surface elevation of 142.08m.



5 Year (Rational Method)	
Area (ha) =	5.10
Runoff Coeff. =	0.50
T_c (min) =	15.83
a=	**26.40**
b=	**0.000**
c=	**0.677**
Intensity (mm/hr) =	65.07
Runoff (m^3/s)=	**0.459**

100 year (Rational Method)	
Area (ha) =	5.10
Runoff Coeff. =	0.62
T_c (min) =	15.83
a=	**43.00**
b=	**0.000**
c=	**0.678**
Intensity (mm/hr) =	106.12
Runoff (m^3/s)=	**0.936**

T_C from SSDS (MH 83 to HW 2)

`

Total 100 Year Flow to be conveyed thorugh Outfall Channel to Creek from external lands (County Road 22 and Future controlled flows from Village F1 development) = *0.936 m^3/s*

Controlled flows From Village A = *0.461 m^3/s*

Total Flows to be convey through outfall Channel = **1.397 m^3/s**

5 Year (Rational Method)	
Area (ha) =	5.10
Runoff Coeff. =	0.50
T_c (min) =	15.83
a=	**26.40**
b=	**0.000**
c=	**0.677**
Intensity (mm/hr) =	65.07
Runoff (m^3/s)=	**0.459**

100 year (Rational Method)	
Area (ha) =	5.10
Runoff Coeff. =	0.62
T_c (min) =	15.83
a=	**43.00**
b=	**0.000**
c=	**0.678**
Intensity (mm/hr) =	106.12
Runoff (m^3/s)=	**0.936**

T_C from SSDS (MH 83 to HW 2)

`

Total 100 Year Flow to be conveyed thorugh Outfall Channel to Creek from external lands (County Road 22 and Future controlled flows from Village F1 development) = *0.936* m^3/s

Uncontrolled flows From Village A = *5.091* m^3/s

Total Flows to be convey through outfall Channel = **6.027** m^3/s

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Sunday, Dec 21 2025

Controlled Flow Through Outfall Channel to Marsh Creek (G-G)

Trapezoidal

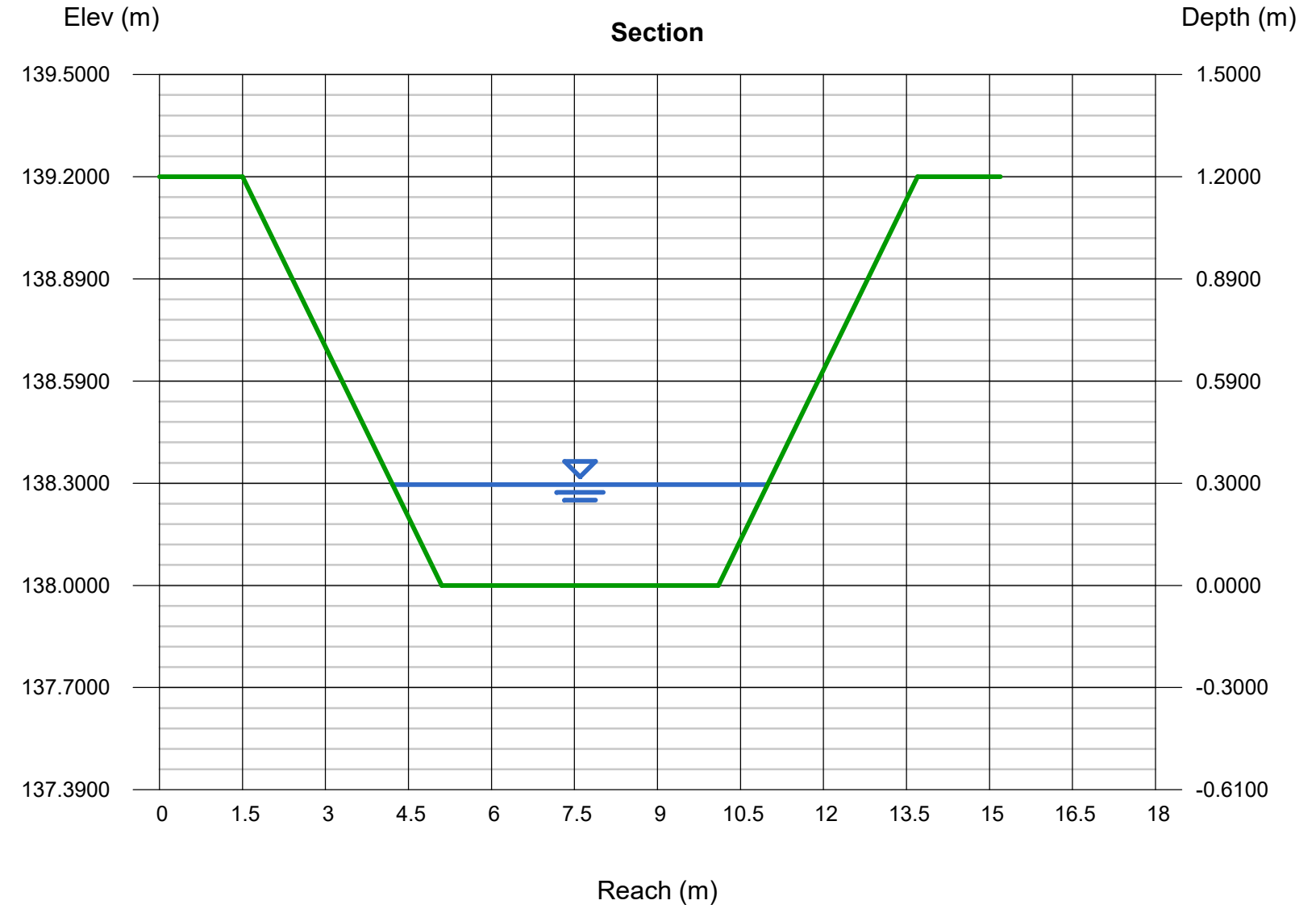
Bottom Width (m)	= 5.0000
Side Slopes (z:1)	= 3.0000, 3.0000
Total Depth (m)	= 1.2000
Invert Elev (m)	= 138.0000
Slope (%)	= 0.5000
N-Value	= 0.035

Calculations

Compute by:	Known Q
Known Q (cms)	= 1.3970

Highlighted

Depth (m)	= 0.2957
Q (cms)	= 1.3970
Area (sqm)	= 1.7405
Velocity (m/s)	= 0.8026
Wetted Perim (m)	= 6.8699
Crit Depth, Yc (m)	= 0.1920
Top Width (m)	= 6.7739
EGL (m)	= 0.3285



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Sunday, Dec 21 2025

Uncontrolled Flow Through Outfall Channel to Marsh Creek (G-G)

Trapezoidal

Bottom Width (m)	= 5.0000
Side Slopes (z:1)	= 3.0000, 3.0000
Total Depth (m)	= 1.2000
Invert Elev (m)	= 138.0000
Slope (%)	= 0.5000
N-Value	= 0.035

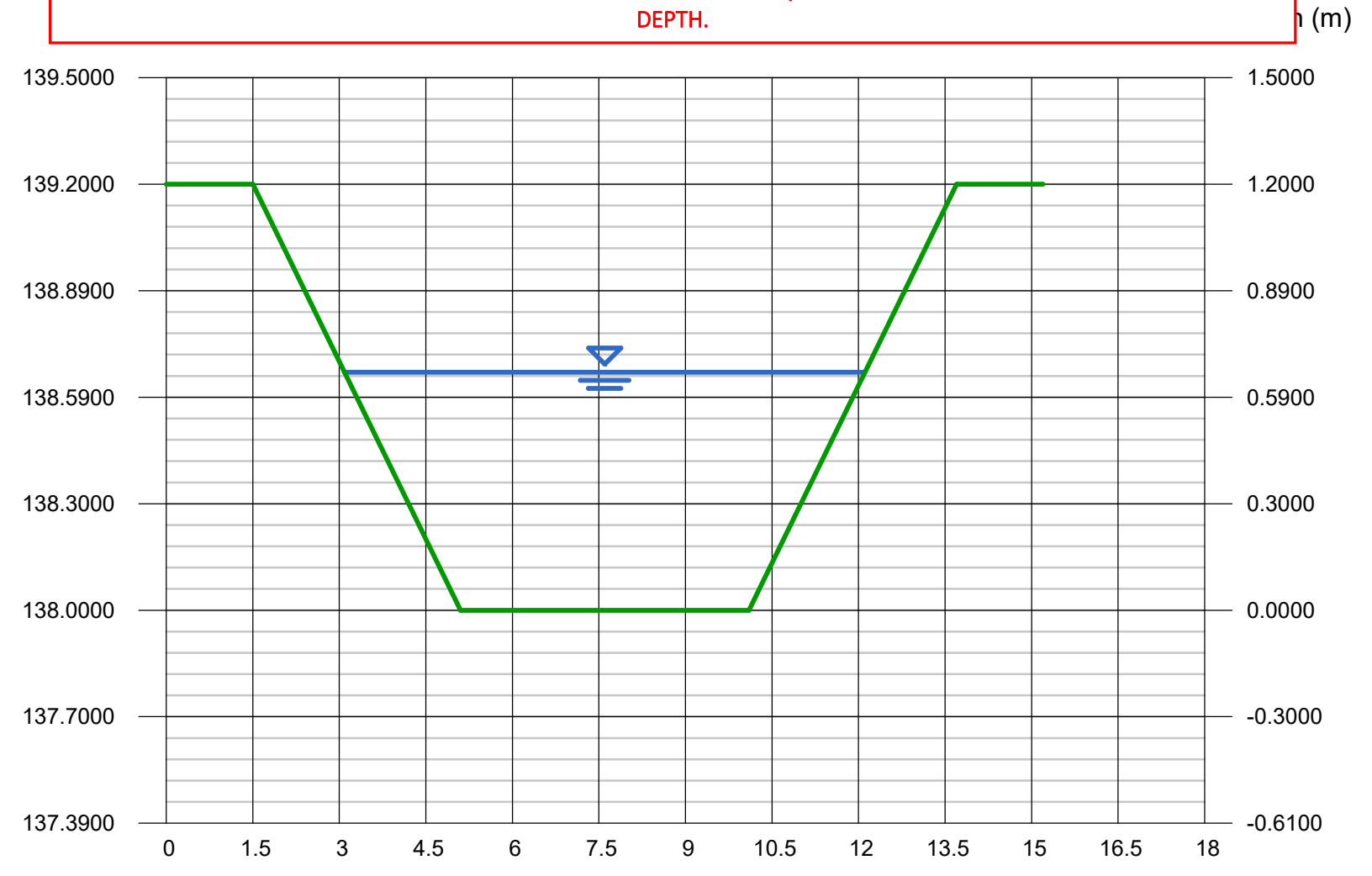
Calculations

Compute by:	Known Q
Known Q (cms)	= 6.0270

Highlighted

Depth (m)	= 0.6706
Q (cms)	= 6.0270
Area (sqm)	= 4.7017
Velocity (m/s)	= 1.2819
Wetted Perim (m)	= 9.2410
Crit Depth, Yc (m)	= 0.4785
Top Width (m)	= 9.0234
EGL (m)	= 0.7544

IN THE EVENT THAT THE OUTLET FOR THE SWM FACILITY BECOMES BLOCKED, THE EMERGENCY SPILLWAY HAS BEEN SIZED TO CONVEY THE TOTAL UNCONTROLLED FLOWS FROM VILLAGE A, RESULTING IN A POTENTIAL TOTAL FLOW OF 6.027 m3/s BEING DIRECTED TO THE CHANNEL. THE PROPOSED CHANNEL HAS BEEN SIZED TO CONVEY THIS TOTAL FLOW, WITH A MAXIMUM DEPTH OF 0.67 m, AND IS GENERALLY CONTAINED WITHIN THE CHANNEL. HOWEVER, AS THE CHANNEL BECOMES SHALLOW NEAR THE DISCHARGE POINT THERE IS POTENTIAL FOR FLOWS TO SPILL OUT OF THE CHANNEL AND DISPERSE AND THE CHANNEL IS TYING INTO EXISTING GRADE, THEREFORE, ANY FUTURE DEVELOPMENT WILL HAVE TO ENSURE THE PROPOSED GRADING ALONG THE CHANNEL PROVIDES ADEQUATE FREEBOARD TO THE UNCONTROLLED FLOW DEPTH.



Appendix E Hydrologic Modelling Outputs

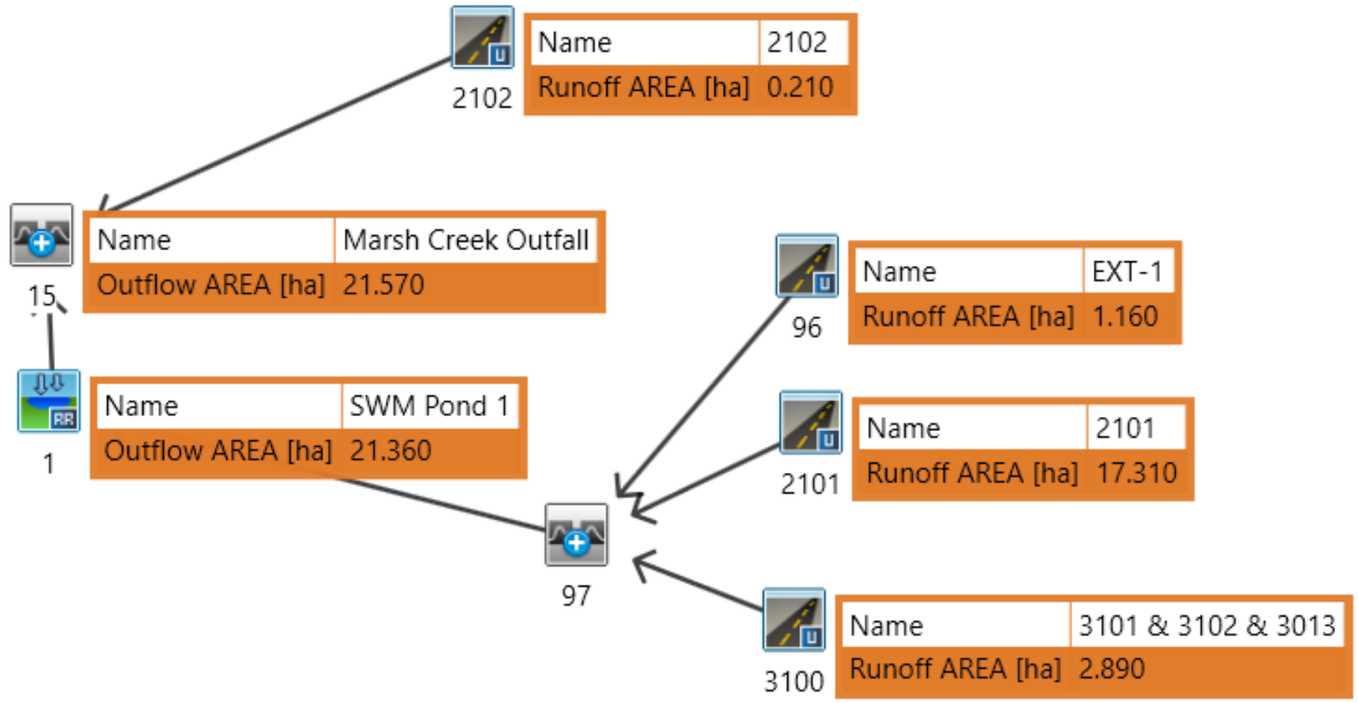
The following secure link is being provided by SCS Consulting Group Ltd. to share the hydrologic modelling files related to the Stormwater Management Report for Village A-Phase 1:

https://filesafecloud.scsconsultinggroup.com/url/ukbpnxkvbjztxg52

Please click on the link and download all files from this location.

Hydrology Models – Visual Otthymo

Proposed Conditions - SWM
Visual OTTHYMO Model Schematic



Proposed Conditions
VO Parameter Summary

NASHYD
STANDHYD

Number	2101	2102	3100	96	
Description	2101	2102	3101, 3102, 3103	EXT-1	
DT(min)	1	1	1	1	
Area (ha)	17.31	0.21	2.89	1.16	
TIMP[2]	0.64	0.65	0.68	0.22	
XIMP[1,2]	0.43	0.65	0.39	0.22	
*CN**	***54.0***	***54.0***	***54.0***	***54.0***	
IA(mm)	***5.0***	***5.0***	***5.0***	***5.0***	
SLPP(%)	2	2	2	2	
LGP(m)	40	40	40	40	
MNP	0.25	0.25	0.25	0.25	
DPSI (mm)	2.0	2.0	2.0	2.0	
SLPI(%)	1	1	1	1	
LGI(m)	339.71	37.42	138.80	87.94	
MNI	0.013	0.013	0.013	0.013	

CN and Ia values established through FSSR (Refer to Appendix B2 for FSSR excerpts)

Proposed Conditions
Percent Impervious Calculations

			StandHyd IDs			
			2101	2102	3100	EXT-1
Catchment Area (ha)			17.31	0.21	2.89	1.16
Land Use Areas	Timp	Ximp	Land Use Areas			
Parks	7%	7%	2.08			
Road Widening	65%	65%		0.21		
SWM Pond	50%	50%	0.90			
Laneway Single Houses	70%	41%	2.08		0.58	
ROW Single Houses	63%	35%	4.40		1.31	
Townhouses w/ Lane	85%	37%	3.09		0.33	
ROW Townhouses	72%	48%	0.73		0.63	
Open Space	0%	0%			0.03	
Future Phase (Medium Density)	75%	75%	4.03			
		Total Land Use =	17.31	0.21	2.89	1.16
		Timp =	64%	65%	68%	22%
		Ximp =	43%	65%	39%	22%

```
************************************
** SIMULATION:1.1 Chicago 4hr 2yr **
************************************
--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 324.567
| Ptotal= 31.70 mm |                          B=   0.000
--------------------                          C=   0.677
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 15.00 min
                       Time to peak ratio =  0.33

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    3.22 |  1.00   51.89 |  2.00    4.86 |  3.00    3.08
                0.25    3.96 |  1.25   11.92 |  2.25    4.20 |  3.25    2.84
                0.50    5.36 |  1.50    7.63 |  2.50    3.72 |  3.50    2.65
                0.75    9.77 |  1.75    5.87 |  2.75    3.36 |  3.75    2.49


--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2101)|   Area    (ha)=  17.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  43.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.08          6.23
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     339.71         40.00
     Mannings n           =      0.013         0.250

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


                             ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    3.22 | 1.083   51.89 | 2.083    4.86 |  3.08    3.08
               0.167    3.22 | 1.167   51.89 | 2.167    4.86 |  3.17    3.08
               0.250    3.22 | 1.250   51.89 | 2.250    4.86 |  3.25    3.08
               0.333    3.96 | 1.333   11.92 | 2.333    4.20 |  3.33    2.84
               0.417    3.96 | 1.417   11.92 | 2.417    4.20 |  3.42    2.84
               0.500    3.96 | 1.500   11.92 | 2.500    4.20 |  3.50    2.84
               0.583    5.36 | 1.583    7.63 | 2.583    3.72 |  3.58    2.65
               0.667    5.36 | 1.667    7.63 | 2.667    3.72 |  3.67    2.65
               0.750    5.36 | 1.750    7.63 | 2.750    3.72 |  3.75    2.65
               0.833    9.77 | 1.833    5.87 | 2.833    3.36 |  3.83    2.49
               0.917    9.77 | 1.917    5.87 | 2.917    3.36 |  3.92    2.49
               1.000    9.77 | 2.000    5.87 | 3.000    3.36 |  4.00    2.49

     Max.Eff.Inten.(mm/hr)=      51.89          8.13
               over (min)         5.00         30.00
     Storage Coeff.  (min)=       6.92 (ii)    26.18 (ii)
     Unit Hyd. Tpeak (min)=       5.00         30.00
     Unit Hyd. peak  (cms)=       0.17          0.04
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.97          0.07          0.990 (iii)
     TIME TO PEAK    (hrs)=       1.25          1.67           1.25
     RUNOFF VOLUME    (mm)=      29.70          4.93          15.58
     TOTAL RAINFALL   (mm)=      31.70         31.70          31.70
     RUNOFF COEFFICIENT   =       0.94          0.16           0.49


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0096)|   Area    (ha)=   1.16
|ID= 1 DT= 5.0 min |   Total Imp(%)=  22.00   Dir. Conn.(%)=  22.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.26          0.90
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      87.94         40.00
     Mannings n           =      0.013         0.250
```

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.22	1.083	51.89	2.083	4.86	3.08	3.08
0.167	3.22	1.167	51.89	2.167	4.86	3.17	3.08
0.250	3.22	1.250	51.89	2.250	4.86	3.25	3.08
0.333	3.96	1.333	11.92	2.333	4.20	3.33	2.84
0.417	3.96	1.417	11.92	2.417	4.20	3.42	2.84
0.500	3.96	1.500	11.92	2.500	4.20	3.50	2.84
0.583	5.36	1.583	7.63	2.583	3.72	3.58	2.65
0.667	5.36	1.667	7.63	2.667	3.72	3.67	2.65
0.750	5.36	1.750	7.63	2.750	3.72	3.75	2.65
0.833	9.77	1.833	5.87	2.833	3.36	3.83	2.49
0.917	9.77	1.917	5.87	2.917	3.36	3.92	2.49
1.000	9.77	2.000	5.87	3.000	3.36	4.00	2.49

Max.Eff.Inten.(mm/hr)=	51.89	2.16		
over (min)	5.00	40.00		
Storage Coeff. (min)=	3.07 (ii)	35.80 (ii)		
Unit Hyd. Tpeak (min)=	5.00	40.00		
Unit Hyd. peak (cms)=	0.27	0.03		
			TOTALS	
PEAK FLOW (cms)=	0.04	0.00	0.037 (iii)	
TIME TO PEAK (hrs)=	1.25	1.92	1.25	
RUNOFF VOLUME (mm)=	29.70	2.93	8.80	
TOTAL RAINFALL (mm)=	31.70	31.70	31.70	
RUNOFF COEFFICIENT =	0.94	0.09	0.28	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (3100)	Area (ha)= 2.89
ID= 1 DT= 1.0 min	Total Imp(%)= 68.00 Dir. Conn.(%)= 39.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.97	0.92
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	138.80	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	3.22	1.017	51.89	2.017	4.86	3.02	3.08
0.033	3.22	1.033	51.89	2.033	4.86	3.03	3.08
0.050	3.22	1.050	51.89	2.050	4.86	3.05	3.08
0.067	3.22	1.067	51.89	2.067	4.86	3.07	3.08
0.083	3.22	1.083	51.89	2.083	4.86	3.08	3.08
0.100	3.22	1.100	51.89	2.100	4.86	3.10	3.08
0.117	3.22	1.117	51.89	2.117	4.86	3.12	3.08
0.133	3.22	1.133	51.89	2.133	4.86	3.13	3.08
0.150	3.22	1.150	51.89	2.150	4.86	3.15	3.08
0.167	3.22	1.167	51.89	2.167	4.86	3.17	3.08
0.183	3.22	1.183	51.89	2.183	4.86	3.18	3.08
0.200	3.22	1.200	51.89	2.200	4.86	3.20	3.08
0.217	3.22	1.217	51.89	2.217	4.86	3.22	3.08
0.233	3.22	1.233	51.89	2.233	4.86	3.23	3.08
0.250	3.22	1.250	51.89	2.250	4.86	3.25	3.08
0.267	3.96	1.267	11.92	2.267	4.20	3.27	2.84
0.283	3.96	1.283	11.92	2.283	4.20	3.28	2.84
0.300	3.96	1.300	11.92	2.300	4.20	3.30	2.84
0.317	3.96	1.317	11.92	2.317	4.20	3.32	2.84
0.333	3.96	1.333	11.92	2.333	4.20	3.33	2.84
0.350	3.96	1.350	11.92	2.350	4.20	3.35	2.84
0.367	3.96	1.367	11.92	2.367	4.20	3.37	2.84
0.383	3.96	1.383	11.92	2.383	4.20	3.38	2.84
0.400	3.96	1.400	11.92	2.400	4.20	3.40	2.84
0.417	3.96	1.417	11.92	2.417	4.20	3.42	2.84

0.433	3.96	1.433	11.92	2.433	4.20	3.43	2.84
0.450	3.96	1.450	11.92	2.450	4.20	3.45	2.84
0.467	3.96	1.467	11.92	2.467	4.20	3.47	2.84
0.483	3.96	1.483	11.92	2.483	4.20	3.48	2.84
0.500	3.96	1.500	11.92	2.500	4.20	3.50	2.84
0.517	5.36	1.517	7.63	2.517	3.72	3.52	2.65
0.533	5.36	1.533	7.63	2.533	3.72	3.53	2.65
0.550	5.36	1.550	7.63	2.550	3.72	3.55	2.65
0.567	5.36	1.567	7.63	2.567	3.72	3.57	2.65
0.583	5.36	1.583	7.63	2.583	3.72	3.58	2.65
0.600	5.36	1.600	7.63	2.600	3.72	3.60	2.65
0.617	5.36	1.617	7.63	2.617	3.72	3.62	2.65
0.633	5.36	1.633	7.63	2.633	3.72	3.63	2.65
0.650	5.36	1.650	7.63	2.650	3.72	3.65	2.65
0.667	5.36	1.667	7.63	2.667	3.72	3.67	2.65
0.683	5.36	1.683	7.63	2.683	3.72	3.68	2.65
0.700	5.36	1.700	7.63	2.700	3.72	3.70	2.65
0.717	5.36	1.717	7.63	2.717	3.72	3.72	2.65
0.733	5.36	1.733	7.63	2.733	3.72	3.73	2.65
0.750	5.36	1.750	7.63	2.750	3.72	3.75	2.65
0.767	9.77	1.767	5.87	2.767	3.36	3.77	2.49
0.783	9.77	1.783	5.87	2.783	3.36	3.78	2.49
0.800	9.77	1.800	5.87	2.800	3.36	3.80	2.49
0.817	9.77	1.817	5.87	2.817	3.36	3.82	2.49
0.833	9.77	1.833	5.87	2.833	3.36	3.83	2.49
0.850	9.77	1.850	5.87	2.850	3.36	3.85	2.49
0.867	9.77	1.867	5.87	2.867	3.36	3.87	2.49
0.883	9.77	1.883	5.87	2.883	3.36	3.88	2.49
0.900	9.77	1.900	5.87	2.900	3.36	3.90	2.49
0.917	9.77	1.917	5.87	2.917	3.36	3.92	2.49
0.933	9.77	1.933	5.87	2.933	3.36	3.93	2.49
0.950	9.77	1.950	5.87	2.950	3.36	3.95	2.49
0.967	9.77	1.967	5.87	2.967	3.36	3.97	2.49
0.983	9.77	1.983	5.87	2.983	3.36	3.98	2.49
1.000	9.77	2.000	5.87	3.000	3.36	4.00	2.49

Max.Eff.Inten.(mm/hr)=	51.89	17.40	
over (min)	5.00	13.00	
Storage Coeff. (min)=	4.04 (ii)	12.52 (ii)	
Unit Hyd. Tpeak (min)=	5.00	13.00	
Unit Hyd. peak (cms)=	0.26	0.09	
			TOTALS
PEAK FLOW (cms)=	0.16	0.03	0.171 (iii)
TIME TO PEAK (hrs)=	1.25	1.42	1.25
RUNOFF VOLUME (mm)=	29.70	5.93	15.20
TOTAL RAINFALL (mm)=	31.70	31.70	31.70
RUNOFF COEFFICIENT =	0.94	0.19	0.48

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (2101):		17.31	0.990	1.25	15.58
+ ID2= 2 (3100):		2.89	0.171	1.25	15.20
ID = 3 (0097):		20.20	1.161	1.25	15.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0097):		20.20	1.161	1.25	15.53
+ ID2= 2 (0096):		1.16	0.037	1.25	8.80
ID = 1 (0097):		21.36	1.198	1.25	15.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 1.0 min	OUTFLOW	STORAGE	OUTFLOW	STORAGE

	(cms)	(ha.m.)		(cms)	(ha.m.)
	0.0000	0.0000		0.0400	0.6360
	0.0160	0.1070		0.0790	0.7870
	0.0240	0.2260		0.2900	0.9450
	0.0300	0.3550		0.4710	1.0430
	0.0350	0.4920		0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0097)	21.360	1.198	1.25	15.16
OUTFLOW: ID= 1 (0001)	21.360	0.027	4.30	11.26

PEAK FLOW REDUCTION [Qout/Qin](%)= 2.26
TIME SHIFT OF PEAK FLOW (min)=183.00
MAXIMUM STORAGE USED (ha.m.)= 0.2923

CALIB	
STANDHYD (2102)	Area (ha)= 0.21
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 65.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.14	0.07
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	37.42	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.22	1.083	51.89	2.083	4.86	3.08	3.08
0.167	3.22	1.167	51.89	2.167	4.86	3.17	3.08
0.250	3.22	1.250	51.89	2.250	4.86	3.25	3.08
0.333	3.96	1.333	11.92	2.333	4.20	3.33	2.84
0.417	3.96	1.417	11.92	2.417	4.20	3.42	2.84
0.500	3.96	1.500	11.92	2.500	4.20	3.50	2.84
0.583	5.36	1.583	7.63	2.583	3.72	3.58	2.65
0.667	5.36	1.667	7.63	2.667	3.72	3.67	2.65
0.750	5.36	1.750	7.63	2.750	3.72	3.75	2.65
0.833	9.77	1.833	5.87	2.833	3.36	3.83	2.49
0.917	9.77	1.917	5.87	2.917	3.36	3.92	2.49
1.000	9.77	2.000	5.87	3.000	3.36	4.00	2.49

				TOTALS
Max.Eff.Inten.(mm/hr)=		51.89	2.16	
over (min)		5.00	35.00	
Storage Coeff. (min)=		1.84 (ii)	34.57 (ii)	
Unit Hyd. Tpeak (min)=		5.00	35.00	
Unit Hyd. peak (cms)=		0.32	0.03	
PEAK FLOW	(cms)=	0.02	0.00	0.020 (iii)
TIME TO PEAK	(hrs)=	1.25	1.83	1.25
RUNOFF VOLUME	(mm)=	29.70	2.93	20.23
TOTAL RAINFALL	(mm)=	31.70	31.70	31.70
RUNOFF COEFFICIENT	=	0.94	0.09	0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0015)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0001):	21.36	0.027	4.30	11.26
	+ ID2= 2 (2102):	0.21	0.020	1.25	20.23
	ID = 3 (0015):	21.57	0.034	1.25	11.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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** SIMULATION:1.2 Chicago 4hr 5yr **
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| CHICAGO STORM    |    IDF curve parameters: A= 422.097
| Ptotal= 41.23 mm |                          B=   0.000
--------------------                          C=   0.677
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 15.00 min
                       Time to peak ratio =  0.33

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    4.18 |  1.00   67.48 |  2.00    6.32 |  3.00    4.00
                0.25    5.15 |  1.25   15.50 |  2.25    5.46 |  3.25    3.70
                0.50    6.97 |  1.50    9.92 |  2.50    4.84 |  3.50    3.45
                0.75   12.70 |  1.75    7.63 |  2.75    4.37 |  3.75    3.24


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| CALIB            |
| STANDHYD (  2101)|   Area    (ha)=  17.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  43.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.08          6.23
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     339.71         40.00
     Mannings n           =      0.013         0.250

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


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    4.18 | 1.083   67.48 | 2.083    6.32 |  3.08    4.00
               0.167    4.18 | 1.167   67.48 | 2.167    6.32 |  3.17    4.00
               0.250    4.18 | 1.250   67.48 | 2.250    6.32 |  3.25    4.00
               0.333    5.15 | 1.333   15.50 | 2.333    5.46 |  3.33    3.70
               0.417    5.15 | 1.417   15.50 | 2.417    5.46 |  3.42    3.70
               0.500    5.15 | 1.500   15.50 | 2.500    5.46 |  3.50    3.70
               0.583    6.97 | 1.583    9.92 | 2.583    4.84 |  3.58    3.45
               0.667    6.97 | 1.667    9.92 | 2.667    4.84 |  3.67    3.45
               0.750    6.97 | 1.750    9.92 | 2.750    4.84 |  3.75    3.45
               0.833   12.70 | 1.833    7.63 | 2.833    4.37 |  3.83    3.24
               0.917   12.70 | 1.917    7.63 | 2.917    4.37 |  3.92    3.24
               1.000   12.70 | 2.000    7.63 | 3.000    4.37 |  4.00    3.24

     Max.Eff.Inten.(mm/hr)=      67.48        16.90
                 over (min)        5.00        25.00
     Storage Coeff.  (min)=       6.23 (ii)   20.60 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.19         0.05
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.29         0.15      1.343 (iii)
     TIME TO PEAK    (hrs)=       1.25         1.58       1.25
     RUNOFF VOLUME    (mm)=      39.23         8.29      21.60
     TOTAL RAINFALL   (mm)=      41.23        41.23      41.23
     RUNOFF COEFFICIENT   =       0.95         0.20       0.52


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD (  0096)|   Area    (ha)=   1.16
|ID= 1 DT= 5.0 min |   Total Imp(%)=  22.00   Dir. Conn.(%)=  22.00
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                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.26          0.90
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      87.94         40.00
     Mannings n           =      0.013         0.250

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	4.18	1.083	67.48	2.083	6.32	3.08	4.00
0.167	4.18	1.167	67.48	2.167	6.32	3.17	4.00
0.250	4.18	1.250	67.48	2.250	6.32	3.25	4.00
0.333	5.15	1.333	15.50	2.333	5.46	3.33	3.70
0.417	5.15	1.417	15.50	2.417	5.46	3.42	3.70
0.500	5.15	1.500	15.50	2.500	5.46	3.50	3.70
0.583	6.97	1.583	9.92	2.583	4.84	3.58	3.45
0.667	6.97	1.667	9.92	2.667	4.84	3.67	3.45
0.750	6.97	1.750	9.92	2.750	4.84	3.75	3.45
0.833	12.70	1.833	7.63	2.833	4.37	3.83	3.24
0.917	12.70	1.917	7.63	2.917	4.37	3.92	3.24
1.000	12.70	2.000	7.63	3.000	4.37	4.00	3.24

Max.Eff.Inten.(mm/hr)=	67.48	4.69		
over (min)	5.00	30.00		
Storage Coeff. (min)=	2.77 (ii)	26.76 (ii)		
Unit Hyd. Tpeak (min)=	5.00	30.00		
Unit Hyd. peak (cms)=	0.28	0.04		
			TOTALS	
PEAK FLOW (cms)=	0.05	0.01	0.049 (iii)	
TIME TO PEAK (hrs)=	1.25	1.67	1.25	
RUNOFF VOLUME (mm)=	39.23	5.20	12.67	
TOTAL RAINFALL (mm)=	41.23	41.23	41.23	
RUNOFF COEFFICIENT =	0.95	0.13	0.31	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (3100)	Area (ha)= 2.89		
ID= 1 DT= 1.0 min	Total Imp(%)= 68.00	Dir. Conn.(%)= 39.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	4.18	1.017	67.48	2.017	6.32	3.02	4.00
0.033	4.18	1.033	67.48	2.033	6.32	3.03	4.00
0.050	4.18	1.050	67.48	2.050	6.32	3.05	4.00
0.067	4.18	1.067	67.48	2.067	6.32	3.07	4.00
0.083	4.18	1.083	67.48	2.083	6.32	3.08	4.00
0.100	4.18	1.100	67.48	2.100	6.32	3.10	4.00
0.117	4.18	1.117	67.48	2.117	6.32	3.12	4.00
0.133	4.18	1.133	67.48	2.133	6.32	3.13	4.00
0.150	4.18	1.150	67.48	2.150	6.32	3.15	4.00
0.167	4.18	1.167	67.48	2.167	6.32	3.17	4.00
0.183	4.18	1.183	67.48	2.183	6.32	3.18	4.00
0.200	4.18	1.200	67.48	2.200	6.32	3.20	4.00
0.217	4.18	1.217	67.48	2.217	6.32	3.22	4.00
0.233	4.18	1.233	67.48	2.233	6.32	3.23	4.00
0.250	4.18	1.250	67.48	2.250	6.32	3.25	4.00
0.267	5.15	1.267	15.50	2.267	5.46	3.27	3.70
0.283	5.15	1.283	15.50	2.283	5.46	3.28	3.70
0.300	5.15	1.300	15.50	2.300	5.46	3.30	3.70
0.317	5.15	1.317	15.50	2.317	5.46	3.32	3.70
0.333	5.15	1.333	15.50	2.333	5.46	3.33	3.70
0.350	5.15	1.350	15.50	2.350	5.46	3.35	3.70
0.367	5.15	1.367	15.50	2.367	5.46	3.37	3.70
0.383	5.15	1.383	15.50	2.383	5.46	3.38	3.70
0.400	5.15	1.400	15.50	2.400	5.46	3.40	3.70
0.417	5.15	1.417	15.50	2.417	5.46	3.42	3.70
0.433	5.15	1.433	15.50	2.433	5.46	3.43	3.70
0.450	5.15	1.450	15.50	2.450	5.46	3.45	3.70
0.467	5.15	1.467	15.50	2.467	5.46	3.47	3.70

0.483	5.15	1.483	15.50	2.483	5.46	3.48	3.70
0.500	5.15	1.500	15.50	2.500	5.46	3.50	3.70
0.517	6.97	1.517	9.92	2.517	4.84	3.52	3.45
0.533	6.97	1.533	9.92	2.533	4.84	3.53	3.45
0.550	6.97	1.550	9.92	2.550	4.84	3.55	3.45
0.567	6.97	1.567	9.92	2.567	4.84	3.57	3.45
0.583	6.97	1.583	9.92	2.583	4.84	3.58	3.45
0.600	6.97	1.600	9.92	2.600	4.84	3.60	3.45
0.617	6.97	1.617	9.92	2.617	4.84	3.62	3.45
0.633	6.97	1.633	9.92	2.633	4.84	3.63	3.45
0.650	6.97	1.650	9.92	2.650	4.84	3.65	3.45
0.667	6.97	1.667	9.92	2.667	4.84	3.67	3.45
0.683	6.97	1.683	9.92	2.683	4.84	3.68	3.45
0.700	6.97	1.700	9.92	2.700	4.84	3.70	3.45
0.717	6.97	1.717	9.92	2.717	4.84	3.72	3.45
0.733	6.97	1.733	9.92	2.733	4.84	3.73	3.45
0.750	6.97	1.750	9.92	2.750	4.84	3.75	3.45
0.767	12.70	1.767	7.63	2.767	4.37	3.77	3.24
0.783	12.70	1.783	7.63	2.783	4.37	3.78	3.24
0.800	12.70	1.800	7.63	2.800	4.37	3.80	3.24
0.817	12.70	1.817	7.63	2.817	4.37	3.82	3.24
0.833	12.70	1.833	7.63	2.833	4.37	3.83	3.24
0.850	12.70	1.850	7.63	2.850	4.37	3.85	3.24
0.867	12.70	1.867	7.63	2.867	4.37	3.87	3.24
0.883	12.70	1.883	7.63	2.883	4.37	3.88	3.24
0.900	12.70	1.900	7.63	2.900	4.37	3.90	3.24
0.917	12.70	1.917	7.63	2.917	4.37	3.92	3.24
0.933	12.70	1.933	7.63	2.933	4.37	3.93	3.24
0.950	12.70	1.950	7.63	2.950	4.37	3.95	3.24
0.967	12.70	1.967	7.63	2.967	4.37	3.97	3.24
0.983	12.70	1.983	7.63	2.983	4.37	3.98	3.24
1.000	12.70	2.000	7.63	3.000	4.37	4.00	3.24

Max.Eff.Inten.(mm/hr)=	67.48	29.44	
over (min)	5.00	12.00	
Storage Coeff. (min)=	3.64 (ii)	11.27 (ii)	
Unit Hyd. Tpeak (min)=	5.00	12.00	
Unit Hyd. peak (cms)=	0.28	0.10	
			TOTALS
PEAK FLOW (cms)=	0.21	0.05	0.235 (iii)
TIME TO PEAK (hrs)=	1.25	1.38	1.25
RUNOFF VOLUME (mm)=	39.23	9.80	21.27
TOTAL RAINFALL (mm)=	41.23	41.23	41.23
RUNOFF COEFFICIENT =	0.95	0.24	0.52

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (2101):		17.31	1.343	1.25	21.60
+ ID2= 2 (3100):		2.89	0.235	1.25	21.27
ID = 3 (0097):		20.20	1.579	1.25	21.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0097):		20.20	1.579	1.25	21.55
+ ID2= 2 (0096):		1.16	0.049	1.25	12.67
ID = 1 (0097):		21.36	1.628	1.25	21.07

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 1.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0400	0.6360
	0.0160	0.1070	0.0790	0.7870

0.0240	0.2260	0.2900	0.9450
0.0300	0.3550	0.4710	1.0430
0.0350	0.4920	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0097)	21.360	1.628	1.25	21.07
OUTFLOW: ID= 1 (0001)	21.360	0.032	4.33	14.13

PEAK FLOW REDUCTION [Qout/Qin](%)= 1.97
TIME SHIFT OF PEAK FLOW (min)=185.00
MAXIMUM STORAGE USED (ha.m.)= 0.4128

CALIB
STANDHYD (2102)
ID= 1 DT= 5.0 min

Area (ha)= 0.21
Total Imp(%)= 65.00 Dir. Conn.(%)= 65.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.14	0.07
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	37.42	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	4.18	1.083	67.48	2.083	6.32	3.08	4.00
0.167	4.18	1.167	67.48	2.167	6.32	3.17	4.00
0.250	4.18	1.250	67.48	2.250	6.32	3.25	4.00
0.333	5.15	1.333	15.50	2.333	5.46	3.33	3.70
0.417	5.15	1.417	15.50	2.417	5.46	3.42	3.70
0.500	5.15	1.500	15.50	2.500	5.46	3.50	3.70
0.583	6.97	1.583	9.92	2.583	4.84	3.58	3.45
0.667	6.97	1.667	9.92	2.667	4.84	3.67	3.45
0.750	6.97	1.750	9.92	2.750	4.84	3.75	3.45
0.833	12.70	1.833	7.63	2.833	4.37	3.83	3.24
0.917	12.70	1.917	7.63	2.917	4.37	3.92	3.24
1.000	12.70	2.000	7.63	3.000	4.37	4.00	3.24

Max.Eff.Inten.(mm/hr)=	67.48	4.69		
over (min)	5.00	30.00		
Storage Coeff. (min)=	1.66 (ii)	25.65 (ii)		
Unit Hyd. Tpeak (min)=	5.00	30.00		
Unit Hyd. peak (cms)=	0.32	0.04		
			TOTALS	
PEAK FLOW (cms)=	0.03	0.00	0.026 (iii)	
TIME TO PEAK (hrs)=	1.25	1.67	1.25	
RUNOFF VOLUME (mm)=	39.23	5.20	27.25	
TOTAL RAINFALL (mm)=	41.23	41.23	41.23	
RUNOFF COEFFICIENT =	0.95	0.13	0.66	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0015)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	21.36	0.032	4.33	14.13
+ ID2= 2 (2102):	0.21	0.026	1.25	27.25
ID = 3 (0015):	21.57	0.044	1.25	14.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:1.3 Chicago 4hr 10yr **
****

CHICAGO STORM
Ptotal= 47.41 mm

IDF curve parameters: A= 488.045
B= 0.000

```
--------------------                              C=   0.678
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 15.00 min
                       Time to peak ratio =  0.33

                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                  0.00    4.80 |  1.00   77.82 |  2.00    7.25 |  3.00    4.59
                  0.25    5.90 |  1.25   17.81 |  2.25    6.26 |  3.25    4.24
                  0.50    8.00 |  1.50   11.39 |  2.50    5.55 |  3.50    3.95
                  0.75   14.59 |  1.75    8.76 |  2.75    5.01 |  3.75    3.71


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--------------------
| CALIB            |
| STANDHYD (  2101)|   Area    (ha)=  17.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  43.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.08          6.23
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     339.71         40.00
     Mannings n             =     0.013         0.250

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


                               ---- TRANSFORMED HYETOGRAPH ----
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.083    4.80 | 1.083   77.82 | 2.083    7.25 |  3.08    4.59
                 0.167    4.80 | 1.167   77.82 | 2.167    7.25 |  3.17    4.59
                 0.250    4.80 | 1.250   77.82 | 2.250    7.25 |  3.25    4.59
                 0.333    5.90 | 1.333   17.81 | 2.333    6.26 |  3.33    4.24
                 0.417    5.90 | 1.417   17.81 | 2.417    6.26 |  3.42    4.24
                 0.500    5.90 | 1.500   17.81 | 2.500    6.26 |  3.50    4.24
                 0.583    8.00 | 1.583   11.39 | 2.583    5.55 |  3.58    3.95
                 0.667    8.00 | 1.667   11.39 | 2.667    5.55 |  3.67    3.95
                 0.750    8.00 | 1.750   11.39 | 2.750    5.55 |  3.75    3.95
                 0.833   14.59 | 1.833    8.76 | 2.833    5.01 |  3.83    3.71
                 0.917   14.59 | 1.917    8.76 | 2.917    5.01 |  3.92    3.71
                 1.000   14.59 | 2.000    8.76 | 3.000    5.01 |  4.00    3.71

     Max.Eff.Inten.(mm/hr)=      77.82         22.61
                 over (min)        5.00         20.00
     Storage Coeff.  (min)=       5.88 (ii)    18.68 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.19          0.06
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.51          0.21        1.604 (iii)
     TIME TO PEAK    (hrs)=       1.25          1.50         1.25
     RUNOFF VOLUME    (mm)=      45.41         10.82        25.69
     TOTAL RAINFALL   (mm)=      47.41         47.41        47.41
     RUNOFF COEFFICIENT   =       0.96          0.23         0.54


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD (  0096)|   Area    (ha)=   1.16
|ID= 1 DT= 5.0 min |   Total Imp(%)=  22.00   Dir. Conn.(%)=  22.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.26          0.90
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      87.94         40.00
     Mannings n             =     0.013         0.250

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


                               ---- TRANSFORMED HYETOGRAPH ----
                   TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	4.80	1.083	77.82	2.083	7.25	3.08	4.59
0.167	4.80	1.167	77.82	2.167	7.25	3.17	4.59
0.250	4.80	1.250	77.82	2.250	7.25	3.25	4.59
0.333	5.90	1.333	17.81	2.333	6.26	3.33	4.24
0.417	5.90	1.417	17.81	2.417	6.26	3.42	4.24
0.500	5.90	1.500	17.81	2.500	6.26	3.50	4.24
0.583	8.00	1.583	11.39	2.583	5.55	3.58	3.95
0.667	8.00	1.667	11.39	2.667	5.55	3.67	3.95
0.750	8.00	1.750	11.39	2.750	5.55	3.75	3.95
0.833	14.59	1.833	8.76	2.833	5.01	3.83	3.71
0.917	14.59	1.917	8.76	2.917	5.01	3.92	3.71
1.000	14.59	2.000	8.76	3.000	5.01	4.00	3.71

Max.Eff.Inten.(mm/hr)=	77.82	6.45	
over (min)	5.00	25.00	
Storage Coeff. (min)=	2.61 (ii)	23.74 (ii)	
Unit Hyd. Tpeak (min)=	5.00	25.00	
Unit Hyd. peak (cms)=	0.29	0.05	
			TOTALS
PEAK FLOW (cms)=	0.06	0.01	0.058 (iii)
TIME TO PEAK (hrs)=	1.25	1.58	1.25
RUNOFF VOLUME (mm)=	45.41	6.95	15.40
TOTAL RAINFALL (mm)=	47.41	47.41	47.41
RUNOFF COEFFICIENT =	0.96	0.15	0.32

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB		
STANDHYD (3100)	Area (ha)=	2.89
ID= 1 DT= 1.0 min	Total Imp(%)=	68.00 Dir. Conn.(%)= 39.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	4.80	1.017	77.82	2.017	7.26	3.02	4.59
0.033	4.80	1.033	77.82	2.033	7.25	3.03	4.59
0.050	4.80	1.050	77.82	2.050	7.25	3.05	4.59
0.067	4.80	1.067	77.82	2.067	7.25	3.07	4.59
0.083	4.80	1.083	77.82	2.083	7.25	3.08	4.59
0.100	4.80	1.100	77.82	2.100	7.25	3.10	4.59
0.117	4.80	1.117	77.82	2.117	7.25	3.12	4.59
0.133	4.80	1.133	77.82	2.133	7.25	3.13	4.59
0.150	4.80	1.150	77.82	2.150	7.25	3.15	4.59
0.167	4.80	1.167	77.82	2.167	7.25	3.17	4.59
0.183	4.80	1.183	77.82	2.183	7.25	3.18	4.59
0.200	4.80	1.200	77.82	2.200	7.25	3.20	4.59
0.217	4.80	1.217	77.82	2.217	7.25	3.22	4.59
0.233	4.80	1.233	77.82	2.233	7.25	3.23	4.59
0.250	4.80	1.250	77.82	2.250	7.25	3.25	4.59
0.267	5.90	1.267	17.81	2.267	6.26	3.27	4.24
0.283	5.90	1.283	17.81	2.283	6.26	3.28	4.24
0.300	5.90	1.300	17.81	2.300	6.26	3.30	4.24
0.317	5.90	1.317	17.81	2.317	6.26	3.32	4.24
0.333	5.90	1.333	17.81	2.333	6.26	3.33	4.24
0.350	5.90	1.350	17.81	2.350	6.26	3.35	4.24
0.367	5.90	1.367	17.81	2.367	6.26	3.37	4.24
0.383	5.90	1.383	17.81	2.383	6.26	3.38	4.24
0.400	5.90	1.400	17.81	2.400	6.26	3.40	4.24
0.417	5.90	1.417	17.81	2.417	6.26	3.42	4.24
0.433	5.90	1.433	17.81	2.433	6.26	3.43	4.24
0.450	5.90	1.450	17.81	2.450	6.26	3.45	4.24
0.467	5.90	1.467	17.81	2.467	6.26	3.47	4.24
0.483	5.90	1.483	17.81	2.483	6.26	3.48	4.24
0.500	5.90	1.500	17.81	2.500	6.26	3.50	4.24
0.517	8.00	1.517	11.39	2.517	5.55	3.52	3.95

0.533	8.00	1.533	11.39	2.533	5.55	3.53	3.95
0.550	8.00	1.550	11.39	2.550	5.55	3.55	3.95
0.567	8.00	1.567	11.39	2.567	5.55	3.57	3.95
0.583	8.00	1.583	11.39	2.583	5.55	3.58	3.95
0.600	8.00	1.600	11.39	2.600	5.55	3.60	3.95
0.617	8.00	1.617	11.39	2.617	5.55	3.62	3.95
0.633	8.00	1.633	11.39	2.633	5.55	3.63	3.95
0.650	8.00	1.650	11.39	2.650	5.55	3.65	3.95
0.667	8.00	1.667	11.39	2.667	5.55	3.67	3.95
0.683	8.00	1.683	11.39	2.683	5.55	3.68	3.95
0.700	8.00	1.700	11.39	2.700	5.55	3.70	3.95
0.717	8.00	1.717	11.39	2.717	5.55	3.72	3.95
0.733	8.00	1.733	11.39	2.733	5.55	3.73	3.95
0.750	8.00	1.750	11.39	2.750	5.55	3.75	3.95
0.767	14.59	1.767	8.76	2.767	5.01	3.77	3.71
0.783	14.59	1.783	8.76	2.783	5.01	3.78	3.71
0.800	14.59	1.800	8.76	2.800	5.01	3.80	3.71
0.817	14.59	1.817	8.76	2.817	5.01	3.82	3.71
0.833	14.59	1.833	8.76	2.833	5.01	3.83	3.71
0.850	14.59	1.850	8.76	2.850	5.01	3.85	3.71
0.867	14.59	1.867	8.76	2.867	5.01	3.87	3.71
0.883	14.59	1.883	8.76	2.883	5.01	3.88	3.71
0.900	14.59	1.900	8.76	2.900	5.01	3.90	3.71
0.917	14.59	1.917	8.76	2.917	5.01	3.92	3.71
0.933	14.59	1.933	8.76	2.933	5.01	3.93	3.71
0.950	14.59	1.950	8.76	2.950	5.01	3.95	3.71
0.967	14.59	1.967	8.76	2.967	5.01	3.97	3.71
0.983	14.59	1.983	8.76	2.983	5.01	3.98	3.71
1.000	14.59	2.000	8.76	3.000	5.01	4.00	3.71

Max.Eff.Inten.(mm/hr)=	77.82	38.68		
over (min)	5.00	11.00		
Storage Coeff. (min)=	3.44 (ii)	10.65 (ii)		
Unit Hyd. Tpeak (min)=	5.00	11.00		
Unit Hyd. peak (cms)=	0.28	0.11		
			TOTALS	
PEAK FLOW (cms)=	0.24	0.06	0.282 (iii)	
TIME TO PEAK (hrs)=	1.25	1.37	1.25	
RUNOFF VOLUME (mm)=	45.41	12.67	25.44	
TOTAL RAINFALL (mm)=	47.41	47.41	47.41	
RUNOFF COEFFICIENT =	0.96	0.27	0.54	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
1 + 2 = 3	ID1= 1 (2101):	17.31	1.604	1.25	25.69
	+ ID2= 2 (3100):	2.89	0.282	1.25	25.44
	ID = 3 (0097):	20.20	1.886	1.25	25.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
3 + 2 = 1	ID1= 3 (0097):	20.20	1.886	1.25	25.66
	+ ID2= 2 (0096):	1.16	0.058	1.25	15.40
	ID = 1 (0097):	21.36	1.944	1.25	25.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001) | IN= 2---> OUT= 1 | DT= 1.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0400	0.6360
0.0160	0.1070	0.0790	0.7870
0.0240	0.2260	0.2900	0.9450
0.0300	0.3550	0.4710	1.0430
0.0350	0.4920	0.0000	0.0000

```
                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0097)     21.360      1.944      1.25      25.10
   OUTFLOW: ID= 1 (  0001)     21.360      0.035      4.32      15.82

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  1.81
                  TIME SHIFT OF PEAK FLOW         (min)=184.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.4959

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--------------------
| CALIB            |
| STANDHYD (  2102)|   Area    (ha)=   0.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.14         0.07
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      37.42        40.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
                hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
              0.083     4.80 | 1.083    77.82 | 2.083     7.25 |  3.08     4.59
              0.167     4.80 | 1.167    77.82 | 2.167     7.25 |  3.17     4.59
              0.250     4.80 | 1.250    77.82 | 2.250     7.25 |  3.25     4.59
              0.333     5.90 | 1.333    17.81 | 2.333     6.26 |  3.33     4.24
              0.417     5.90 | 1.417    17.81 | 2.417     6.26 |  3.42     4.24
              0.500     5.90 | 1.500    17.81 | 2.500     6.26 |  3.50     4.24
              0.583     8.00 | 1.583    11.39 | 2.583     5.55 |  3.58     3.95
              0.667     8.00 | 1.667    11.39 | 2.667     5.55 |  3.67     3.95
              0.750     8.00 | 1.750    11.39 | 2.750     5.55 |  3.75     3.95
              0.833    14.59 | 1.833     8.76 | 2.833     5.01 |  3.83     3.71
              0.917    14.59 | 1.917     8.76 | 2.917     5.01 |  3.92     3.71
              1.000    14.59 | 2.000     8.76 | 3.000     5.01 |  4.00     3.71

     Max.Eff.Inten.(mm/hr)=      77.82         6.45
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       1.57 (ii)   22.69 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.33         0.05
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.00          0.030 (iii)
     TIME TO PEAK    (hrs)=       1.25         1.58           1.25
     RUNOFF VOLUME    (mm)=      45.41         6.95          31.88
     TOTAL RAINFALL   (mm)=      47.41        47.41          47.41
     RUNOFF COEFFICIENT   =       0.96         0.15           0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0015)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    21.36   0.035     4.32    15.82
     + ID2= 2 (  2102):     0.21   0.030     1.25    31.88
       ==================================================
       ID = 3 (  0015):    21.57   0.050     1.25    15.98

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
**************************************
** SIMULATION:1.4 Chicago 4hr 25yr **
**************************************
--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 569.921
| Ptotal= 55.36 mm |                          B=   0.000
--------------------                          C=   0.678
                       used in:   INTENSITY =  A / (t + B)^C
```

Duration of storm = 4.00 hrs
Storm time step = 15.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	5.60	1.00	90.87	2.00	8.47	3.00	5.36
0.25	6.89	1.25	20.79	2.25	7.32	3.25	4.95
0.50	9.34	1.50	13.30	2.50	6.49	3.50	4.62
0.75	17.04	1.75	10.23	2.75	5.85	3.75	4.33

CALIB	
STANDHYD (2101)	Area (ha)= 17.31
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.08	6.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	339.71	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	5.60	1.083	90.87	2.083	8.47	3.08	5.36
0.167	5.60	1.167	90.87	2.167	8.47	3.17	5.36
0.250	5.60	1.250	90.87	2.250	8.47	3.25	5.36
0.333	6.89	1.333	20.79	2.333	7.32	3.33	4.95
0.417	6.89	1.417	20.79	2.417	7.32	3.42	4.95
0.500	6.89	1.500	20.79	2.500	7.32	3.50	4.95
0.583	9.34	1.583	13.30	2.583	6.49	3.58	4.62
0.667	9.34	1.667	13.30	2.667	6.49	3.67	4.62
0.750	9.34	1.750	13.30	2.750	6.49	3.75	4.62
0.833	17.04	1.833	10.23	2.833	5.85	3.83	4.33
0.917	17.04	1.917	10.23	2.917	5.85	3.92	4.33
1.000	17.04	2.000	10.23	3.000	5.85	4.00	4.33

Max.Eff.Inten.(mm/hr)=		90.87	30.81	
over (min)		5.00	20.00	
Storage Coeff. (min)=		5.53 (ii)	16.83 (ii)	
Unit Hyd. Tpeak (min)=		5.00	20.00	
Unit Hyd. peak (cms)=		0.20	0.06	
				TOTALS
PEAK FLOW	(cms)=	1.78	0.30	1.921 (iii)
TIME TO PEAK	(hrs)=	1.25	1.50	1.25
RUNOFF VOLUME	(mm)=	53.36	14.43	31.17
TOTAL RAINFALL	(mm)=	55.36	55.36	55.36
RUNOFF COEFFICIENT	=	0.96	0.26	0.56

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0096)	Area (ha)= 1.16
ID= 1 DT= 5.0 min	Total Imp(%)= 22.00 Dir. Conn.(%)= 22.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.26	0.90
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.94	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	5.60	1.083	90.87	2.083	8.47	3.08	5.36
0.167	5.60	1.167	90.87	2.167	8.47	3.17	5.36

0.250	5.60	1.250	90.87	2.250	8.47	3.25	5.36
0.333	6.89	1.333	20.79	2.333	7.32	3.33	4.95
0.417	6.89	1.417	20.79	2.417	7.32	3.42	4.95
0.500	6.89	1.500	20.79	2.500	7.32	3.50	4.95
0.583	9.34	1.583	13.30	2.583	6.49	3.58	4.62
0.667	9.34	1.667	13.30	2.667	6.49	3.67	4.62
0.750	9.34	1.750	13.30	2.750	6.49	3.75	4.62
0.833	17.04	1.833	10.23	2.833	5.85	3.83	4.33
0.917	17.04	1.917	10.23	2.917	5.85	3.92	4.33
1.000	17.04	2.000	10.23	3.000	5.85	4.00	4.33

Max.Eff.Inten.(mm/hr)=	90.87	10.09	
over (min)	5.00	25.00	
Storage Coeff. (min)=	2.46 (ii)	20.12 (ii)	
Unit Hyd. Tpeak (min)=	5.00	25.00	
Unit Hyd. peak (cms)=	0.30	0.05	
			TOTALS
PEAK FLOW (cms)=	0.06	0.02	0.069 (iii)
TIME TO PEAK (hrs)=	1.25	1.58	1.25
RUNOFF VOLUME (mm)=	53.36	9.51	19.15
TOTAL RAINFALL (mm)=	55.36	55.36	55.36
RUNOFF COEFFICIENT =	0.96	0.17	0.35

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (3100)	Area (ha)= 2.89
ID= 1 DT= 1.0 min	Total Imp(%)= 68.00 Dir. Conn.(%)= 39.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	5.60	1.017	90.87	2.017	8.47	3.02	5.36
0.033	5.60	1.033	90.87	2.033	8.47	3.03	5.36
0.050	5.60	1.050	90.87	2.050	8.47	3.05	5.36
0.067	5.60	1.067	90.87	2.067	8.47	3.07	5.36
0.083	5.60	1.083	90.87	2.083	8.47	3.08	5.36
0.100	5.60	1.100	90.87	2.100	8.47	3.10	5.36
0.117	5.60	1.117	90.87	2.117	8.47	3.12	5.36
0.133	5.60	1.133	90.87	2.133	8.47	3.13	5.36
0.150	5.60	1.150	90.87	2.150	8.47	3.15	5.36
0.167	5.60	1.167	90.87	2.167	8.47	3.17	5.36
0.183	5.60	1.183	90.87	2.183	8.47	3.18	5.36
0.200	5.60	1.200	90.87	2.200	8.47	3.20	5.36
0.217	5.60	1.217	90.87	2.217	8.47	3.22	5.36
0.233	5.60	1.233	90.87	2.233	8.47	3.23	5.36
0.250	5.60	1.250	90.87	2.250	8.47	3.25	5.36
0.267	6.89	1.267	20.80	2.267	7.32	3.27	4.95
0.283	6.89	1.283	20.79	2.283	7.32	3.28	4.95
0.300	6.89	1.300	20.79	2.300	7.32	3.30	4.95
0.317	6.89	1.317	20.79	2.317	7.32	3.32	4.95
0.333	6.89	1.333	20.79	2.333	7.32	3.33	4.95
0.350	6.89	1.350	20.79	2.350	7.32	3.35	4.95
0.367	6.89	1.367	20.79	2.367	7.32	3.37	4.95
0.383	6.89	1.383	20.79	2.383	7.32	3.38	4.95
0.400	6.89	1.400	20.79	2.400	7.32	3.40	4.95
0.417	6.89	1.417	20.79	2.417	7.32	3.42	4.95
0.433	6.89	1.433	20.79	2.433	7.32	3.43	4.95
0.450	6.89	1.450	20.79	2.450	7.32	3.45	4.95
0.467	6.89	1.467	20.79	2.467	7.32	3.47	4.95
0.483	6.89	1.483	20.79	2.483	7.32	3.48	4.95
0.500	6.89	1.500	20.79	2.500	7.32	3.50	4.95
0.517	9.34	1.517	13.30	2.517	6.49	3.52	4.62
0.533	9.34	1.533	13.30	2.533	6.49	3.53	4.62
0.550	9.34	1.550	13.30	2.550	6.49	3.55	4.62
0.567	9.34	1.567	13.30	2.567	6.49	3.57	4.62

0.583	9.34	1.583	13.30	2.583	6.49	3.58	4.62
0.600	9.34	1.600	13.30	2.600	6.49	3.60	4.62
0.617	9.34	1.617	13.30	2.617	6.49	3.62	4.62
0.633	9.34	1.633	13.30	2.633	6.49	3.63	4.62
0.650	9.34	1.650	13.30	2.650	6.49	3.65	4.62
0.667	9.34	1.667	13.30	2.667	6.49	3.67	4.62
0.683	9.34	1.683	13.30	2.683	6.49	3.68	4.62
0.700	9.34	1.700	13.30	2.700	6.49	3.70	4.62
0.717	9.34	1.717	13.30	2.717	6.49	3.72	4.62
0.733	9.34	1.733	13.30	2.733	6.49	3.73	4.62
0.750	9.34	1.750	13.30	2.750	6.49	3.75	4.62
0.767	17.04	1.767	10.23	2.767	5.85	3.77	4.33
0.783	17.04	1.783	10.23	2.783	5.85	3.78	4.33
0.800	17.04	1.800	10.23	2.800	5.85	3.80	4.33
0.817	17.04	1.817	10.23	2.817	5.85	3.82	4.33
0.833	17.04	1.833	10.23	2.833	5.85	3.83	4.33
0.850	17.04	1.850	10.23	2.850	5.85	3.85	4.33
0.867	17.04	1.867	10.23	2.867	5.85	3.87	4.33
0.883	17.04	1.883	10.23	2.883	5.85	3.88	4.33
0.900	17.04	1.900	10.23	2.900	5.85	3.90	4.33
0.917	17.04	1.917	10.23	2.917	5.85	3.92	4.33
0.933	17.04	1.933	10.23	2.933	5.85	3.93	4.33
0.950	17.04	1.950	10.23	2.950	5.85	3.95	4.33
0.967	17.04	1.967	10.23	2.967	5.85	3.97	4.33
0.983	17.04	1.983	10.23	2.983	5.85	3.98	4.33
1.000	17.04	2.000	10.23	3.000	5.85	4.00	4.33

Max.Eff.Inten.(mm/hr)=	90.87	51.73		
over (min)	5.00	11.00		
Storage Coeff. (min)=	3.23 (ii)	10.01 (ii)		
Unit Hyd. Tpeak (min)=	5.00	11.00		
Unit Hyd. peak (cms)=	0.30	0.11		
			TOTALS	
PEAK FLOW (cms)=	0.28	0.09	0.342 (iii)	
TIME TO PEAK (hrs)=	1.25	1.37	1.25	
RUNOFF VOLUME (mm)=	53.36	16.73	31.02	
TOTAL RAINFALL (mm)=	55.36	55.36	55.36	
RUNOFF COEFFICIENT =	0.96	0.30	0.56	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
1 + 2 = 3	ID1= 1 (2101):	17.31	1.921	1.25	31.17
	+ ID2= 2 (3100):	2.89	0.342	1.25	31.02
	ID = 3 (0097):	20.20	2.263	1.25	31.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
3 + 2 = 1	ID1= 3 (0097):	20.20	2.263	1.25	31.15
	+ ID2= 2 (0096):	1.16	0.069	1.25	19.15
	ID = 1 (0097):	21.36	2.332	1.25	30.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001)
IN= 2---> OUT= 1
DT= 1.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0400	0.6360
0.0160	0.1070	0.0790	0.7870
0.0240	0.2260	0.2900	0.9450
0.0300	0.3550	0.4710	1.0430
0.0350	0.4920	0.0000	0.0000

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

```
   INFLOW : ID= 2 (  0097)     21.360      2.332      1.25      30.50
   OUTFLOW: ID= 1 (  0001)     21.360      0.039      4.33      17.82

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  1.67
                  TIME SHIFT OF PEAK FLOW         (min)=185.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.6068

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--------------------
| CALIB            |
| STANDHYD (  2102)|   Area    (ha)=   0.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.14         0.07
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      37.42        40.00
     Mannings n             =    0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    5.60 | 1.083   90.87 | 2.083    8.47 |  3.08    5.36
              0.167    5.60 | 1.167   90.87 | 2.167    8.47 |  3.17    5.36
              0.250    5.60 | 1.250   90.87 | 2.250    8.47 |  3.25    5.36
              0.333    6.89 | 1.333   20.79 | 2.333    7.32 |  3.33    4.95
              0.417    6.89 | 1.417   20.79 | 2.417    7.32 |  3.42    4.95
              0.500    6.89 | 1.500   20.79 | 2.500    7.32 |  3.50    4.95
              0.583    9.34 | 1.583   13.30 | 2.583    6.49 |  3.58    4.62
              0.667    9.34 | 1.667   13.30 | 2.667    6.49 |  3.67    4.62
              0.750    9.34 | 1.750   13.30 | 2.750    6.49 |  3.75    4.62
              0.833   17.04 | 1.833   10.23 | 2.833    5.85 |  3.83    4.33
              0.917   17.04 | 1.917   10.23 | 2.917    5.85 |  3.92    4.33
              1.000   17.04 | 2.000   10.23 | 3.000    5.85 |  4.00    4.33

     Max.Eff.Inten.(mm/hr)=      90.87        10.09
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       1.47 (ii)   19.13 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.33         0.06
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.00          0.035 (iii)
     TIME TO PEAK    (hrs)=       1.25         1.50           1.25
     RUNOFF VOLUME    (mm)=      53.36         9.51          37.96
     TOTAL RAINFALL   (mm)=      55.36        55.36          55.36
     RUNOFF COEFFICIENT   =       0.96         0.17           0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0015)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):    21.36   0.039     4.33    17.82
      + ID2= 2 (  2102):     0.21   0.035     1.25    37.96
        ==========================================
        ID = 3 (  0015):    21.57   0.057     1.25    18.02

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
************************************
** SIMULATION:1.5 Chicago 4hr 50yr **
************************************
--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 630.927
| Ptotal= 61.29 mm |                          B=   0.000
--------------------                          C=   0.678
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 15.00 min
                       Time to peak ratio =  0.33
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	6.20	1.00	100.60	2.00	9.38	3.00	5.93
0.25	7.63	1.25	23.02	2.25	8.10	3.25	5.48
0.50	10.34	1.50	14.72	2.50	7.18	3.50	5.11
0.75	18.86	1.75	11.32	2.75	6.48	3.75	4.80

CALIB			
STANDHYD (2101)	Area (ha)= 17.31		
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00	Dir. Conn.(%)= 43.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.08	6.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	339.71	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.20	1.083	100.60	2.083	9.38	3.08	5.93
0.167	6.20	1.167	100.60	2.167	9.38	3.17	5.93
0.250	6.20	1.250	100.60	2.250	9.38	3.25	5.93
0.333	7.63	1.333	23.02	2.333	8.10	3.33	5.48
0.417	7.63	1.417	23.02	2.417	8.10	3.42	5.48
0.500	7.63	1.500	23.02	2.500	8.10	3.50	5.48
0.583	10.34	1.583	14.72	2.583	7.18	3.58	5.11
0.667	10.34	1.667	14.72	2.667	7.18	3.67	5.11
0.750	10.34	1.750	14.72	2.750	7.18	3.75	5.11
0.833	18.86	1.833	11.32	2.833	6.48	3.83	4.80
0.917	18.86	1.917	11.32	2.917	6.48	3.92	4.80
1.000	18.86	2.000	11.32	3.000	6.48	4.00	4.80

Max.Eff.Inten.(mm/hr)=		100.60	44.25	
over (min)		5.00	20.00	
Storage Coeff. (min)=		5.31 (ii)	15.09 (ii)	
Unit Hyd. Tpeak (min)=		5.00	20.00	
Unit Hyd. peak (cms)=		0.21	0.07	
				TOTALS
PEAK FLOW	(cms)=	1.98	0.38	2.169 (iii)
TIME TO PEAK	(hrs)=	1.25	1.50	1.25
RUNOFF VOLUME	(mm)=	59.29	17.35	35.38
TOTAL RAINFALL	(mm)=	61.29	61.29	61.29
RUNOFF COEFFICIENT	=	0.97	0.28	0.58

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0096)	Area (ha)= 1.16		
ID= 1 DT= 5.0 min	Total Imp(%)= 22.00	Dir. Conn.(%)= 22.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.26	0.90
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.94	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.20	1.083	100.60	2.083	9.38	3.08	5.93
0.167	6.20	1.167	100.60	2.167	9.38	3.17	5.93
0.250	6.20	1.250	100.60	2.250	9.38	3.25	5.93
0.333	7.63	1.333	23.02	2.333	8.10	3.33	5.48
0.417	7.63	1.417	23.02	2.417	8.10	3.42	5.48

0.500	7.63	1.500	23.02	2.500	8.10	3.50	5.48
0.583	10.34	1.583	14.72	2.583	7.18	3.58	5.11
0.667	10.34	1.667	14.72	2.667	7.18	3.67	5.11
0.750	10.34	1.750	14.72	2.750	7.18	3.75	5.11
0.833	18.86	1.833	11.32	2.833	6.48	3.83	4.80
0.917	18.86	1.917	11.32	2.917	6.48	3.92	4.80
1.000	18.86	2.000	11.32	3.000	6.48	4.00	4.80

Max.Eff.Inten.(mm/hr)=	100.60	12.52	
over (min)	5.00	20.00	
Storage Coeff. (min)=	2.36 (ii)	18.56 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.30	0.06	
			TOTALS
PEAK FLOW (cms)=	0.07	0.02	0.080 (iii)
TIME TO PEAK (hrs)=	1.25	1.50	1.25
RUNOFF VOLUME (mm)=	59.29	11.62	22.10
TOTAL RAINFALL (mm)=	61.29	61.29	61.29
RUNOFF COEFFICIENT =	0.97	0.19	0.36

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (3100)	Area (ha)=	2.89	
ID= 1 DT= 1.0 min	Total Imp(%)=	68.00	Dir. Conn.(%)= 39.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	6.20	1.017	100.60	2.017	9.38	3.02	5.93
0.033	6.20	1.033	100.60	2.033	9.38	3.03	5.93
0.050	6.20	1.050	100.60	2.050	9.38	3.05	5.93
0.067	6.20	1.067	100.60	2.067	9.38	3.07	5.93
0.083	6.20	1.083	100.60	2.083	9.38	3.08	5.93
0.100	6.20	1.100	100.60	2.100	9.38	3.10	5.93
0.117	6.20	1.117	100.60	2.117	9.38	3.12	5.93
0.133	6.20	1.133	100.60	2.133	9.38	3.13	5.93
0.150	6.20	1.150	100.60	2.150	9.38	3.15	5.93
0.167	6.20	1.167	100.60	2.167	9.38	3.17	5.93
0.183	6.20	1.183	100.60	2.183	9.38	3.18	5.93
0.200	6.20	1.200	100.60	2.200	9.38	3.20	5.93
0.217	6.20	1.217	100.60	2.217	9.38	3.22	5.93
0.233	6.20	1.233	100.60	2.233	9.38	3.23	5.93
0.250	6.20	1.250	100.60	2.250	9.38	3.25	5.93
0.267	7.63	1.267	23.02	2.267	8.10	3.27	5.48
0.283	7.63	1.283	23.02	2.283	8.10	3.28	5.48
0.300	7.63	1.300	23.02	2.300	8.10	3.30	5.48
0.317	7.63	1.317	23.02	2.317	8.10	3.32	5.48
0.333	7.63	1.333	23.02	2.333	8.10	3.33	5.48
0.350	7.63	1.350	23.02	2.350	8.10	3.35	5.48
0.367	7.63	1.367	23.02	2.367	8.10	3.37	5.48
0.383	7.63	1.383	23.02	2.383	8.10	3.38	5.48
0.400	7.63	1.400	23.02	2.400	8.10	3.40	5.48
0.417	7.63	1.417	23.02	2.417	8.10	3.42	5.48
0.433	7.63	1.433	23.02	2.433	8.10	3.43	5.48
0.450	7.63	1.450	23.02	2.450	8.10	3.45	5.48
0.467	7.63	1.467	23.02	2.467	8.10	3.47	5.48
0.483	7.63	1.483	23.02	2.483	8.10	3.48	5.48
0.500	7.63	1.500	23.02	2.500	8.10	3.50	5.48
0.517	10.34	1.517	14.72	2.517	7.18	3.52	5.11
0.533	10.34	1.533	14.72	2.533	7.18	3.53	5.11
0.550	10.34	1.550	14.72	2.550	7.18	3.55	5.11
0.567	10.34	1.567	14.72	2.567	7.18	3.57	5.11
0.583	10.34	1.583	14.72	2.583	7.18	3.58	5.11
0.600	10.34	1.600	14.72	2.600	7.18	3.60	5.11
0.617	10.34	1.617	14.72	2.617	7.18	3.62	5.11

0.633	10.34	1.633	14.72	2.633	7.18	3.63	5.11
0.650	10.34	1.650	14.72	2.650	7.18	3.65	5.11
0.667	10.34	1.667	14.72	2.667	7.18	3.67	5.11
0.683	10.34	1.683	14.72	2.683	7.18	3.68	5.11
0.700	10.34	1.700	14.72	2.700	7.18	3.70	5.11
0.717	10.34	1.717	14.72	2.717	7.18	3.72	5.11
0.733	10.34	1.733	14.72	2.733	7.18	3.73	5.11
0.750	10.34	1.750	14.72	2.750	7.18	3.75	5.11
0.767	18.86	1.767	11.32	2.767	6.48	3.77	4.80
0.783	18.86	1.783	11.32	2.783	6.48	3.78	4.80
0.800	18.86	1.800	11.32	2.800	6.48	3.80	4.80
0.817	18.86	1.817	11.32	2.817	6.48	3.82	4.80
0.833	18.86	1.833	11.32	2.833	6.48	3.83	4.80
0.850	18.86	1.850	11.32	2.850	6.48	3.85	4.80
0.867	18.86	1.867	11.32	2.867	6.48	3.87	4.80
0.883	18.86	1.883	11.32	2.883	6.48	3.88	4.80
0.900	18.86	1.900	11.32	2.900	6.48	3.90	4.80
0.917	18.86	1.917	11.32	2.917	6.48	3.92	4.80
0.933	18.86	1.933	11.32	2.933	6.48	3.93	4.80
0.950	18.86	1.950	11.32	2.950	6.48	3.95	4.80
0.967	18.86	1.967	11.32	2.967	6.48	3.97	4.80
0.983	18.86	1.983	11.32	2.983	6.48	3.98	4.80
1.000	18.86	2.000	11.32	3.000	6.48	4.00	4.80

Max.Eff.Inten.(mm/hr)=	100.60	62.32		
over (min)	5.00	10.00		
Storage Coeff. (min)=	3.10 (ii)	9.61 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.30	0.12		
			TOTALS	
PEAK FLOW (cms)=	0.31	0.11	0.392 (iii)	
TIME TO PEAK (hrs)=	1.25	1.35	1.25	
RUNOFF VOLUME (mm)=	59.29	19.99	35.31	
TOTAL RAINFALL (mm)=	61.29	61.29	61.29	
RUNOFF COEFFICIENT =	0.97	0.33	0.58	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (2101):	17.31	2.169	1.25	35.38
	+ ID2= 2 (3100):	2.89	0.392	1.25	35.31
	ID = 3 (0097):	20.20	2.561	1.25	35.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0097):	20.20	2.561	1.25	35.37
	+ ID2= 2 (0096):	1.16	0.080	1.25	22.10
	ID = 1 (0097):	21.36	2.642	1.25	34.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001) | IN= 2---> OUT= 1 | DT= 1.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0400	0.6360
0.0160	0.1070	0.0790	0.7870
0.0240	0.2260	0.2900	0.9450
0.0300	0.3550	0.4710	1.0430
0.0350	0.4920	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0097)	21.360	2.642	1.25	34.65
OUTFLOW: ID= 1 (0001)	21.360	0.054	4.28	19.60

```
                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  2.04
                    TIME SHIFT OF PEAK FLOW         (min)=182.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.6897

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--------------------
| CALIB            |
| STANDHYD (  2102)|   Area    (ha)=   0.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.14         0.07
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      37.42        40.00
     Mannings n           =      0.013        0.250

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


                              ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    6.20 | 1.083  100.60 | 2.083    9.38 |  3.08    5.93
              0.167    6.20 | 1.167  100.60 | 2.167    9.38 |  3.17    5.93
              0.250    6.20 | 1.250  100.60 | 2.250    9.38 |  3.25    5.93
              0.333    7.63 | 1.333   23.02 | 2.333    8.10 |  3.33    5.48
              0.417    7.63 | 1.417   23.02 | 2.417    8.10 |  3.42    5.48
              0.500    7.63 | 1.500   23.02 | 2.500    8.10 |  3.50    5.48
              0.583   10.34 | 1.583   14.72 | 2.583    7.18 |  3.58    5.11
              0.667   10.34 | 1.667   14.72 | 2.667    7.18 |  3.67    5.11
              0.750   10.34 | 1.750   14.72 | 2.750    7.18 |  3.75    5.11
              0.833   18.86 | 1.833   11.32 | 2.833    6.48 |  3.83    4.80
              0.917   18.86 | 1.917   11.32 | 2.917    6.48 |  3.92    4.80
              1.000   18.86 | 2.000   11.32 | 3.000    6.48 |  4.00    4.80

     Max.Eff.Inten.(mm/hr)=     100.60        12.52
               over (min)         5.00        20.00
     Storage Coeff.  (min)=       1.41 (ii)   17.61 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.33         0.06
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.04         0.00        0.039 (iii)
     TIME TO PEAK    (hrs)=       1.25         1.50         1.25
     RUNOFF VOLUME    (mm)=      59.29        11.62        42.55
     TOTAL RAINFALL   (mm)=      61.29        61.29        61.29
     RUNOFF COEFFICIENT   =       0.97         0.19         0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0015)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    21.36   0.054     4.28    19.60
     + ID2= 2 (  2102):     0.21   0.039     1.25    42.55
       ==========================================================
       ID = 3 (  0015):    21.57   0.063     1.25    19.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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**************************************
** SIMULATION:1.6 Chicago 4hr 100yr **
**************************************
--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 690.327
| Ptotal= 67.06 mm |                          B=   0.000
--------------------                          C=   0.678
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 15.00 min
                       Time to peak ratio =  0.33

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

0.00	6.78	1.00	110.07	2.00	10.26	3.00	6.49
0.25	8.35	1.25	25.19	2.25	8.86	3.25	6.00
0.50	11.31	1.50	16.11	2.50	7.86	3.50	5.59
0.75	20.64	1.75	12.39	2.75	7.09	3.75	5.25

CALIB	
STANDHYD (2101)	Area (ha)= 17.31
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.08	6.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	339.71	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.78	1.083	110.07	2.083	10.26	3.08	6.49
0.167	6.78	1.167	110.07	2.167	10.26	3.17	6.49
0.250	6.78	1.250	110.07	2.250	10.26	3.25	6.49
0.333	8.35	1.333	25.19	2.333	8.86	3.33	6.00
0.417	8.35	1.417	25.19	2.417	8.86	3.42	6.00
0.500	8.35	1.500	25.19	2.500	8.86	3.50	6.00
0.583	11.31	1.583	16.11	2.583	7.86	3.58	5.59
0.667	11.31	1.667	16.11	2.667	7.86	3.67	5.59
0.750	11.31	1.750	16.11	2.750	7.86	3.75	5.59
0.833	20.64	1.833	12.39	2.833	7.09	3.83	5.25
0.917	20.64	1.917	12.39	2.917	7.09	3.92	5.25
1.000	20.64	2.000	12.39	3.000	7.09	4.00	5.25

Max.Eff.Inten.(mm/hr)=		110.07	52.32	
over (min)		5.00	15.00	
Storage Coeff. (min)=		5.12 (ii)	14.27 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		0.21	0.08	
				TOTALS
PEAK FLOW	(cms)=	2.18	0.49	2.508 (iii)
TIME TO PEAK	(hrs)=	1.25	1.42	1.25
RUNOFF VOLUME	(mm)=	65.06	20.36	39.58
TOTAL RAINFALL	(mm)=	67.06	67.06	67.06
RUNOFF COEFFICIENT	=	0.97	0.30	0.59

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0096)	Area (ha)= 1.16
ID= 1 DT= 5.0 min	Total Imp(%)= 22.00 Dir. Conn.(%)= 22.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.26	0.90
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.94	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.78	1.083	110.07	2.083	10.26	3.08	6.49
0.167	6.78	1.167	110.07	2.167	10.26	3.17	6.49
0.250	6.78	1.250	110.07	2.250	10.26	3.25	6.49
0.333	8.35	1.333	25.19	2.333	8.86	3.33	6.00
0.417	8.35	1.417	25.19	2.417	8.86	3.42	6.00
0.500	8.35	1.500	25.19	2.500	8.86	3.50	6.00
0.583	11.31	1.583	16.11	2.583	7.86	3.58	5.59
0.667	11.31	1.667	16.11	2.667	7.86	3.67	5.59

0.750	11.31	1.750	16.11	2.750	7.86	3.75	5.59
0.833	20.64	1.833	12.39	2.833	7.09	3.83	5.25
0.917	20.64	1.917	12.39	2.917	7.09	3.92	5.25
1.000	20.64	2.000	12.39	3.000	7.09	4.00	5.25

Max.Eff.Inten.(mm/hr)=	110.07	17.94	
over (min)	5.00	20.00	
Storage Coeff. (min)=	2.28 (ii)	16.31 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.30	0.06	
			TOTALS
PEAK FLOW (cms)=	0.08	0.03	0.090 (iii)
TIME TO PEAK (hrs)=	1.25	1.50	1.25
RUNOFF VOLUME (mm)=	65.06	13.83	25.09
TOTAL RAINFALL (mm)=	67.06	67.06	67.06
RUNOFF COEFFICIENT =	0.97	0.21	0.37

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (3100)	Area (ha)= 2.89
ID= 1 DT= 1.0 min	Total Imp(%)= 68.00 Dir. Conn.(%)= 39.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	6.78	1.017	110.07	2.017	10.26	3.02	6.49
0.033	6.78	1.033	110.07	2.033	10.26	3.03	6.49
0.050	6.78	1.050	110.07	2.050	10.26	3.05	6.49
0.067	6.78	1.067	110.07	2.067	10.26	3.07	6.49
0.083	6.78	1.083	110.07	2.083	10.26	3.08	6.49
0.100	6.78	1.100	110.07	2.100	10.26	3.10	6.49
0.117	6.78	1.117	110.07	2.117	10.26	3.12	6.49
0.133	6.78	1.133	110.07	2.133	10.26	3.13	6.49
0.150	6.78	1.150	110.07	2.150	10.26	3.15	6.49
0.167	6.78	1.167	110.07	2.167	10.26	3.17	6.49
0.183	6.78	1.183	110.07	2.183	10.26	3.18	6.49
0.200	6.78	1.200	110.07	2.200	10.26	3.20	6.49
0.217	6.78	1.217	110.07	2.217	10.26	3.22	6.49
0.233	6.78	1.233	110.07	2.233	10.26	3.23	6.49
0.250	6.78	1.250	110.07	2.250	10.26	3.25	6.49
0.267	8.35	1.267	25.19	2.267	8.86	3.27	6.00
0.283	8.35	1.283	25.19	2.283	8.86	3.28	6.00
0.300	8.35	1.300	25.19	2.300	8.86	3.30	6.00
0.317	8.35	1.317	25.19	2.317	8.86	3.32	6.00
0.333	8.35	1.333	25.19	2.333	8.86	3.33	6.00
0.350	8.35	1.350	25.19	2.350	8.86	3.35	6.00
0.367	8.35	1.367	25.19	2.367	8.86	3.37	6.00
0.383	8.35	1.383	25.19	2.383	8.86	3.38	6.00
0.400	8.35	1.400	25.19	2.400	8.86	3.40	6.00
0.417	8.35	1.417	25.19	2.417	8.86	3.42	6.00
0.433	8.35	1.433	25.19	2.433	8.86	3.43	6.00
0.450	8.35	1.450	25.19	2.450	8.86	3.45	6.00
0.467	8.35	1.467	25.19	2.467	8.86	3.47	6.00
0.483	8.35	1.483	25.19	2.483	8.86	3.48	6.00
0.500	8.35	1.500	25.19	2.500	8.86	3.50	6.00
0.517	11.31	1.517	16.11	2.517	7.86	3.52	5.59
0.533	11.31	1.533	16.11	2.533	7.86	3.53	5.59
0.550	11.31	1.550	16.11	2.550	7.86	3.55	5.59
0.567	11.31	1.567	16.11	2.567	7.86	3.57	5.59
0.583	11.31	1.583	16.11	2.583	7.86	3.58	5.59
0.600	11.31	1.600	16.11	2.600	7.86	3.60	5.59
0.617	11.31	1.617	16.11	2.617	7.86	3.62	5.59
0.633	11.31	1.633	16.11	2.633	7.86	3.63	5.59
0.650	11.31	1.650	16.11	2.650	7.86	3.65	5.59
0.667	11.31	1.667	16.11	2.667	7.86	3.67	5.59

0.683	11.31	1.683	16.11	2.683	7.86	3.68	5.59
0.700	11.31	1.700	16.11	2.700	7.86	3.70	5.59
0.717	11.31	1.717	16.11	2.717	7.86	3.72	5.59
0.733	11.31	1.733	16.11	2.733	7.86	3.73	5.59
0.750	11.31	1.750	16.11	2.750	7.86	3.75	5.59
0.767	20.64	1.767	12.39	2.767	7.09	3.77	5.25
0.783	20.64	1.783	12.39	2.783	7.09	3.78	5.25
0.800	20.64	1.800	12.39	2.800	7.09	3.80	5.25
0.817	20.64	1.817	12.39	2.817	7.09	3.82	5.25
0.833	20.64	1.833	12.39	2.833	7.09	3.83	5.25
0.850	20.64	1.850	12.39	2.850	7.09	3.85	5.25
0.867	20.64	1.867	12.39	2.867	7.09	3.87	5.25
0.883	20.64	1.883	12.39	2.883	7.09	3.88	5.25
0.900	20.64	1.900	12.39	2.900	7.09	3.90	5.25
0.917	20.64	1.917	12.39	2.917	7.09	3.92	5.25
0.933	20.64	1.933	12.39	2.933	7.09	3.93	5.25
0.950	20.64	1.950	12.39	2.950	7.09	3.95	5.25
0.967	20.64	1.967	12.39	2.967	7.09	3.97	5.25
0.983	20.64	1.983	12.39	2.983	7.09	3.98	5.25
1.000	20.64	2.000	12.39	3.000	7.09	4.00	5.25

Max.Eff.Inten.(mm/hr)=	110.07	73.27		
over (min)	5.00	10.00		
Storage Coeff. (min)=	2.99 (ii)	9.27 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.31	0.12		
			TOTALS	
PEAK FLOW (cms)=	0.34	0.13	0.440 (iii)	
TIME TO PEAK (hrs)=	1.25	1.35	1.25	
RUNOFF VOLUME (mm)=	65.06	23.33	39.60	
TOTAL RAINFALL (mm)=	67.06	67.06	67.06	
RUNOFF COEFFICIENT =	0.97	0.35	0.59	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (2101):	17.31	2.508	1.25	39.58
	+ ID2= 2 (3100):	2.89	0.440	1.25	39.60
	ID = 3 (0097):	20.20	2.948	1.25	39.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0097):	20.20	2.948	1.25	39.58
	+ ID2= 2 (0096):	1.16	0.090	1.25	25.09
	ID = 1 (0097):	21.36	3.038	1.25	38.80

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 1.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0400	0.6360
	0.0160	0.1070	0.0790	0.7870
	0.0240	0.2260	0.2900	0.9450
	0.0300	0.3550	0.4710	1.0430
	0.0350	0.4920	0.0000	0.0000

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW :	ID= 2 (0097)	21.360	3.038	1.25	38.80
OUTFLOW:	ID= 1 (0001)	21.360	0.074	4.22	22.12

PEAK FLOW REDUCTION [Qout/Qin](%)= 2.43
TIME SHIFT OF PEAK FLOW (min)=178.00
MAXIMUM STORAGE USED (ha.m.)= 0.7673

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--------------------
| CALIB            |
| STANDHYD (  2102)|   Area    (ha)=   0.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.14         0.07
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      37.42        40.00
     Mannings n           =      0.013        0.250

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


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    6.78 | 1.083  110.07 | 2.083   10.26 |  3.08    6.49
               0.167    6.78 | 1.167  110.07 | 2.167   10.26 |  3.17    6.49
               0.250    6.78 | 1.250  110.07 | 2.250   10.26 |  3.25    6.49
               0.333    8.35 | 1.333   25.19 | 2.333    8.86 |  3.33    6.00
               0.417    8.35 | 1.417   25.19 | 2.417    8.86 |  3.42    6.00
               0.500    8.35 | 1.500   25.19 | 2.500    8.86 |  3.50    6.00
               0.583   11.31 | 1.583   16.11 | 2.583    7.86 |  3.58    5.59
               0.667   11.31 | 1.667   16.11 | 2.667    7.86 |  3.67    5.59
               0.750   11.31 | 1.750   16.11 | 2.750    7.86 |  3.75    5.59
               0.833   20.64 | 1.833   12.39 | 2.833    7.09 |  3.83    5.25
               0.917   20.64 | 1.917   12.39 | 2.917    7.09 |  3.92    5.25
               1.000   20.64 | 2.000   12.39 | 3.000    7.09 |  4.00    5.25

     Max.Eff.Inten.(mm/hr)=     110.07        17.94
               over (min)         5.00        20.00
     Storage Coeff.  (min)=       1.36 (ii)   15.40 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.33         0.07
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.04         0.00          0.043 (iii)
     TIME TO PEAK    (hrs)=       1.25         1.50           1.25
     RUNOFF VOLUME    (mm)=      65.06        13.83          47.09
     TOTAL RAINFALL   (mm)=      67.06        67.06          67.06
     RUNOFF COEFFICIENT   =       0.97         0.21           0.70

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0015)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    21.36   0.074     4.22    22.12
     + ID2= 2 (  2102):     0.21   0.043     1.25    47.09
       ==========================================================
       ID = 3 (  0015):    21.57   0.075     4.00    22.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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**********************************
** SIMULATION:2.1 SCS II 6hr 2yr **
**********************************
--------------------
| MASS STORM       |    Filename: C:\Users\rbrockie\AppD
|                  |              ata\Local\Temp\
|                  |              913e2f46-79e8-42d3-b20d-3fb65cefc10e\7533ee87
| Ptotal= 36.21 mm |    Comments: SCS 6 HOUR TYPE II STORM DISTRIBUTION
--------------------
                       Duration of storm    =  6.00 hrs
                       Mass curve time step = 30.00 min
                       New Storm time step  = 15.00 min


                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.00    0.72 |  1.50    2.90 |  3.00   23.17 |  4.50    2.53
               0.25    1.45 |  1.75    2.90 |  3.25    9.41 |  4.75    2.17
```

0.50	1.45	2.00	3.98	3.50	6.88	5.00	1.81
0.75	1.45	2.25	5.07	3.75	4.35	5.25	1.45
1.00	2.17	2.50	21.00	4.00	3.62	5.50	1.45
1.25	2.90	2.75	36.93	4.25	2.90	5.75	1.45

CALIB	
STANDHYD (2101)	Area (ha)= 17.31
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.08	6.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	339.71	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.72	1.583	2.90	3.083	23.17	4.58	2.53
0.167	0.72	1.667	2.90	3.167	23.17	4.67	2.53
0.250	0.72	1.750	2.90	3.250	23.17	4.75	2.53
0.333	1.45	1.833	2.90	3.333	9.41	4.83	2.17
0.417	1.45	1.917	2.90	3.417	9.41	4.92	2.17
0.500	1.45	2.000	2.90	3.500	9.41	5.00	2.17
0.583	1.45	2.083	3.98	3.583	6.88	5.08	1.81
0.667	1.45	2.167	3.98	3.667	6.88	5.17	1.81
0.750	1.45	2.250	3.98	3.750	6.88	5.25	1.81
0.833	1.45	2.333	5.07	3.833	4.35	5.33	1.45
0.917	1.45	2.417	5.07	3.917	4.35	5.42	1.45
1.000	1.45	2.500	5.07	4.000	4.35	5.50	1.45
1.083	2.17	2.583	21.00	4.083	3.62	5.58	1.45
1.167	2.17	2.667	21.00	4.167	3.62	5.67	1.45
1.250	2.17	2.750	21.00	4.250	3.62	5.75	1.45
1.333	2.90	2.833	36.93	4.333	2.90	5.83	1.45
1.417	2.90	2.917	36.93	4.417	2.90	5.92	1.45
1.500	2.90	3.000	36.93	4.500	2.90	6.00	1.45

				TOTALS
Max.Eff.Inten.	(mm/hr)=	36.93	9.62	
	over (min)	10.00	30.00	
Storage Coeff.	(min)=	7.93 (ii)	25.93 (ii)	
Unit Hyd. Tpeak	(min)=	10.00	30.00	
Unit Hyd. peak	(cms)=	0.13	0.04	
PEAK FLOW	(cms)=	0.68	0.11	0.711 (iii)
TIME TO PEAK	(hrs)=	3.00	3.58	3.08
RUNOFF VOLUME	(mm)=	34.03	6.37	18.26
TOTAL RAINFALL	(mm)=	36.03	36.03	36.03
RUNOFF COEFFICIENT	=	0.94	0.18	0.51

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0096)	Area (ha)= 1.16
ID= 1 DT= 5.0 min	Total Imp(%)= 22.00 Dir. Conn.(%)= 22.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.26	0.90
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.94	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.72	1.583	2.90	3.083	23.17	4.58	2.53
0.167	0.72	1.667	2.90	3.167	23.17	4.67	2.53
0.250	0.72	1.750	2.90	3.250	23.17	4.75	2.53

0.333	1.45	1.833	2.90	3.333	9.41	4.83	2.17
0.417	1.45	1.917	2.90	3.417	9.41	4.92	2.17
0.500	1.45	2.000	2.90	3.500	9.41	5.00	2.17
0.583	1.45	2.083	3.98	3.583	6.88	5.08	1.81
0.667	1.45	2.167	3.98	3.667	6.88	5.17	1.81
0.750	1.45	2.250	3.98	3.750	6.88	5.25	1.81
0.833	1.45	2.333	5.07	3.833	4.35	5.33	1.45
0.917	1.45	2.417	5.07	3.917	4.35	5.42	1.45
1.000	1.45	2.500	5.07	4.000	4.35	5.50	1.45
1.083	2.17	2.583	21.00	4.083	3.62	5.58	1.45
1.167	2.17	2.667	21.00	4.167	3.62	5.67	1.45
1.250	2.17	2.750	21.00	4.250	3.62	5.75	1.45
1.333	2.90	2.833	36.93	4.333	2.90	5.83	1.45
1.417	2.90	2.917	36.93	4.417	2.90	5.92	1.45
1.500	2.90	3.000	36.93	4.500	2.90	6.00	1.45

Max.Eff.Inten.(mm/hr)=	36.93	3.52	
over (min)	5.00	35.00	
Storage Coeff. (min)=	3.52 (ii)	30.45 (ii)	
Unit Hyd. Tpeak (min)=	5.00	35.00	
Unit Hyd. peak (cms)=	0.26	0.04	
			TOTALS
PEAK FLOW (cms)=	0.03	0.01	0.027 (iii)
TIME TO PEAK (hrs)=	3.00	3.67	3.00
RUNOFF VOLUME (mm)=	34.03	3.89	10.51
TOTAL RAINFALL (mm)=	36.03	36.03	36.03
RUNOFF COEFFICIENT =	0.94	0.11	0.29

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB		
STANDHYD (3100)	Area (ha)=	2.89
ID= 1 DT= 1.0 min	Total Imp(%)=	68.00 Dir. Conn.(%)= 39.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	0.72	1.517	2.90	3.017	23.18	4.52	2.53
0.033	0.72	1.533	2.90	3.033	23.17	4.53	2.53
0.050	0.72	1.550	2.90	3.050	23.17	4.55	2.53
0.067	0.72	1.567	2.90	3.067	23.17	4.57	2.53
0.083	0.72	1.583	2.90	3.083	23.17	4.58	2.53
0.100	0.72	1.600	2.90	3.100	23.17	4.60	2.53
0.117	0.72	1.617	2.90	3.117	23.17	4.62	2.53
0.133	0.72	1.633	2.90	3.133	23.17	4.63	2.53
0.150	0.72	1.650	2.90	3.150	23.17	4.65	2.53
0.167	0.72	1.667	2.90	3.167	23.17	4.67	2.53
0.183	0.72	1.683	2.90	3.183	23.17	4.68	2.53
0.200	0.72	1.700	2.90	3.200	23.17	4.70	2.53
0.217	0.72	1.717	2.90	3.217	23.17	4.72	2.53
0.233	0.72	1.733	2.90	3.233	23.17	4.73	2.53
0.250	0.72	1.750	2.90	3.250	23.17	4.75	2.53
0.267	1.45	1.767	2.90	3.267	9.42	4.77	2.17
0.283	1.45	1.783	2.90	3.283	9.41	4.78	2.17
0.300	1.45	1.800	2.90	3.300	9.41	4.80	2.17
0.317	1.45	1.817	2.90	3.317	9.41	4.82	2.17
0.333	1.45	1.833	2.90	3.333	9.41	4.83	2.17
0.350	1.45	1.850	2.90	3.350	9.41	4.85	2.17
0.367	1.45	1.867	2.90	3.367	9.41	4.87	2.17
0.383	1.45	1.883	2.90	3.383	9.41	4.88	2.17
0.400	1.45	1.900	2.90	3.400	9.41	4.90	2.17
0.417	1.45	1.917	2.90	3.417	9.41	4.92	2.17
0.433	1.45	1.933	2.90	3.433	9.41	4.93	2.17
0.450	1.45	1.950	2.90	3.450	9.41	4.95	2.17
0.467	1.45	1.967	2.90	3.467	9.41	4.97	2.17
0.483	1.45	1.983	2.90	3.483	9.41	4.98	2.17

0.500	1.45	2.000	2.90	3.500	9.41	5.00	2.17
0.517	1.45	2.017	3.98	3.517	6.88	5.02	1.81
0.533	1.45	2.033	3.98	3.533	6.88	5.03	1.81
0.550	1.45	2.050	3.98	3.550	6.88	5.05	1.81
0.567	1.45	2.067	3.98	3.567	6.88	5.07	1.81
0.583	1.45	2.083	3.98	3.583	6.88	5.08	1.81
0.600	1.45	2.100	3.98	3.600	6.88	5.10	1.81
0.617	1.45	2.117	3.98	3.617	6.88	5.12	1.81
0.633	1.45	2.133	3.98	3.633	6.88	5.13	1.81
0.650	1.45	2.150	3.98	3.650	6.88	5.15	1.81
0.667	1.45	2.167	3.98	3.667	6.88	5.17	1.81
0.683	1.45	2.183	3.98	3.683	6.88	5.18	1.81
0.700	1.45	2.200	3.98	3.700	6.88	5.20	1.81
0.717	1.45	2.217	3.98	3.717	6.88	5.22	1.81
0.733	1.45	2.233	3.98	3.733	6.88	5.23	1.81
0.750	1.45	2.250	3.98	3.750	6.88	5.25	1.81
0.767	1.45	2.267	5.07	3.767	4.35	5.27	1.45
0.783	1.45	2.283	5.07	3.783	4.35	5.28	1.45
0.800	1.45	2.300	5.07	3.800	4.35	5.30	1.45
0.817	1.45	2.317	5.07	3.817	4.35	5.32	1.45
0.833	1.45	2.333	5.07	3.833	4.35	5.33	1.45
0.850	1.45	2.350	5.07	3.850	4.35	5.35	1.45
0.867	1.45	2.367	5.07	3.867	4.35	5.37	1.45
0.883	1.45	2.383	5.07	3.883	4.35	5.38	1.45
0.900	1.45	2.400	5.07	3.900	4.35	5.40	1.45
0.917	1.45	2.417	5.07	3.917	4.35	5.42	1.45
0.933	1.45	2.433	5.07	3.933	4.35	5.43	1.45
0.950	1.45	2.450	5.07	3.950	4.35	5.45	1.45
0.967	1.45	2.467	5.07	3.967	4.35	5.47	1.45
0.983	1.45	2.483	5.07	3.983	4.35	5.48	1.45
1.000	1.45	2.500	5.07	4.000	4.35	5.50	1.45
1.017	2.17	2.517	21.00	4.017	3.62	5.52	1.45
1.033	2.17	2.533	21.00	4.033	3.62	5.53	1.45
1.050	2.17	2.550	21.00	4.050	3.62	5.55	1.45
1.067	2.17	2.567	21.00	4.067	3.62	5.57	1.45
1.083	2.17	2.583	21.00	4.083	3.62	5.58	1.45
1.100	2.17	2.600	21.00	4.100	3.62	5.60	1.45
1.117	2.17	2.617	21.00	4.117	3.62	5.62	1.45
1.133	2.17	2.633	21.00	4.133	3.62	5.63	1.45
1.150	2.17	2.650	21.00	4.150	3.62	5.65	1.45
1.167	2.17	2.667	21.00	4.167	3.62	5.67	1.45
1.183	2.17	2.683	21.00	4.183	3.62	5.68	1.45
1.200	2.17	2.700	21.00	4.200	3.62	5.70	1.45
1.217	2.17	2.717	21.00	4.217	3.62	5.72	1.45
1.233	2.17	2.733	21.00	4.233	3.62	5.73	1.45
1.250	2.17	2.750	21.00	4.250	3.62	5.75	1.45
1.267	2.90	2.767	36.93	4.267	2.90	5.77	1.45
1.283	2.90	2.783	36.93	4.283	2.90	5.78	1.45
1.300	2.90	2.800	36.93	4.300	2.90	5.80	1.45
1.317	2.90	2.817	36.93	4.317	2.90	5.82	1.45
1.333	2.90	2.833	36.93	4.333	2.90	5.83	1.45
1.350	2.90	2.850	36.93	4.350	2.90	5.85	1.45
1.367	2.90	2.867	36.93	4.367	2.90	5.87	1.45
1.383	2.90	2.883	36.93	4.383	2.90	5.88	1.45
1.400	2.90	2.900	36.93	4.400	2.90	5.90	1.45
1.417	2.90	2.917	36.93	4.417	2.90	5.92	1.45
1.433	2.90	2.933	36.93	4.433	2.90	5.93	1.45
1.450	2.90	2.950	36.93	4.450	2.90	5.95	1.45
1.467	2.90	2.967	36.93	4.467	2.90	5.97	1.45
1.483	2.90	2.983	36.93	4.483	2.90	5.98	1.45
1.500	2.90	3.000	36.93	4.500	2.90	6.00	1.45

Max.Eff.Inten.(mm/hr)=	36.93	14.14	
over (min)	5.00	21.00	
Storage Coeff. (min)=	4.63 (ii)	20.07 (ii)	
Unit Hyd. Tpeak (min)=	5.00	21.00	
Unit Hyd. peak (cms)=	0.24	0.06	
			TOTALS
PEAK FLOW (cms)=	0.11	0.03	0.123 (iii)
TIME TO PEAK (hrs)=	3.00	3.42	3.02
RUNOFF VOLUME (mm)=	34.03	7.60	17.90
TOTAL RAINFALL (mm)=	36.03	36.03	36.03
RUNOFF COEFFICIENT =	0.94	0.21	0.50

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD  (  0097)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  2101):    17.31   0.711     3.08    18.26
     + ID2= 2 (  3100):     2.89   0.123     3.02    17.90
       ================================================
       ID = 3 (  0097):    20.20   0.834     3.02    18.21

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

-------------------
| ADD HYD  (  0097)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0097):    20.20   0.834     3.02    18.21
     + ID2= 2 (  0096):     1.16   0.027     3.00    10.51
       ================================================
       ID = 1 (  0097):    21.36   0.860     3.00    17.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000      0.0000   |    0.0400      0.6360
                          0.0160      0.1070   |    0.0790      0.7870
                          0.0240      0.2260   |    0.2900      0.9450
                          0.0300      0.3550   |    0.4710      1.0430
                          0.0350      0.4920   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0097)    21.360     0.860      3.00      17.79
   OUTFLOW: ID= 1 (  0001)    21.360     0.029      6.20      12.18

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.42
                  TIME SHIFT OF PEAK FLOW         (min)=192.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.3430

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  2102)|   Area    (ha)=   0.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.14         0.07
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      37.42        40.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
                 hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
               0.083     0.72 | 1.583     2.90 | 3.083    23.17 |  4.58     2.53
               0.167     0.72 | 1.667     2.90 | 3.167    23.17 |  4.67     2.53
               0.250     0.72 | 1.750     2.90 | 3.250    23.17 |  4.75     2.53
               0.333     1.45 | 1.833     2.90 | 3.333     9.41 |  4.83     2.17
               0.417     1.45 | 1.917     2.90 | 3.417     9.41 |  4.92     2.17
               0.500     1.45 | 2.000     2.90 | 3.500     9.41 |  5.00     2.17
               0.583     1.45 | 2.083     3.98 | 3.583     6.88 |  5.08     1.81
               0.667     1.45 | 2.167     3.98 | 3.667     6.88 |  5.17     1.81
               0.750     1.45 | 2.250     3.98 | 3.750     6.88 |  5.25     1.81
               0.833     1.45 | 2.333     5.07 | 3.833     4.35 |  5.33     1.45
               0.917     1.45 | 2.417     5.07 | 3.917     4.35 |  5.42     1.45
               1.000     1.45 | 2.500     5.07 | 4.000     4.35 |  5.50     1.45
               1.083     2.17 | 2.583    21.00 | 4.083     3.62 |  5.58     1.45
               1.167     2.17 | 2.667    21.00 | 4.167     3.62 |  5.67     1.45
               1.250     2.17 | 2.750    21.00 | 4.250     3.62 |  5.75     1.45
               1.333     2.90 | 2.833    36.93 | 4.333     2.90 |  5.83     1.45
               1.417     2.90 | 2.917    36.93 | 4.417     2.90 |  5.92     1.45
               1.500     2.90 | 3.000    36.93 | 4.500     2.90 |  6.00     1.45

     Max.Eff.Inten.(mm/hr)=      36.93         3.52
               over (min)         5.00        30.00
     Storage Coeff.  (min)=       2.11 (ii)   29.04 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
```

```
     Unit Hyd. peak  (cms)=       0.31         0.04
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.014 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.58           3.00
     RUNOFF VOLUME    (mm)=      34.03         3.89          23.40
     TOTAL RAINFALL   (mm)=      36.03        36.03          36.03
     RUNOFF COEFFICIENT   =       0.94         0.11           0.65

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0015)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):    21.36   0.029     6.20    12.18
      + ID2= 2 (  2102):     0.21   0.014     3.00    23.40
        ================================================
        ID = 3 (  0015):    21.57   0.031     3.00    12.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
**********
** SIMULATION:2.2 SCS II 6hr 5yr **
**********
--------------------
| MASS STORM       |    Filename: C:\Users\rbrockie\AppD
|                  |              ata\Local\Temp\
|                  |              913e2f46-79e8-42d3-b20d-3fb65cefc10e\c28ef418
| Ptotal= 47.09 mm |    Comments: SCS 6 HOUR TYPE II STORM DISTRIBUTION
--------------------
                     Duration of storm    =  6.00 hrs
                     Mass curve time step = 30.00 min
                     New Storm time step  = 15.00 min


                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.94 |  1.50    3.77 |  3.00   30.14 |  4.50    3.30
                0.25    1.88 |  1.75    3.77 |  3.25   12.24 |  4.75    2.83
                0.50    1.88 |  2.00    5.18 |  3.50    8.95 |  5.00    2.35
                0.75    1.88 |  2.25    6.59 |  3.75    5.65 |  5.25    1.88
                1.00    2.83 |  2.50   27.31 |  4.00    4.71 |  5.50    1.88
                1.25    3.77 |  2.75   48.03 |  4.25    3.77 |  5.75    1.88

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2101)|   Area    (ha)=  17.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  43.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.08         6.23
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     339.71        40.00
     Mannings n             =     0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    0.94 | 1.583    3.77 | 3.083   30.14 |  4.58    3.30
               0.167    0.94 | 1.667    3.77 | 3.167   30.14 |  4.67    3.30
               0.250    0.94 | 1.750    3.77 | 3.250   30.14 |  4.75    3.30
               0.333    1.88 | 1.833    3.77 | 3.333   12.24 |  4.83    2.83
               0.417    1.88 | 1.917    3.77 | 3.417   12.24 |  4.92    2.83
               0.500    1.88 | 2.000    3.77 | 3.500   12.24 |  5.00    2.83
               0.583    1.88 | 2.083    5.18 | 3.583    8.95 |  5.08    2.35
               0.667    1.88 | 2.167    5.18 | 3.667    8.95 |  5.17    2.35
               0.750    1.88 | 2.250    5.18 | 3.750    8.95 |  5.25    2.35
               0.833    1.88 | 2.333    6.59 | 3.833    5.65 |  5.33    1.88
               0.917    1.88 | 2.417    6.59 | 3.917    5.65 |  5.42    1.88
               1.000    1.88 | 2.500    6.59 | 4.000    5.65 |  5.50    1.88
               1.083    2.83 | 2.583   27.31 | 4.083    4.71 |  5.58    1.88
```

1.167	2.83	2.667	27.31	4.167	4.71	5.67	1.88
1.250	2.83	2.750	27.31	4.250	4.71	5.75	1.88
1.333	3.77	2.833	48.03	4.333	3.77	5.83	1.88
1.417	3.77	2.917	48.03	4.417	3.77	5.92	1.88
1.500	3.77	3.000	48.03	4.500	3.77	6.00	1.88

Max.Eff.Inten.(mm/hr)=	48.03	16.54	
over (min)	5.00	25.00	
Storage Coeff. (min)=	7.13 (ii)	21.63 (ii)	
Unit Hyd. Tpeak (min)=	5.00	25.00	
Unit Hyd. peak (cms)=	0.17	0.05	
			TOTALS
PEAK FLOW (cms)=	0.93	0.19	1.016 (iii)
TIME TO PEAK (hrs)=	3.00	3.42	3.00
RUNOFF VOLUME (mm)=	44.85	10.59	25.32
TOTAL RAINFALL (mm)=	46.85	46.85	46.85
RUNOFF COEFFICIENT =	0.96	0.23	0.54

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0096)	Area (ha)= 1.16
ID= 1 DT= 5.0 min	Total Imp(%)= 22.00 Dir. Conn.(%)= 22.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.26	0.90
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.94	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.94	1.583	3.77	3.083	30.14	4.58	3.30
0.167	0.94	1.667	3.77	3.167	30.14	4.67	3.30
0.250	0.94	1.750	3.77	3.250	30.14	4.75	3.30
0.333	1.88	1.833	3.77	3.333	12.24	4.83	2.83
0.417	1.88	1.917	3.77	3.417	12.24	4.92	2.83
0.500	1.88	2.000	3.77	3.500	12.24	5.00	2.83
0.583	1.88	2.083	5.18	3.583	8.95	5.08	2.35
0.667	1.88	2.167	5.18	3.667	8.95	5.17	2.35
0.750	1.88	2.250	5.18	3.750	8.95	5.25	2.35
0.833	1.88	2.333	6.59	3.833	5.65	5.33	1.88
0.917	1.88	2.417	6.59	3.917	5.65	5.42	1.88
1.000	1.88	2.500	6.59	4.000	5.65	5.50	1.88
1.083	2.83	2.583	27.31	4.083	4.71	5.58	1.88
1.167	2.83	2.667	27.31	4.167	4.71	5.67	1.88
1.250	2.83	2.750	27.31	4.250	4.71	5.75	1.88
1.333	3.77	2.833	48.03	4.333	3.77	5.83	1.88
1.417	3.77	2.917	48.03	4.417	3.77	5.92	1.88
1.500	3.77	3.000	48.03	4.500	3.77	6.00	1.88

Max.Eff.Inten.(mm/hr)=	48.03	6.46	
over (min)	5.00	25.00	
Storage Coeff. (min)=	3.17 (ii)	24.28 (ii)	
Unit Hyd. Tpeak (min)=	5.00	25.00	
Unit Hyd. peak (cms)=	0.27	0.05	
			TOTALS
PEAK FLOW (cms)=	0.03	0.01	0.038 (iii)
TIME TO PEAK (hrs)=	3.00	3.50	3.00
RUNOFF VOLUME (mm)=	44.85	6.78	15.15
TOTAL RAINFALL (mm)=	46.85	46.85	46.85
RUNOFF COEFFICIENT =	0.96	0.14	0.32

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD (  3100)|   Area    (ha)=   2.89
|ID= 1 DT= 1.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  39.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.97          0.92
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     138.80         40.00
     Mannings n             =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   1.0 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
0.017	0.94	1.517	3.77	3.017	30.14	4.52	3.30
0.033	0.94	1.533	3.77	3.033	30.14	4.53	3.30
0.050	0.94	1.550	3.77	3.050	30.14	4.55	3.30
0.067	0.94	1.567	3.77	3.067	30.14	4.57	3.30
0.083	0.94	1.583	3.77	3.083	30.14	4.58	3.30
0.100	0.94	1.600	3.77	3.100	30.14	4.60	3.30
0.117	0.94	1.617	3.77	3.117	30.14	4.62	3.30
0.133	0.94	1.633	3.77	3.133	30.14	4.63	3.30
0.150	0.94	1.650	3.77	3.150	30.14	4.65	3.30
0.167	0.94	1.667	3.77	3.167	30.14	4.67	3.30
0.183	0.94	1.683	3.77	3.183	30.14	4.68	3.30
0.200	0.94	1.700	3.77	3.200	30.14	4.70	3.30
0.217	0.94	1.717	3.77	3.217	30.14	4.72	3.30
0.233	0.94	1.733	3.77	3.233	30.14	4.73	3.30
0.250	0.94	1.750	3.77	3.250	30.14	4.75	3.30
0.267	1.88	1.767	3.77	3.267	12.25	4.77	2.83
0.283	1.88	1.783	3.77	3.283	12.24	4.78	2.83
0.300	1.88	1.800	3.77	3.300	12.24	4.80	2.83
0.317	1.88	1.817	3.77	3.317	12.24	4.82	2.83
0.333	1.88	1.833	3.77	3.333	12.24	4.83	2.83
0.350	1.88	1.850	3.77	3.350	12.24	4.85	2.83
0.367	1.88	1.867	3.77	3.367	12.24	4.87	2.83
0.383	1.88	1.883	3.77	3.383	12.24	4.88	2.83
0.400	1.88	1.900	3.77	3.400	12.24	4.90	2.83
0.417	1.88	1.917	3.77	3.417	12.24	4.92	2.83
0.433	1.88	1.933	3.77	3.433	12.24	4.93	2.83
0.450	1.88	1.950	3.77	3.450	12.24	4.95	2.83
0.467	1.88	1.967	3.77	3.467	12.24	4.97	2.83
0.483	1.88	1.983	3.77	3.483	12.24	4.98	2.83
0.500	1.88	2.000	3.77	3.500	12.24	5.00	2.83
0.517	1.88	2.017	5.18	3.517	8.95	5.02	2.35
0.533	1.88	2.033	5.18	3.533	8.95	5.03	2.35
0.550	1.88	2.050	5.18	3.550	8.95	5.05	2.35
0.567	1.88	2.067	5.18	3.567	8.95	5.07	2.35
0.583	1.88	2.083	5.18	3.583	8.95	5.08	2.35
0.600	1.88	2.100	5.18	3.600	8.95	5.10	2.35
0.617	1.88	2.117	5.18	3.617	8.95	5.12	2.35
0.633	1.88	2.133	5.18	3.633	8.95	5.13	2.35
0.650	1.88	2.150	5.18	3.650	8.95	5.15	2.35
0.667	1.88	2.167	5.18	3.667	8.95	5.17	2.35
0.683	1.88	2.183	5.18	3.683	8.95	5.18	2.35
0.700	1.88	2.200	5.18	3.700	8.95	5.20	2.35
0.717	1.88	2.217	5.18	3.717	8.95	5.22	2.35
0.733	1.88	2.233	5.18	3.733	8.95	5.23	2.35
0.750	1.88	2.250	5.18	3.750	8.95	5.25	2.35
0.767	1.88	2.267	6.59	3.767	5.65	5.27	1.88
0.783	1.88	2.283	6.59	3.783	5.65	5.28	1.88
0.800	1.88	2.300	6.59	3.800	5.65	5.30	1.88
0.817	1.88	2.317	6.59	3.817	5.65	5.32	1.88
0.833	1.88	2.333	6.59	3.833	5.65	5.33	1.88
0.850	1.88	2.350	6.59	3.850	5.65	5.35	1.88
0.867	1.88	2.367	6.59	3.867	5.65	5.37	1.88
0.883	1.88	2.383	6.59	3.883	5.65	5.38	1.88
0.900	1.88	2.400	6.59	3.900	5.65	5.40	1.88
0.917	1.88	2.417	6.59	3.917	5.65	5.42	1.88
0.933	1.88	2.433	6.59	3.933	5.65	5.43	1.88
0.950	1.88	2.450	6.59	3.950	5.65	5.45	1.88
0.967	1.88	2.467	6.59	3.967	5.65	5.47	1.88
0.983	1.88	2.483	6.59	3.983	5.65	5.48	1.88
1.000	1.88	2.500	6.59	4.000	5.65	5.50	1.88
1.017	2.83	2.517	27.31	4.017	4.71	5.52	1.88
1.033	2.83	2.533	27.31	4.033	4.71	5.53	1.88
1.050	2.83	2.550	27.31	4.050	4.71	5.55	1.88
1.067	2.83	2.567	27.31	4.067	4.71	5.57	1.88
1.083	2.83	2.583	27.31	4.083	4.71	5.58	1.88
1.100	2.83	2.600	27.31	4.100	4.71	5.60	1.88

1.117	2.83	2.617	27.31	4.117	4.71	5.62	1.88
1.133	2.83	2.633	27.31	4.133	4.71	5.63	1.88
1.150	2.83	2.650	27.31	4.150	4.71	5.65	1.88
1.167	2.83	2.667	27.31	4.167	4.71	5.67	1.88
1.183	2.83	2.683	27.31	4.183	4.71	5.68	1.88
1.200	2.83	2.700	27.31	4.200	4.71	5.70	1.88
1.217	2.83	2.717	27.31	4.217	4.71	5.72	1.88
1.233	2.83	2.733	27.31	4.233	4.71	5.73	1.88
1.250	2.83	2.750	27.31	4.250	4.71	5.75	1.88
1.267	3.77	2.767	48.03	4.267	3.77	5.77	1.88
1.283	3.77	2.783	48.03	4.283	3.77	5.78	1.88
1.300	3.77	2.800	48.03	4.300	3.77	5.80	1.88
1.317	3.77	2.817	48.03	4.317	3.77	5.82	1.88
1.333	3.77	2.833	48.03	4.333	3.77	5.83	1.88
1.350	3.77	2.850	48.03	4.350	3.77	5.85	1.88
1.367	3.77	2.867	48.03	4.367	3.77	5.87	1.88
1.383	3.77	2.883	48.03	4.383	3.77	5.88	1.88
1.400	3.77	2.900	48.03	4.400	3.77	5.90	1.88
1.417	3.77	2.917	48.03	4.417	3.77	5.92	1.88
1.433	3.77	2.933	48.03	4.433	3.77	5.93	1.88
1.450	3.77	2.950	48.03	4.450	3.77	5.95	1.88
1.467	3.77	2.967	48.03	4.467	3.77	5.97	1.88
1.483	3.77	2.983	48.03	4.483	3.77	5.98	1.88
1.500	3.77	3.000	48.03	4.500	3.77	6.00	1.88

Max.Eff.Inten.(mm/hr)=	48.03	25.65		
over (min)	5.00	13.00		
Storage Coeff. (min)=	4.17 (ii)	12.91 (ii)		
Unit Hyd. Tpeak (min)=	5.00	13.00		
Unit Hyd. peak (cms)=	0.25	0.09		
			TOTALS	
PEAK FLOW (cms)=	0.15	0.05	0.181 (iii)	
TIME TO PEAK (hrs)=	3.00	3.28	3.02	
RUNOFF VOLUME (mm)=	44.85	12.40	25.06	
TOTAL RAINFALL (mm)=	46.85	46.85	46.85	
RUNOFF COEFFICIENT =	0.96	0.26	0.53	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (2101):		17.31	1.016	3.00	25.32
+ ID2= 2 (3100):		2.89	0.181	3.02	25.06
ID = 3 (0097):		20.20	1.196	3.00	25.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0097):		20.20	1.196	3.00	25.28
+ ID2= 2 (0096):		1.16	0.038	3.00	15.15
ID = 1 (0097):		21.36	1.234	3.00	24.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 1.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0400	0.6360
	0.0160	0.1070	0.0790	0.7870
	0.0240	0.2260	0.2900	0.9450
	0.0300	0.3550	0.4710	1.0430
	0.0350	0.4920	0.0000	0.0000

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0097)		21.360	1.234	3.00	24.73
OUTFLOW: ID= 1 (0001)		21.360	0.035	6.18	15.10

```
                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  2.81
                  TIME SHIFT OF PEAK FLOW         (min)=191.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.4838

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2102)|   Area    (ha)=   0.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.14         0.07
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      37.42        40.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    0.94 | 1.583    3.77 | 3.083   30.14 |  4.58    3.30
               0.167    0.94 | 1.667    3.77 | 3.167   30.14 |  4.67    3.30
               0.250    0.94 | 1.750    3.77 | 3.250   30.14 |  4.75    3.30
               0.333    1.88 | 1.833    3.77 | 3.333   12.24 |  4.83    2.83
               0.417    1.88 | 1.917    3.77 | 3.417   12.24 |  4.92    2.83
               0.500    1.88 | 2.000    3.77 | 3.500   12.24 |  5.00    2.83
               0.583    1.88 | 2.083    5.18 | 3.583    8.95 |  5.08    2.35
               0.667    1.88 | 2.167    5.18 | 3.667    8.95 |  5.17    2.35
               0.750    1.88 | 2.250    5.18 | 3.750    8.95 |  5.25    2.35
               0.833    1.88 | 2.333    6.59 | 3.833    5.65 |  5.33    1.88
               0.917    1.88 | 2.417    6.59 | 3.917    5.65 |  5.42    1.88
               1.000    1.88 | 2.500    6.59 | 4.000    5.65 |  5.50    1.88
               1.083    2.83 | 2.583   27.31 | 4.083    4.71 |  5.58    1.88
               1.167    2.83 | 2.667   27.31 | 4.167    4.71 |  5.67    1.88
               1.250    2.83 | 2.750   27.31 | 4.250    4.71 |  5.75    1.88
               1.333    3.77 | 2.833   48.03 | 4.333    3.77 |  5.83    1.88
               1.417    3.77 | 2.917   48.03 | 4.417    3.77 |  5.92    1.88
               1.500    3.77 | 3.000   48.03 | 4.500    3.77 |  6.00    1.88

     Max.Eff.Inten.(mm/hr)=      48.03         6.46
               over (min)         5.00        25.00
     Storage Coeff.  (min)=       1.90 (ii)   23.01 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.32         0.05
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.02         0.00          0.019 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.50           3.00
     RUNOFF VOLUME    (mm)=      44.85         6.78          31.47
     TOTAL RAINFALL   (mm)=      46.85        46.85          46.85
     RUNOFF COEFFICIENT   =       0.96         0.14           0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0015)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    21.36   0.035     6.18    15.10
     + ID2= 2 (  2102):     0.21   0.019     3.00    31.47
       ================================================
       ID = 3 (  0015):    21.57   0.039     3.00    15.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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**********************************
** SIMULATION:2.3 SCS II 6hr 10yr **
**********************************
--------------------
| MASS STORM       |    Filename: C:\Users\rbrockie\AppD
|                  |              ata\Local\Temp\
|                  |              913e2f46-79e8-42d3-b20d-3fb65cefc10e\8d975a8e
| Ptotal= 54.13 mm |    Comments: SCS 6 HOUR TYPE II STORM DISTRIBUTION
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                       Duration of storm    =  6.00 hrs
                       Mass curve time step = 30.00 min
                       New Storm time step  = 15.00 min


                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    1.08 |  1.50    4.33 |  3.00   34.64 |  4.50    3.79
                0.25    2.17 |  1.75    4.33 |  3.25   14.07 |  4.75    3.25
                0.50    2.17 |  2.00    5.95 |  3.50   10.28 |  5.00    2.71
                0.75    2.17 |  2.25    7.58 |  3.75    6.50 |  5.25    2.17
                1.00    3.25 |  2.50   31.40 |  4.00    5.41 |  5.50    2.17
                1.25    4.33 |  2.75   55.21 |  4.25    4.33 |  5.75    2.17

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--------------------
| CALIB            |
| STANDHYD (  2101)|   Area    (ha)=  17.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  43.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.08          6.23
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     339.71         40.00
     Mannings n           =      0.013         0.250

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


                               ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    1.08 | 1.583    4.33 | 3.083   34.64 |  4.58    3.79
               0.167    1.08 | 1.667    4.33 | 3.167   34.64 |  4.67    3.79
               0.250    1.08 | 1.750    4.33 | 3.250   34.64 |  4.75    3.79
               0.333    2.17 | 1.833    4.33 | 3.333   14.07 |  4.83    3.25
               0.417    2.17 | 1.917    4.33 | 3.417   14.07 |  4.92    3.25
               0.500    2.17 | 2.000    4.33 | 3.500   14.07 |  5.00    3.25
               0.583    2.17 | 2.083    5.95 | 3.583   10.28 |  5.08    2.71
               0.667    2.17 | 2.167    5.95 | 3.667   10.28 |  5.17    2.71
               0.750    2.17 | 2.250    5.95 | 3.750   10.28 |  5.25    2.71
               0.833    2.17 | 2.333    7.58 | 3.833    6.50 |  5.33    2.17
               0.917    2.17 | 2.417    7.58 | 3.917    6.50 |  5.42    2.17
               1.000    2.17 | 2.500    7.58 | 4.000    6.50 |  5.50    2.17
               1.083    3.25 | 2.583   31.40 | 4.083    5.41 |  5.58    2.17
               1.167    3.25 | 2.667   31.40 | 4.167    5.41 |  5.67    2.17
               1.250    3.25 | 2.750   31.40 | 4.250    5.41 |  5.75    2.17
               1.333    4.33 | 2.833   55.21 | 4.333    4.33 |  5.83    2.17
               1.417    4.33 | 2.917   55.21 | 4.417    4.33 |  5.92    2.17
               1.500    4.33 | 3.000   55.21 | 4.500    4.33 |  6.00    2.17

     Max.Eff.Inten.(mm/hr)=      55.21         21.55
               over (min)        5.00         20.00
     Storage Coeff.  (min)=     6.75 (ii)    19.79 (ii)
     Unit Hyd. Tpeak (min)=      5.00         20.00
     Unit Hyd. peak  (cms)=      0.18          0.06
                                                        *TOTALS*
     PEAK FLOW       (cms)=      1.08          0.26        1.221 (iii)
     TIME TO PEAK    (hrs)=      3.00          3.33         3.00
     RUNOFF VOLUME    (mm)=     51.86         13.72        30.12
     TOTAL RAINFALL   (mm)=     53.86         53.86        53.86
     RUNOFF COEFFICIENT   =      0.96          0.25         0.56


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0096)|   Area    (ha)=   1.16
|ID= 1 DT= 5.0 min |   Total Imp(%)=  22.00   Dir. Conn.(%)=  22.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.26          0.90
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      87.94         40.00
     Mannings n           =      0.013         0.250
```

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.08	1.583	4.33	3.083	34.64	4.58	3.79
0.167	1.08	1.667	4.33	3.167	34.64	4.67	3.79
0.250	1.08	1.750	4.33	3.250	34.64	4.75	3.79
0.333	2.17	1.833	4.33	3.333	14.07	4.83	3.25
0.417	2.17	1.917	4.33	3.417	14.07	4.92	3.25
0.500	2.17	2.000	4.33	3.500	14.07	5.00	3.25
0.583	2.17	2.083	5.95	3.583	10.28	5.08	2.71
0.667	2.17	2.167	5.95	3.667	10.28	5.17	2.71
0.750	2.17	2.250	5.95	3.750	10.28	5.25	2.71
0.833	2.17	2.333	7.58	3.833	6.50	5.33	2.17
0.917	2.17	2.417	7.58	3.917	6.50	5.42	2.17
1.000	2.17	2.500	7.58	4.000	6.50	5.50	2.17
1.083	3.25	2.583	31.40	4.083	5.41	5.58	2.17
1.167	3.25	2.667	31.40	4.167	5.41	5.67	2.17
1.250	3.25	2.750	31.40	4.250	5.41	5.75	2.17
1.333	4.33	2.833	55.21	4.333	4.33	5.83	2.17
1.417	4.33	2.917	55.21	4.417	4.33	5.92	2.17
1.500	4.33	3.000	55.21	4.500	4.33	6.00	2.17

Max.Eff.Inten.(mm/hr)=	55.21	8.58		
over (min)	5.00	25.00		
Storage Coeff. (min)=	3.00 (ii)	21.85 (ii)		
Unit Hyd. Tpeak (min)=	5.00	25.00		
Unit Hyd. peak (cms)=	0.28	0.05		
			TOTALS	
PEAK FLOW (cms)=	0.04	0.01	0.045 (iii)	
TIME TO PEAK (hrs)=	3.00	3.50	3.00	
RUNOFF VOLUME (mm)=	51.86	9.00	18.42	
TOTAL RAINFALL (mm)=	53.86	53.86	53.86	
RUNOFF COEFFICIENT =	0.96	0.17	0.34	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (3100)	Area (ha)=	2.89	
ID= 1 DT= 1.0 min	Total Imp(%)=	68.00	Dir. Conn.(%)= 39.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.97	0.92
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	138.80	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	1.08	1.517	4.33	3.017	34.65	4.52	3.79
0.033	1.08	1.533	4.33	3.033	34.64	4.53	3.79
0.050	1.08	1.550	4.33	3.050	34.64	4.55	3.79
0.067	1.08	1.567	4.33	3.067	34.64	4.57	3.79
0.083	1.08	1.583	4.33	3.083	34.64	4.58	3.79
0.100	1.08	1.600	4.33	3.100	34.64	4.60	3.79
0.117	1.08	1.617	4.33	3.117	34.64	4.62	3.79
0.133	1.08	1.633	4.33	3.133	34.64	4.63	3.79
0.150	1.08	1.650	4.33	3.150	34.64	4.65	3.79
0.167	1.08	1.667	4.33	3.167	34.64	4.67	3.79
0.183	1.08	1.683	4.33	3.183	34.64	4.68	3.79
0.200	1.08	1.700	4.33	3.200	34.64	4.70	3.79
0.217	1.08	1.717	4.33	3.217	34.64	4.72	3.79
0.233	1.08	1.733	4.33	3.233	34.64	4.73	3.79
0.250	1.08	1.750	4.33	3.250	34.64	4.75	3.79
0.267	2.17	1.767	4.33	3.267	14.08	4.77	3.25
0.283	2.17	1.783	4.33	3.283	14.07	4.78	3.25
0.300	2.17	1.800	4.33	3.300	14.07	4.80	3.25
0.317	2.17	1.817	4.33	3.317	14.07	4.82	3.25

0.333	2.17	1.833	4.33	3.333	14.07	4.83	3.25
0.350	2.17	1.850	4.33	3.350	14.07	4.85	3.25
0.367	2.17	1.867	4.33	3.367	14.07	4.87	3.25
0.383	2.17	1.883	4.33	3.383	14.07	4.88	3.25
0.400	2.17	1.900	4.33	3.400	14.07	4.90	3.25
0.417	2.17	1.917	4.33	3.417	14.07	4.92	3.25
0.433	2.17	1.933	4.33	3.433	14.07	4.93	3.25
0.450	2.17	1.950	4.33	3.450	14.07	4.95	3.25
0.467	2.17	1.967	4.33	3.467	14.07	4.97	3.25
0.483	2.17	1.983	4.33	3.483	14.07	4.98	3.25
0.500	2.17	2.000	4.33	3.500	14.07	5.00	3.25
0.517	2.17	2.017	5.95	3.517	10.29	5.02	2.71
0.533	2.17	2.033	5.95	3.533	10.28	5.03	2.71
0.550	2.17	2.050	5.95	3.550	10.28	5.05	2.71
0.567	2.17	2.067	5.95	3.567	10.28	5.07	2.71
0.583	2.17	2.083	5.95	3.583	10.28	5.08	2.71
0.600	2.17	2.100	5.95	3.600	10.28	5.10	2.71
0.617	2.17	2.117	5.95	3.617	10.28	5.12	2.71
0.633	2.17	2.133	5.95	3.633	10.28	5.13	2.71
0.650	2.17	2.150	5.95	3.650	10.28	5.15	2.71
0.667	2.17	2.167	5.95	3.667	10.28	5.17	2.71
0.683	2.17	2.183	5.95	3.683	10.28	5.18	2.71
0.700	2.17	2.200	5.95	3.700	10.28	5.20	2.71
0.717	2.17	2.217	5.95	3.717	10.28	5.22	2.71
0.733	2.17	2.233	5.95	3.733	10.28	5.23	2.71
0.750	2.17	2.250	5.95	3.750	10.28	5.25	2.71
0.767	2.17	2.267	7.58	3.767	6.50	5.27	2.17
0.783	2.17	2.283	7.58	3.783	6.50	5.28	2.17
0.800	2.17	2.300	7.58	3.800	6.50	5.30	2.17
0.817	2.17	2.317	7.58	3.817	6.50	5.32	2.17
0.833	2.17	2.333	7.58	3.833	6.50	5.33	2.17
0.850	2.17	2.350	7.58	3.850	6.50	5.35	2.17
0.867	2.17	2.367	7.58	3.867	6.50	5.37	2.17
0.883	2.17	2.383	7.58	3.883	6.50	5.38	2.17
0.900	2.17	2.400	7.58	3.900	6.50	5.40	2.17
0.917	2.17	2.417	7.58	3.917	6.50	5.42	2.17
0.933	2.17	2.433	7.58	3.933	6.50	5.43	2.17
0.950	2.17	2.450	7.58	3.950	6.50	5.45	2.17
0.967	2.17	2.467	7.58	3.967	6.50	5.47	2.17
0.983	2.17	2.483	7.58	3.983	6.50	5.48	2.17
1.000	2.17	2.500	7.58	4.000	6.50	5.50	2.17
1.017	3.25	2.517	31.39	4.017	5.41	5.52	2.17
1.033	3.25	2.533	31.40	4.033	5.41	5.53	2.17
1.050	3.25	2.550	31.40	4.050	5.41	5.55	2.17
1.067	3.25	2.567	31.40	4.067	5.41	5.57	2.17
1.083	3.25	2.583	31.40	4.083	5.41	5.58	2.17
1.100	3.25	2.600	31.40	4.100	5.41	5.60	2.17
1.117	3.25	2.617	31.40	4.117	5.41	5.62	2.17
1.133	3.25	2.633	31.40	4.133	5.41	5.63	2.17
1.150	3.25	2.650	31.40	4.150	5.41	5.65	2.17
1.167	3.25	2.667	31.40	4.167	5.41	5.67	2.17
1.183	3.25	2.683	31.40	4.183	5.41	5.68	2.17
1.200	3.25	2.700	31.40	4.200	5.41	5.70	2.17
1.217	3.25	2.717	31.40	4.217	5.41	5.72	2.17
1.233	3.25	2.733	31.40	4.233	5.41	5.73	2.17
1.250	3.25	2.750	31.40	4.250	5.41	5.75	2.17
1.267	4.33	2.767	55.21	4.267	4.33	5.77	2.17
1.283	4.33	2.783	55.21	4.283	4.33	5.78	2.17
1.300	4.33	2.800	55.21	4.300	4.33	5.80	2.17
1.317	4.33	2.817	55.21	4.317	4.33	5.82	2.17
1.333	4.33	2.833	55.21	4.333	4.33	5.83	2.17
1.350	4.33	2.850	55.21	4.350	4.33	5.85	2.17
1.367	4.33	2.867	55.21	4.367	4.33	5.87	2.17
1.383	4.33	2.883	55.21	4.383	4.33	5.88	2.17
1.400	4.33	2.900	55.21	4.400	4.33	5.90	2.17
1.417	4.33	2.917	55.21	4.417	4.33	5.92	2.17
1.433	4.33	2.933	55.21	4.433	4.33	5.93	2.17
1.450	4.33	2.950	55.21	4.450	4.33	5.95	2.17
1.467	4.33	2.967	55.21	4.467	4.33	5.97	2.17
1.483	4.33	2.983	55.21	4.483	4.33	5.98	2.17
1.500	4.33	3.000	55.21	4.500	4.33	6.00	2.16

Max.Eff.Inten.(mm/hr)=	55.21	33.21	
over (min)	5.00	13.00	
Storage Coeff. (min)=	3.94 (ii)	12.21 (ii)	
Unit Hyd. Tpeak (min)=	5.00	13.00	
Unit Hyd. peak (cms)=	0.26	0.09	
			TOTALS
PEAK FLOW (cms)=	0.17	0.06	0.216 (iii)
TIME TO PEAK (hrs)=	3.00	3.27	3.02
RUNOFF VOLUME (mm)=	51.86	15.93	29.94
TOTAL RAINFALL (mm)=	53.86	53.86	53.86
RUNOFF COEFFICIENT =	0.96	0.30	0.56

```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0097)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  2101):    17.31   1.221     3.00    30.12
     + ID2= 2 (  3100):     2.89   0.216     3.02    29.94
       ================================================
       ID = 3 (  0097):    20.20   1.436     3.00    30.09

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

--------------------
| ADD HYD  (  0097)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0097):    20.20   1.436     3.00    30.09
     + ID2= 2 (  0096):     1.16   0.045     3.00    18.42
       ================================================
       ID = 1 (  0097):    21.36   1.481     3.00    29.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.0400      0.6360
                           0.0160      0.1070   |    0.0790      0.7870
                           0.0240      0.2260   |    0.2900      0.9450
                           0.0300      0.3550   |    0.4710      1.0430
                           0.0350      0.4920   |    0.0000      0.0000

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0097)     21.360      1.481      3.00       29.46
   OUTFLOW: ID= 1 (  0001)     21.360      0.038      6.20       16.80

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  2.57
                  TIME SHIFT OF PEAK FLOW         (min)=192.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5804

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2102)|   Area    (ha)=   0.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.14         0.07
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      37.42        40.00
     Mannings n             =    0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    1.08 | 1.583    4.33 | 3.083   34.64 |  4.58    3.79
              0.167    1.08 | 1.667    4.33 | 3.167   34.64 |  4.67    3.79
              0.250    1.08 | 1.750    4.33 | 3.250   34.64 |  4.75    3.79
              0.333    2.17 | 1.833    4.33 | 3.333   14.07 |  4.83    3.25
              0.417    2.17 | 1.917    4.33 | 3.417   14.07 |  4.92    3.25
              0.500    2.17 | 2.000    4.33 | 3.500   14.07 |  5.00    3.25
              0.583    2.17 | 2.083    5.95 | 3.583   10.28 |  5.08    2.71
              0.667    2.17 | 2.167    5.95 | 3.667   10.28 |  5.17    2.71
              0.750    2.17 | 2.250    5.95 | 3.750   10.28 |  5.25    2.71
              0.833    2.17 | 2.333    7.58 | 3.833    6.50 |  5.33    2.17
              0.917    2.17 | 2.417    7.58 | 3.917    6.50 |  5.42    2.17
              1.000    2.17 | 2.500    7.58 | 4.000    6.50 |  5.50    2.17
              1.083    3.25 | 2.583   31.40 | 4.083    5.41 |  5.58    2.17
```

1.167	3.25	2.667	31.40	4.167	5.41	5.67	2.17
1.250	3.25	2.750	31.40	4.250	5.41	5.75	2.17
1.333	4.33	2.833	55.21	4.333	4.33	5.83	2.17
1.417	4.33	2.917	55.21	4.417	4.33	5.92	2.17
1.500	4.33	3.000	55.21	4.500	4.33	6.00	2.17

Max.Eff.Inten.(mm/hr)=	55.21	8.58		
over (min)	5.00	25.00		
Storage Coeff. (min)=	1.80 (ii)	20.65 (ii)		
Unit Hyd. Tpeak (min)=	5.00	25.00		
Unit Hyd. peak (cms)=	0.32	0.05		
			TOTALS	
PEAK FLOW (cms)=	0.02	0.00	0.021 (iii)	
TIME TO PEAK (hrs)=	3.00	3.42	3.00	
RUNOFF VOLUME (mm)=	51.86	9.00	36.80	
TOTAL RAINFALL (mm)=	53.86	53.86	53.86	
RUNOFF COEFFICIENT =	0.96	0.17	0.68	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0015)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0001):	21.36	0.038	6.20	16.80
	+ ID2= 2 (2102):	0.21	0.021	3.00	36.80
	ID = 3 (0015):	21.57	0.044	3.00	16.99

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:2.4 SCS II 6hr 25yr **
****

MASS STORM	Filename: C:\Users\rbrockie\AppData\Local\Temp\913e2f46-79e8-42d3-b20d-3fb65cefc10e\8e8ed2d5
Ptotal= 63.21 mm	Comments: SCS 6 HOUR TYPE II STORM DISTRIBUTION

Duration of storm = 6.00 hrs
Mass curve time step = 30.00 min
New Storm time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	1.26	1.50	5.06	3.00	40.45	4.50	4.42
0.25	2.53	1.75	5.06	3.25	16.43	4.75	3.79
0.50	2.53	2.00	6.95	3.50	12.01	5.00	3.16
0.75	2.53	2.25	8.85	3.75	7.59	5.25	2.53
1.00	3.79	2.50	36.66	4.00	6.32	5.50	2.53
1.25	5.06	2.75	64.47	4.25	5.06	5.75	2.53

CALIB STANDHYD (2101)	Area (ha)= 17.31
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.08	6.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	339.71	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.26	1.583	5.06	3.083	40.45	4.58	4.42
0.167	1.26	1.667	5.06	3.167	40.45	4.67	4.42
0.250	1.26	1.750	5.06	3.250	40.45	4.75	4.42

0.333	2.53	1.833	5.06	3.333	16.43	4.83	3.79
0.417	2.53	1.917	5.06	3.417	16.43	4.92	3.79
0.500	2.53	2.000	5.06	3.500	16.43	5.00	3.79
0.583	2.53	2.083	6.95	3.583	12.01	5.08	3.16
0.667	2.53	2.167	6.95	3.667	12.01	5.17	3.16
0.750	2.53	2.250	6.95	3.750	12.01	5.25	3.16
0.833	2.53	2.333	8.85	3.833	7.59	5.33	2.53
0.917	2.53	2.417	8.85	3.917	7.59	5.42	2.53
1.000	2.53	2.500	8.85	4.000	7.59	5.50	2.53
1.083	3.79	2.583	36.66	4.083	6.32	5.58	2.53
1.167	3.79	2.667	36.66	4.167	6.32	5.67	2.53
1.250	3.79	2.750	36.66	4.250	6.32	5.75	2.53
1.333	5.06	2.833	64.47	4.333	5.06	5.83	2.53
1.417	5.06	2.917	64.47	4.417	5.06	5.92	2.53
1.500	5.06	3.000	64.47	4.500	5.06	6.00	2.53

Max.Eff.Inten.(mm/hr)=	64.47	28.92	
over (min)	5.00	20.00	
Storage Coeff. (min)=	6.34 (ii)	17.93 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.19	0.06	
			TOTALS
PEAK FLOW (cms)=	1.27	0.37	1.474 (iii)
TIME TO PEAK (hrs)=	3.00	3.33	3.00
RUNOFF VOLUME (mm)=	60.89	18.17	36.54
TOTAL RAINFALL (mm)=	62.89	62.89	62.89
RUNOFF COEFFICIENT =	0.97	0.29	0.58

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0096)	Area (ha)=	1.16	
ID= 1 DT= 5.0 min	Total Imp(%)=	22.00	Dir. Conn.(%)= 22.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.26	0.90
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.94	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.26	1.583	5.06	3.083	40.45	4.58	4.42
0.167	1.26	1.667	5.06	3.167	40.45	4.67	4.42
0.250	1.26	1.750	5.06	3.250	40.45	4.75	4.42
0.333	2.53	1.833	5.06	3.333	16.43	4.83	3.79
0.417	2.53	1.917	5.06	3.417	16.43	4.92	3.79
0.500	2.53	2.000	5.06	3.500	16.43	5.00	3.79
0.583	2.53	2.083	6.95	3.583	12.01	5.08	3.16
0.667	2.53	2.167	6.95	3.667	12.01	5.17	3.16
0.750	2.53	2.250	6.95	3.750	12.01	5.25	3.16
0.833	2.53	2.333	8.85	3.833	7.59	5.33	2.53
0.917	2.53	2.417	8.85	3.917	7.59	5.42	2.53
1.000	2.53	2.500	8.85	4.000	7.59	5.50	2.53
1.083	3.79	2.583	36.66	4.083	6.32	5.58	2.53
1.167	3.79	2.667	36.66	4.167	6.32	5.67	2.53
1.250	3.79	2.750	36.66	4.250	6.32	5.75	2.53
1.333	5.06	2.833	64.47	4.333	5.06	5.83	2.53
1.417	5.06	2.917	64.47	4.417	5.06	5.92	2.53
1.500	5.06	3.000	64.47	4.500	5.06	6.00	2.53

Max.Eff.Inten.(mm/hr)=	64.47	11.68	
over (min)	5.00	20.00	
Storage Coeff. (min)=	2.82 (ii)	19.48 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.28	0.06	
			TOTALS
PEAK FLOW (cms)=	0.05	0.02	0.056 (iii)
TIME TO PEAK (hrs)=	3.00	3.42	3.00
RUNOFF VOLUME (mm)=	60.89	12.22	22.92
TOTAL RAINFALL (mm)=	62.89	62.89	62.89
RUNOFF COEFFICIENT =	0.97	0.19	0.36

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (3100)	Area (ha)= 2.89
ID= 1 DT= 1.0 min	Total Imp(%)= 68.00 Dir. Conn.(%)= 39.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	1.26	1.517	5.06	3.017	40.46	4.52	4.42
0.033	1.26	1.533	5.06	3.033	40.45	4.53	4.42
0.050	1.26	1.550	5.06	3.050	40.45	4.55	4.42
0.067	1.26	1.567	5.06	3.067	40.45	4.57	4.42
0.083	1.26	1.583	5.06	3.083	40.45	4.58	4.42
0.100	1.26	1.600	5.06	3.100	40.45	4.60	4.42
0.117	1.26	1.617	5.06	3.117	40.45	4.62	4.42
0.133	1.26	1.633	5.06	3.133	40.45	4.63	4.42
0.150	1.26	1.650	5.06	3.150	40.45	4.65	4.42
0.167	1.26	1.667	5.06	3.167	40.45	4.67	4.42
0.183	1.26	1.683	5.06	3.183	40.45	4.68	4.42
0.200	1.26	1.700	5.06	3.200	40.45	4.70	4.42
0.217	1.26	1.717	5.06	3.217	40.45	4.72	4.42
0.233	1.26	1.733	5.06	3.233	40.45	4.73	4.42
0.250	1.26	1.750	5.06	3.250	40.45	4.75	4.42
0.267	2.53	1.767	5.06	3.267	16.44	4.77	3.79
0.283	2.53	1.783	5.06	3.283	16.43	4.78	3.79
0.300	2.53	1.800	5.06	3.300	16.43	4.80	3.79
0.317	2.53	1.817	5.06	3.317	16.43	4.82	3.79
0.333	2.53	1.833	5.06	3.333	16.43	4.83	3.79
0.350	2.53	1.850	5.06	3.350	16.43	4.85	3.79
0.367	2.53	1.867	5.06	3.367	16.43	4.87	3.79
0.383	2.53	1.883	5.06	3.383	16.43	4.88	3.79
0.400	2.53	1.900	5.06	3.400	16.43	4.90	3.79
0.417	2.53	1.917	5.06	3.417	16.43	4.92	3.79
0.433	2.53	1.933	5.06	3.433	16.43	4.93	3.79
0.450	2.53	1.950	5.06	3.450	16.43	4.95	3.79
0.467	2.53	1.967	5.06	3.467	16.43	4.97	3.79
0.483	2.53	1.983	5.06	3.483	16.43	4.98	3.79
0.500	2.53	2.000	5.06	3.500	16.43	5.00	3.79
0.517	2.53	2.017	6.95	3.517	12.01	5.02	3.16
0.533	2.53	2.033	6.95	3.533	12.01	5.03	3.16
0.550	2.53	2.050	6.95	3.550	12.01	5.05	3.16
0.567	2.53	2.067	6.95	3.567	12.01	5.07	3.16
0.583	2.53	2.083	6.95	3.583	12.01	5.08	3.16
0.600	2.53	2.100	6.95	3.600	12.01	5.10	3.16
0.617	2.53	2.117	6.95	3.617	12.01	5.12	3.16
0.633	2.53	2.133	6.95	3.633	12.01	5.13	3.16
0.650	2.53	2.150	6.95	3.650	12.01	5.15	3.16
0.667	2.53	2.167	6.95	3.667	12.01	5.17	3.16
0.683	2.53	2.183	6.95	3.683	12.01	5.18	3.16
0.700	2.53	2.200	6.95	3.700	12.01	5.20	3.16
0.717	2.53	2.217	6.95	3.717	12.01	5.22	3.16
0.733	2.53	2.233	6.95	3.733	12.01	5.23	3.16
0.750	2.53	2.250	6.95	3.750	12.01	5.25	3.16
0.767	2.53	2.267	8.85	3.767	7.59	5.27	2.53
0.783	2.53	2.283	8.85	3.783	7.59	5.28	2.53
0.800	2.53	2.300	8.85	3.800	7.59	5.30	2.53
0.817	2.53	2.317	8.85	3.817	7.59	5.32	2.53
0.833	2.53	2.333	8.85	3.833	7.59	5.33	2.53
0.850	2.53	2.350	8.85	3.850	7.59	5.35	2.53
0.867	2.53	2.367	8.85	3.867	7.59	5.37	2.53
0.883	2.53	2.383	8.85	3.883	7.59	5.38	2.53
0.900	2.53	2.400	8.85	3.900	7.59	5.40	2.53
0.917	2.53	2.417	8.85	3.917	7.59	5.42	2.53
0.933	2.53	2.433	8.85	3.933	7.59	5.43	2.53

0.950	2.53	2.450	8.85	3.950	7.59	5.45	2.53
0.967	2.53	2.467	8.85	3.967	7.59	5.47	2.53
0.983	2.53	2.483	8.85	3.983	7.59	5.48	2.53
1.000	2.53	2.500	8.85	4.000	7.59	5.50	2.53
1.017	3.79	2.517	36.66	4.017	6.32	5.52	2.53
1.033	3.79	2.533	36.66	4.033	6.32	5.53	2.53
1.050	3.79	2.550	36.66	4.050	6.32	5.55	2.53
1.067	3.79	2.567	36.66	4.067	6.32	5.57	2.53
1.083	3.79	2.583	36.66	4.083	6.32	5.58	2.53
1.100	3.79	2.600	36.66	4.100	6.32	5.60	2.53
1.117	3.79	2.617	36.66	4.117	6.32	5.62	2.53
1.133	3.79	2.633	36.66	4.133	6.32	5.63	2.53
1.150	3.79	2.650	36.66	4.150	6.32	5.65	2.53
1.167	3.79	2.667	36.66	4.167	6.32	5.67	2.53
1.183	3.79	2.683	36.66	4.183	6.32	5.68	2.53
1.200	3.79	2.700	36.66	4.200	6.32	5.70	2.53
1.217	3.79	2.717	36.66	4.217	6.32	5.72	2.53
1.233	3.79	2.733	36.66	4.233	6.32	5.73	2.53
1.250	3.79	2.750	36.66	4.250	6.32	5.75	2.53
1.267	5.06	2.767	64.47	4.267	5.06	5.77	2.53
1.283	5.06	2.783	64.47	4.283	5.06	5.78	2.53
1.300	5.06	2.800	64.47	4.300	5.06	5.80	2.53
1.317	5.06	2.817	64.47	4.317	5.06	5.82	2.53
1.333	5.06	2.833	64.47	4.333	5.06	5.83	2.53
1.350	5.06	2.850	64.47	4.350	5.06	5.85	2.53
1.367	5.06	2.867	64.47	4.367	5.06	5.87	2.53
1.383	5.06	2.883	64.47	4.383	5.06	5.88	2.53
1.400	5.06	2.900	64.47	4.400	5.06	5.90	2.53
1.417	5.06	2.917	64.47	4.417	5.06	5.92	2.53
1.433	5.06	2.933	64.47	4.433	5.06	5.93	2.53
1.450	5.06	2.950	64.47	4.450	5.06	5.95	2.53
1.467	5.06	2.967	64.47	4.467	5.06	5.97	2.53
1.483	5.06	2.983	64.47	4.483	5.06	5.98	2.53
1.500	5.06	3.000	64.47	4.500	5.06	6.00	2.52

Max.Eff.Inten.(mm/hr)=	64.47	43.93	
over (min)	5.00	12.00	
Storage Coeff. (min)=	3.71 (ii)	11.48 (ii)	
Unit Hyd. Tpeak (min)=	5.00	12.00	
Unit Hyd. peak (cms)=	0.27	0.10	
			TOTALS
PEAK FLOW (cms)=	0.20	0.09	0.265 (iii)
TIME TO PEAK (hrs)=	3.00	3.25	3.02
RUNOFF VOLUME (mm)=	60.89	20.90	36.50
TOTAL RAINFALL (mm)=	62.89	62.89	62.89
RUNOFF COEFFICIENT =	0.97	0.33	0.58

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (2101):	17.31	1.474	3.00	36.54
	+ ID2= 2 (3100):	2.89	0.265	3.02	36.50
	ID = 3 (0097):	20.20	1.737	3.00	36.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0097):	20.20	1.737	3.00	36.53
	+ ID2= 2 (0096):	1.16	0.056	3.00	22.92
	ID = 1 (0097):	21.36	1.794	3.00	35.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 1.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)

0.0000	0.0000	0.0400	0.6360
0.0160	0.1070	0.0790	0.7870
0.0240	0.2260	0.2900	0.9450
0.0300	0.3550	0.4710	1.0430
0.0350	0.4920	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0097)	21.360	1.794	3.00	35.79
OUTFLOW: ID= 1 (0001)	21.360	0.057	6.15	19.49

PEAK FLOW REDUCTION [Qout/Qin](%)= 3.20
TIME SHIFT OF PEAK FLOW (min)=189.00
MAXIMUM STORAGE USED (ha.m.)= 0.7034

CALIB
STANDHYD (2102)
ID= 1 DT= 5.0 min

Area (ha)= 0.21
Total Imp(%)= 65.00 Dir. Conn.(%)= 65.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.14	0.07
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	37.42	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.26	1.583	5.06	3.083	40.45	4.58	4.42
0.167	1.26	1.667	5.06	3.167	40.45	4.67	4.42
0.250	1.26	1.750	5.06	3.250	40.45	4.75	4.42
0.333	2.53	1.833	5.06	3.333	16.43	4.83	3.79
0.417	2.53	1.917	5.06	3.417	16.43	4.92	3.79
0.500	2.53	2.000	5.06	3.500	16.43	5.00	3.79
0.583	2.53	2.083	6.95	3.583	12.01	5.08	3.16
0.667	2.53	2.167	6.95	3.667	12.01	5.17	3.16
0.750	2.53	2.250	6.95	3.750	12.01	5.25	3.16
0.833	2.53	2.333	8.85	3.833	7.59	5.33	2.53
0.917	2.53	2.417	8.85	3.917	7.59	5.42	2.53
1.000	2.53	2.500	8.85	4.000	7.59	5.50	2.53
1.083	3.79	2.583	36.66	4.083	6.32	5.58	2.53
1.167	3.79	2.667	36.66	4.167	6.32	5.67	2.53
1.250	3.79	2.750	36.66	4.250	6.32	5.75	2.53
1.333	5.06	2.833	64.47	4.333	5.06	5.83	2.53
1.417	5.06	2.917	64.47	4.417	5.06	5.92	2.53
1.500	5.06	3.000	64.47	4.500	5.06	6.00	2.53

Max.Eff.Inten.(mm/hr)=	64.47	11.68		
over (min)	5.00	20.00		
Storage Coeff. (min)=	1.69 (ii)	18.35 (ii)		
Unit Hyd. Tpeak (min)=	5.00	20.00		
Unit Hyd. peak (cms)=	0.32	0.06		
			TOTALS	
PEAK FLOW (cms)=	0.02	0.00	0.025 (iii)	
TIME TO PEAK (hrs)=	3.00	3.33	3.00	
RUNOFF VOLUME (mm)=	60.89	12.22	43.81	
TOTAL RAINFALL (mm)=	62.89	62.89	62.89	
RUNOFF COEFFICIENT =	0.97	0.19	0.70	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0015)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	21.36	0.057	6.15	19.49
+ ID2= 2 (2102):	0.21	0.025	3.00	43.81
ID = 3 (0015):	21.57	0.058	6.00	19.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:2.5 SCS II 6hr 50yr **
****

MASS STORM	Filename: C:\Users\rbrockie\AppData\Local\Temp\913e2f46-79e8-42d3-b20d-3fb65cefc10e\18df2be1
Ptotal= 69.98 mm	Comments: SCS 6 HOUR TYPE II STORM DISTRIBUTION

Duration of storm = 6.00 hrs
Mass curve time step = 30.00 min
New Storm time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	1.40	1.50	5.60	3.00	44.79	4.50	4.90
0.25	2.80	1.75	5.60	3.25	18.19	4.75	4.20
0.50	2.80	2.00	7.70	3.50	13.30	5.00	3.50
0.75	2.80	2.25	9.80	3.75	8.40	5.25	2.80
1.00	4.20	2.50	40.59	4.00	7.00	5.50	2.80
1.25	5.60	2.75	71.38	4.25	5.60	5.75	2.80

CALIB	
STANDHYD (2101)	Area (ha)= 17.31
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.08	6.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	339.71	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.40	1.583	5.60	3.083	44.79	4.58	4.90
0.167	1.40	1.667	5.60	3.167	44.79	4.67	4.90
0.250	1.40	1.750	5.60	3.250	44.79	4.75	4.90
0.333	2.80	1.833	5.60	3.333	18.20	4.83	4.20
0.417	2.80	1.917	5.60	3.417	18.19	4.92	4.20
0.500	2.80	2.000	5.60	3.500	18.19	5.00	4.20
0.583	2.80	2.083	7.70	3.583	13.30	5.08	3.50
0.667	2.80	2.167	7.70	3.667	13.30	5.17	3.50
0.750	2.80	2.250	7.70	3.750	13.30	5.25	3.50
0.833	2.80	2.333	9.80	3.833	8.40	5.33	2.80
0.917	2.80	2.417	9.80	3.917	8.40	5.42	2.80
1.000	2.80	2.500	9.80	4.000	8.40	5.50	2.80
1.083	4.20	2.583	40.59	4.083	7.00	5.58	2.80
1.167	4.20	2.667	40.59	4.167	7.00	5.67	2.80
1.250	4.20	2.750	40.59	4.250	7.00	5.75	2.80
1.333	5.60	2.833	71.38	4.333	5.60	5.83	2.80
1.417	5.60	2.917	71.38	4.417	5.60	5.92	2.80
1.500	5.60	3.000	71.38	4.500	5.60	6.00	2.80

				TOTALS
Max.Eff.Inten.	(mm/hr)=	71.38	34.92	
	over (min)	5.00	20.00	
Storage Coeff.	(min)=	6.09 (ii)	16.84 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	20.00	
Unit Hyd. peak	(cms)=	0.19	0.06	
PEAK FLOW	(cms)=	1.42	0.45	1.669 (iii)
TIME TO PEAK	(hrs)=	3.00	3.33	3.00
RUNOFF VOLUME	(mm)=	67.63	21.75	41.48
TOTAL RAINFALL	(mm)=	69.63	69.63	69.63
RUNOFF COEFFICIENT	=	0.97	0.31	0.60

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0096)	Area (ha)= 1.16
ID= 1 DT= 5.0 min	Total Imp(%)= 22.00 Dir. Conn.(%)= 22.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.26	0.90
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.94	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.40	1.583	5.60	3.083	44.79	4.58	4.90
0.167	1.40	1.667	5.60	3.167	44.79	4.67	4.90
0.250	1.40	1.750	5.60	3.250	44.79	4.75	4.90
0.333	2.80	1.833	5.60	3.333	18.20	4.83	4.20
0.417	2.80	1.917	5.60	3.417	18.19	4.92	4.20
0.500	2.80	2.000	5.60	3.500	18.19	5.00	4.20
0.583	2.80	2.083	7.70	3.583	13.30	5.08	3.50
0.667	2.80	2.167	7.70	3.667	13.30	5.17	3.50
0.750	2.80	2.250	7.70	3.750	13.30	5.25	3.50
0.833	2.80	2.333	9.80	3.833	8.40	5.33	2.80
0.917	2.80	2.417	9.80	3.917	8.40	5.42	2.80
1.000	2.80	2.500	9.80	4.000	8.40	5.50	2.80
1.083	4.20	2.583	40.59	4.083	7.00	5.58	2.80
1.167	4.20	2.667	40.59	4.167	7.00	5.67	2.80
1.250	4.20	2.750	40.59	4.250	7.00	5.75	2.80
1.333	5.60	2.833	71.38	4.333	5.60	5.83	2.80
1.417	5.60	2.917	71.38	4.417	5.60	5.92	2.80
1.500	5.60	3.000	71.38	4.500	5.60	6.00	2.80

Max.Eff.Inten.(mm/hr)=		71.38	14.24	
over (min)		5.00	20.00	
Storage Coeff. (min)=		2.71 (ii)	18.10 (ii)	
Unit Hyd. Tpeak (min)=		5.00	20.00	
Unit Hyd. peak (cms)=		0.29	0.06	
				TOTALS
PEAK FLOW	(cms)=	0.05	0.03	0.064 (iii)
TIME TO PEAK	(hrs)=	3.00	3.33	3.00
RUNOFF VOLUME	(mm)=	67.63	14.86	26.46
TOTAL RAINFALL	(mm)=	69.63	69.63	69.63
RUNOFF COEFFICIENT	=	0.97	0.21	0.38

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (3100)	Area (ha)= 2.89
ID= 1 DT= 1.0 min	Total Imp(%)= 68.00 Dir. Conn.(%)= 39.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	1.40	1.517	5.60	3.017	44.79	4.52	4.90
0.033	1.40	1.533	5.60	3.033	44.79	4.53	4.90
0.050	1.40	1.550	5.60	3.050	44.79	4.55	4.90
0.067	1.40	1.567	5.60	3.067	44.79	4.57	4.90
0.083	1.40	1.583	5.60	3.083	44.79	4.58	4.90
0.100	1.40	1.600	5.60	3.100	44.79	4.60	4.90
0.117	1.40	1.617	5.60	3.117	44.79	4.62	4.90
0.133	1.40	1.633	5.60	3.133	44.79	4.63	4.90
0.150	1.40	1.650	5.60	3.150	44.79	4.65	4.90

0.167	1.40	1.667	5.60	3.167	44.79	4.67	4.90
0.183	1.40	1.683	5.60	3.183	44.79	4.68	4.90
0.200	1.40	1.700	5.60	3.200	44.79	4.70	4.90
0.217	1.40	1.717	5.60	3.217	44.79	4.72	4.90
0.233	1.40	1.733	5.60	3.233	44.79	4.73	4.90
0.250	1.40	1.750	5.60	3.250	44.79	4.75	4.90
0.267	2.80	1.767	5.60	3.267	18.20	4.77	4.20
0.283	2.80	1.783	5.60	3.283	18.19	4.78	4.20
0.300	2.80	1.800	5.60	3.300	18.19	4.80	4.20
0.317	2.80	1.817	5.60	3.317	18.19	4.82	4.20
0.333	2.80	1.833	5.60	3.333	18.19	4.83	4.20
0.350	2.80	1.850	5.60	3.350	18.19	4.85	4.20
0.367	2.80	1.867	5.60	3.367	18.19	4.87	4.20
0.383	2.80	1.883	5.60	3.383	18.19	4.88	4.20
0.400	2.80	1.900	5.60	3.400	18.19	4.90	4.20
0.417	2.80	1.917	5.60	3.417	18.19	4.92	4.20
0.433	2.80	1.933	5.60	3.433	18.19	4.93	4.20
0.450	2.80	1.950	5.60	3.450	18.19	4.95	4.20
0.467	2.80	1.967	5.60	3.467	18.19	4.97	4.20
0.483	2.80	1.983	5.60	3.483	18.19	4.98	4.20
0.500	2.80	2.000	5.60	3.500	18.19	5.00	4.20
0.517	2.80	2.017	7.70	3.517	13.30	5.02	3.50
0.533	2.80	2.033	7.70	3.533	13.30	5.03	3.50
0.550	2.80	2.050	7.70	3.550	13.30	5.05	3.50
0.567	2.80	2.067	7.70	3.567	13.30	5.07	3.50
0.583	2.80	2.083	7.70	3.583	13.30	5.08	3.50
0.600	2.80	2.100	7.70	3.600	13.30	5.10	3.50
0.617	2.80	2.117	7.70	3.617	13.30	5.12	3.50
0.633	2.80	2.133	7.70	3.633	13.30	5.13	3.50
0.650	2.80	2.150	7.70	3.650	13.30	5.15	3.50
0.667	2.80	2.167	7.70	3.667	13.30	5.17	3.50
0.683	2.80	2.183	7.70	3.683	13.30	5.18	3.50
0.700	2.80	2.200	7.70	3.700	13.30	5.20	3.50
0.717	2.80	2.217	7.70	3.717	13.30	5.22	3.50
0.733	2.80	2.233	7.70	3.733	13.30	5.23	3.50
0.750	2.80	2.250	7.70	3.750	13.30	5.25	3.50
0.767	2.80	2.267	9.80	3.767	8.40	5.27	2.80
0.783	2.80	2.283	9.80	3.783	8.40	5.28	2.80
0.800	2.80	2.300	9.80	3.800	8.40	5.30	2.80
0.817	2.80	2.317	9.80	3.817	8.40	5.32	2.80
0.833	2.80	2.333	9.80	3.833	8.40	5.33	2.80
0.850	2.80	2.350	9.80	3.850	8.40	5.35	2.80
0.867	2.80	2.367	9.80	3.867	8.40	5.37	2.80
0.883	2.80	2.383	9.80	3.883	8.40	5.38	2.80
0.900	2.80	2.400	9.80	3.900	8.40	5.40	2.80
0.917	2.80	2.417	9.80	3.917	8.40	5.42	2.80
0.933	2.80	2.433	9.80	3.933	8.40	5.43	2.80
0.950	2.80	2.450	9.80	3.950	8.40	5.45	2.80
0.967	2.80	2.467	9.80	3.967	8.40	5.47	2.80
0.983	2.80	2.483	9.80	3.983	8.40	5.48	2.80
1.000	2.80	2.500	9.80	4.000	8.40	5.50	2.80
1.017	4.20	2.517	40.59	4.017	7.00	5.52	2.80
1.033	4.20	2.533	40.59	4.033	7.00	5.53	2.80
1.050	4.20	2.550	40.59	4.050	7.00	5.55	2.80
1.067	4.20	2.567	40.59	4.067	7.00	5.57	2.80
1.083	4.20	2.583	40.59	4.083	7.00	5.58	2.80
1.100	4.20	2.600	40.59	4.100	7.00	5.60	2.80
1.117	4.20	2.617	40.59	4.117	7.00	5.62	2.80
1.133	4.20	2.633	40.59	4.133	7.00	5.63	2.80
1.150	4.20	2.650	40.59	4.150	7.00	5.65	2.80
1.167	4.20	2.667	40.59	4.167	7.00	5.67	2.80
1.183	4.20	2.683	40.59	4.183	7.00	5.68	2.80
1.200	4.20	2.700	40.59	4.200	7.00	5.70	2.80
1.217	4.20	2.717	40.59	4.217	7.00	5.72	2.80
1.233	4.20	2.733	40.59	4.233	7.00	5.73	2.80
1.250	4.20	2.750	40.59	4.250	7.00	5.75	2.80
1.267	5.60	2.767	71.38	4.267	5.60	5.77	2.80
1.283	5.60	2.783	71.38	4.283	5.60	5.78	2.80
1.300	5.60	2.800	71.38	4.300	5.60	5.80	2.80
1.317	5.60	2.817	71.38	4.317	5.60	5.82	2.80
1.333	5.60	2.833	71.38	4.333	5.60	5.83	2.80
1.350	5.60	2.850	71.38	4.350	5.60	5.85	2.80
1.367	5.60	2.867	71.38	4.367	5.60	5.87	2.80
1.383	5.60	2.883	71.38	4.383	5.60	5.88	2.80
1.400	5.60	2.900	71.38	4.400	5.60	5.90	2.80
1.417	5.60	2.917	71.38	4.417	5.60	5.92	2.80
1.433	5.60	2.933	71.38	4.433	5.60	5.93	2.80
1.450	5.60	2.950	71.38	4.450	5.60	5.95	2.80
1.467	5.60	2.967	71.38	4.467	5.60	5.97	2.80
1.483	5.60	2.983	71.38	4.483	5.60	5.98	2.80
1.500	5.60	3.000	71.38	4.500	5.60	6.00	2.80

Max.Eff.Inten.(mm/hr)=	71.38	52.55
over (min)	5.00	12.00

```
     Storage Coeff.  (min)=       3.56 (ii)   11.02 (ii)
     Unit Hyd. Tpeak (min)=       5.00        12.00
     Unit Hyd. peak  (cms)=       0.28         0.10
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.22         0.10          0.302 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.18           3.02
     RUNOFF VOLUME    (mm)=      67.63        24.87          41.55
     TOTAL RAINFALL   (mm)=      69.63        69.63          69.63
     RUNOFF COEFFICIENT   =       0.97         0.36           0.60


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0097)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2101):    17.31   1.669     3.00    41.48
      + ID2= 2 (  3100):     2.89   0.302     3.02    41.55
        ================================================
        ID = 3 (  0097):    20.20   1.969     3.00    41.49

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

--------------------
| ADD HYD  (  0097)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0097):    20.20   1.969     3.00    41.49
      + ID2= 2 (  0096):     1.16   0.064     3.00    26.46
        ================================================
        ID = 1 (  0097):    21.36   2.033     3.00    40.67

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000      0.0000   |    0.0400      0.6360
                          0.0160      0.1070   |    0.0790      0.7870
                          0.0240      0.2260   |    0.2900      0.9450
                          0.0300      0.3550   |    0.4710      1.0430
                          0.0350      0.4920   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0097)    21.360     2.033      3.00      40.67
   OUTFLOW: ID= 1 (  0001)    21.360     0.081      6.08      22.61

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.98
                  TIME SHIFT OF PEAK FLOW         (min)=185.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.7885

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--------------------
| CALIB            |
| STANDHYD (  2102)|   Area    (ha)=   0.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.14         0.07
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      37.42        40.00
     Mannings n           =      0.013        0.250

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


                        ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    1.40 | 1.583    5.60 | 3.083   44.79 |  4.58    4.90
              0.167    1.40 | 1.667    5.60 | 3.167   44.79 |  4.67    4.90
              0.250    1.40 | 1.750    5.60 | 3.250   44.79 |  4.75    4.90
```

0.333	2.80	1.833	5.60	3.333	18.20	4.83	4.20
0.417	2.80	1.917	5.60	3.417	18.19	4.92	4.20
0.500	2.80	2.000	5.60	3.500	18.19	5.00	4.20
0.583	2.80	2.083	7.70	3.583	13.30	5.08	3.50
0.667	2.80	2.167	7.70	3.667	13.30	5.17	3.50
0.750	2.80	2.250	7.70	3.750	13.30	5.25	3.50
0.833	2.80	2.333	9.80	3.833	8.40	5.33	2.80
0.917	2.80	2.417	9.80	3.917	8.40	5.42	2.80
1.000	2.80	2.500	9.80	4.000	8.40	5.50	2.80
1.083	4.20	2.583	40.59	4.083	7.00	5.58	2.80
1.167	4.20	2.667	40.59	4.167	7.00	5.67	2.80
1.250	4.20	2.750	40.59	4.250	7.00	5.75	2.80
1.333	5.60	2.833	71.38	4.333	5.60	5.83	2.80
1.417	5.60	2.917	71.38	4.417	5.60	5.92	2.80
1.500	5.60	3.000	71.38	4.500	5.60	6.00	2.80

Max.Eff.Inten.(mm/hr)=	71.38	14.24		
over (min)	5.00	20.00		
Storage Coeff. (min)=	1.62 (ii)	17.01 (ii)		
Unit Hyd. Tpeak (min)=	5.00	20.00		
Unit Hyd. peak (cms)=	0.32	0.06		
			TOTALS	
PEAK FLOW (cms)=	0.03	0.00	0.028 (iii)	
TIME TO PEAK (hrs)=	3.00	3.33	3.00	
RUNOFF VOLUME (mm)=	67.63	14.86	49.11	
TOTAL RAINFALL (mm)=	69.63	69.63	69.63	
RUNOFF COEFFICIENT =	0.97	0.21	0.71	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0015)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
1 + 2 = 3	ID1= 1 (0001):	21.36	0.081	6.08	22.61
	+ ID2= 2 (2102):	0.21	0.028	3.00	49.11
	ID = 3 (0015):	21.57	0.082	6.03	22.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:2.6 SCS II 6hr 100yr **
****

MASS STORM	Filename: C:\Users\rbrockie\AppData\Local\Temp\913e2f46-79e8-42d3-b20d-3fb65cefc10e\6b2a3b2b
Ptotal= 76.57 mm	Comments: SCS 6 HOUR TYPE II STORM DISTRIBUTION

Duration of storm = 6.00 hrs
Mass curve time step = 30.00 min
New Storm time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	1.53	1.50	6.13	3.00	49.00	4.50	5.36
0.25	3.06	1.75	6.13	3.25	19.91	4.75	4.59
0.50	3.06	2.00	8.42	3.50	14.55	5.00	3.83
0.75	3.06	2.25	10.72	3.75	9.19	5.25	3.06
1.00	4.59	2.50	44.41	4.00	7.66	5.50	3.06
1.25	6.13	2.75	78.10	4.25	6.13	5.75	3.06

CALIB		
STANDHYD (2101)	Area (ha)= 17.31	
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00	Dir. Conn.(%)= 43.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	11.08	6.23
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	339.71	40.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.53	1.583	6.13	3.083	49.01	4.58	5.36
0.167	1.53	1.667	6.13	3.167	49.00	4.67	5.36
0.250	1.53	1.750	6.13	3.250	49.00	4.75	5.36
0.333	3.06	1.833	6.13	3.333	19.91	4.83	4.59
0.417	3.06	1.917	6.13	3.417	19.91	4.92	4.59
0.500	3.06	2.000	6.13	3.500	19.91	5.00	4.59
0.583	3.06	2.083	8.42	3.583	14.55	5.08	3.83
0.667	3.06	2.167	8.42	3.667	14.55	5.17	3.83
0.750	3.06	2.250	8.42	3.750	14.55	5.25	3.83
0.833	3.06	2.333	10.72	3.833	9.19	5.33	3.06
0.917	3.06	2.417	10.72	3.917	9.19	5.42	3.06
1.000	3.06	2.500	10.72	4.000	9.19	5.50	3.06
1.083	4.59	2.583	44.41	4.083	7.66	5.58	3.06
1.167	4.59	2.667	44.41	4.167	7.66	5.67	3.06
1.250	4.59	2.750	44.41	4.250	7.66	5.75	3.06
1.333	6.13	2.833	78.10	4.333	6.13	5.83	3.06
1.417	6.13	2.917	78.10	4.417	6.13	5.92	3.06
1.500	6.13	3.000	78.10	4.500	6.13	6.00	3.06

Max.Eff.Inten.(mm/hr)=	78.10	44.41		
over (min)	5.00	20.00		
Storage Coeff. (min)=	5.87 (ii)	15.64 (ii)		
Unit Hyd. Tpeak (min)=	5.00	20.00		
Unit Hyd. peak (cms)=	0.19	0.07		
			TOTALS	
PEAK FLOW (cms)=	1.56	0.54	1.868 (iii)	
TIME TO PEAK (hrs)=	3.00	3.25	3.00	
RUNOFF VOLUME (mm)=	74.19	25.43	46.40	
TOTAL RAINFALL (mm)=	76.19	76.19	76.19	
RUNOFF COEFFICIENT =	0.97	0.33	0.61	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB STANDHYD (0096) ID= 1 DT= 5.0 min	Area (ha)= 1.16 Total Imp(%)= 22.00 Dir. Conn.(%)= 22.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.26	0.90
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.94	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.53	1.583	6.13	3.083	49.01	4.58	5.36
0.167	1.53	1.667	6.13	3.167	49.00	4.67	5.36
0.250	1.53	1.750	6.13	3.250	49.00	4.75	5.36
0.333	3.06	1.833	6.13	3.333	19.91	4.83	4.59
0.417	3.06	1.917	6.13	3.417	19.91	4.92	4.59
0.500	3.06	2.000	6.13	3.500	19.91	5.00	4.59
0.583	3.06	2.083	8.42	3.583	14.55	5.08	3.83
0.667	3.06	2.167	8.42	3.667	14.55	5.17	3.83
0.750	3.06	2.250	8.42	3.750	14.55	5.25	3.83
0.833	3.06	2.333	10.72	3.833	9.19	5.33	3.06
0.917	3.06	2.417	10.72	3.917	9.19	5.42	3.06
1.000	3.06	2.500	10.72	4.000	9.19	5.50	3.06
1.083	4.59	2.583	44.41	4.083	7.66	5.58	3.06
1.167	4.59	2.667	44.41	4.167	7.66	5.67	3.06
1.250	4.59	2.750	44.41	4.250	7.66	5.75	3.06
1.333	6.13	2.833	78.10	4.333	6.13	5.83	3.06
1.417	6.13	2.917	78.10	4.417	6.13	5.92	3.06
1.500	6.13	3.000	78.10	4.500	6.13	6.00	3.06

Max.Eff.Inten.(mm/hr)=	78.10	17.41

over (min)	5.00	20.00	
Storage Coeff. (min)=	2.61 (ii)	16.81 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.29	0.06	
			TOTALS
PEAK FLOW (cms)=	0.06	0.03	0.073 (iii)
TIME TO PEAK (hrs)=	3.00	3.33	3.00
RUNOFF VOLUME (mm)=	74.19	17.62	30.06
TOTAL RAINFALL (mm)=	76.19	76.19	76.19
RUNOFF COEFFICIENT =	0.97	0.23	0.39

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (3100)
ID= 1 DT= 1.0 min

Area (ha)= 2.89
Total Imp(%)= 68.00 Dir. Conn.(%)= 39.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	1.53	1.517	6.13	3.017	49.01	4.52	5.36
0.033	1.53	1.533	6.13	3.033	49.00	4.53	5.36
0.050	1.53	1.550	6.13	3.050	49.00	4.55	5.36
0.067	1.53	1.567	6.13	3.067	49.00	4.57	5.36
0.083	1.53	1.583	6.13	3.083	49.00	4.58	5.36
0.100	1.53	1.600	6.13	3.100	49.00	4.60	5.36
0.117	1.53	1.617	6.13	3.117	49.00	4.62	5.36
0.133	1.53	1.633	6.13	3.133	49.00	4.63	5.36
0.150	1.53	1.650	6.13	3.150	49.00	4.65	5.36
0.167	1.53	1.667	6.13	3.167	49.00	4.67	5.36
0.183	1.53	1.683	6.13	3.183	49.00	4.68	5.36
0.200	1.53	1.700	6.13	3.200	49.00	4.70	5.36
0.217	1.53	1.717	6.13	3.217	49.00	4.72	5.36
0.233	1.53	1.733	6.13	3.233	49.00	4.73	5.36
0.250	1.53	1.750	6.13	3.250	49.00	4.75	5.36
0.267	3.06	1.767	6.13	3.267	19.91	4.77	4.59
0.283	3.06	1.783	6.13	3.283	19.91	4.78	4.59
0.300	3.06	1.800	6.13	3.300	19.91	4.80	4.59
0.317	3.06	1.817	6.13	3.317	19.91	4.82	4.59
0.333	3.06	1.833	6.13	3.333	19.91	4.83	4.59
0.350	3.06	1.850	6.13	3.350	19.91	4.85	4.59
0.367	3.06	1.867	6.13	3.367	19.91	4.87	4.59
0.383	3.06	1.883	6.13	3.383	19.91	4.88	4.59
0.400	3.06	1.900	6.13	3.400	19.91	4.90	4.59
0.417	3.06	1.917	6.13	3.417	19.91	4.92	4.59
0.433	3.06	1.933	6.13	3.433	19.91	4.93	4.59
0.450	3.06	1.950	6.13	3.450	19.91	4.95	4.59
0.467	3.06	1.967	6.13	3.467	19.91	4.97	4.59
0.483	3.06	1.983	6.13	3.483	19.91	4.98	4.59
0.500	3.06	2.000	6.13	3.500	19.91	5.00	4.59
0.517	3.06	2.017	8.42	3.517	14.55	5.02	3.83
0.533	3.06	2.033	8.42	3.533	14.55	5.03	3.83
0.550	3.06	2.050	8.42	3.550	14.55	5.05	3.83
0.567	3.06	2.067	8.42	3.567	14.55	5.07	3.83
0.583	3.06	2.083	8.42	3.583	14.55	5.08	3.83
0.600	3.06	2.100	8.42	3.600	14.55	5.10	3.83
0.617	3.06	2.117	8.42	3.617	14.55	5.12	3.83
0.633	3.06	2.133	8.42	3.633	14.55	5.13	3.83
0.650	3.06	2.150	8.42	3.650	14.55	5.15	3.83
0.667	3.06	2.167	8.42	3.667	14.55	5.17	3.83
0.683	3.06	2.183	8.42	3.683	14.55	5.18	3.83
0.700	3.06	2.200	8.42	3.700	14.55	5.20	3.83
0.717	3.06	2.217	8.42	3.717	14.55	5.22	3.83
0.733	3.06	2.233	8.42	3.733	14.55	5.23	3.83
0.750	3.06	2.250	8.42	3.750	14.55	5.25	3.83
0.767	3.06	2.267	10.72	3.767	9.19	5.27	3.06

0.783	3.06	2.283	10.72	3.783	9.19	5.28	3.06
0.800	3.06	2.300	10.72	3.800	9.19	5.30	3.06
0.817	3.06	2.317	10.72	3.817	9.19	5.32	3.06
0.833	3.06	2.333	10.72	3.833	9.19	5.33	3.06
0.850	3.06	2.350	10.72	3.850	9.19	5.35	3.06
0.867	3.06	2.367	10.72	3.867	9.19	5.37	3.06
0.883	3.06	2.383	10.72	3.883	9.19	5.38	3.06
0.900	3.06	2.400	10.72	3.900	9.19	5.40	3.06
0.917	3.06	2.417	10.72	3.917	9.19	5.42	3.06
0.933	3.06	2.433	10.72	3.933	9.19	5.43	3.06
0.950	3.06	2.450	10.72	3.950	9.19	5.45	3.06
0.967	3.06	2.467	10.72	3.967	9.19	5.47	3.06
0.983	3.06	2.483	10.72	3.983	9.19	5.48	3.06
1.000	3.06	2.500	10.72	4.000	9.19	5.50	3.06
1.017	4.59	2.517	44.41	4.017	7.66	5.52	3.06
1.033	4.59	2.533	44.41	4.033	7.66	5.53	3.06
1.050	4.59	2.550	44.41	4.050	7.66	5.55	3.06
1.067	4.59	2.567	44.41	4.067	7.66	5.57	3.06
1.083	4.59	2.583	44.41	4.083	7.66	5.58	3.06
1.100	4.59	2.600	44.41	4.100	7.66	5.60	3.06
1.117	4.59	2.617	44.41	4.117	7.66	5.62	3.06
1.133	4.59	2.633	44.41	4.133	7.66	5.63	3.06
1.150	4.59	2.650	44.41	4.150	7.66	5.65	3.06
1.167	4.59	2.667	44.41	4.167	7.66	5.67	3.06
1.183	4.59	2.683	44.41	4.183	7.66	5.68	3.06
1.200	4.59	2.700	44.41	4.200	7.66	5.70	3.06
1.217	4.59	2.717	44.41	4.217	7.66	5.72	3.06
1.233	4.59	2.733	44.41	4.233	7.66	5.73	3.06
1.250	4.59	2.750	44.41	4.250	7.66	5.75	3.06
1.267	6.13	2.767	78.10	4.267	6.13	5.77	3.06
1.283	6.13	2.783	78.10	4.283	6.13	5.78	3.06
1.300	6.13	2.800	78.10	4.300	6.13	5.80	3.06
1.317	6.13	2.817	78.10	4.317	6.13	5.82	3.06
1.333	6.13	2.833	78.10	4.333	6.13	5.83	3.06
1.350	6.13	2.850	78.10	4.350	6.13	5.85	3.06
1.367	6.13	2.867	78.10	4.367	6.13	5.87	3.06
1.383	6.13	2.883	78.10	4.383	6.13	5.88	3.06
1.400	6.13	2.900	78.10	4.400	6.13	5.90	3.06
1.417	6.13	2.917	78.10	4.417	6.13	5.92	3.06
1.433	6.13	2.933	78.10	4.433	6.13	5.93	3.06
1.450	6.13	2.950	78.10	4.450	6.13	5.95	3.06
1.467	6.13	2.967	78.10	4.467	6.13	5.97	3.06
1.483	6.13	2.983	78.10	4.483	6.13	5.98	3.06
1.500	6.13	3.000	78.10	4.500	6.13	6.00	3.06

Max.Eff.Inten.(mm/hr)=	78.10	61.39	
over (min)	5.00	11.00	
Storage Coeff. (min)=	3.43 (ii)	10.63 (ii)	
Unit Hyd. Tpeak (min)=	5.00	11.00	
Unit Hyd. peak (cms)=	0.29	0.11	
			TOTALS
PEAK FLOW (cms)=	0.24	0.12	0.342 (iii)
TIME TO PEAK (hrs)=	3.00	3.17	3.02
RUNOFF VOLUME (mm)=	74.19	28.93	46.58
TOTAL RAINFALL (mm)=	76.19	76.19	76.19
RUNOFF COEFFICIENT =	0.97	0.38	0.61

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0097)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (2101):	17.31	1.868	3.00	46.40
+ ID2= 2 (3100):	2.89	0.342	3.02	46.58
ID = 3 (0097):	20.20	2.207	3.00	46.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0097)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0097):	20.20	2.207	3.00	46.42
+ ID2= 2 (0096):	1.16	0.073	3.00	30.06

```
        ==================================================
        ID = 1 (  0097):    21.36   2.280     3.00    45.53

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.0400      0.6360
                           0.0160      0.1070   |    0.0790      0.7870
                           0.0240      0.2260   |    0.2900      0.9450
                           0.0300      0.3550   |    0.4710      1.0430
                           0.0350      0.4920   |    0.0000      0.0000

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0097)     21.360      2.280      3.00      45.53
   OUTFLOW: ID= 1 (  0001)     21.360      0.155      5.47      26.84

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.79
                  TIME SHIFT OF PEAK FLOW         (min)=148.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.8437

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2102)|   Area    (ha)=   0.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.14         0.07
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      37.42        40.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    1.53 | 1.583    6.13 | 3.083   49.01 |  4.58    5.36
              0.167    1.53 | 1.667    6.13 | 3.167   49.00 |  4.67    5.36
              0.250    1.53 | 1.750    6.13 | 3.250   49.00 |  4.75    5.36
              0.333    3.06 | 1.833    6.13 | 3.333   19.91 |  4.83    4.59
              0.417    3.06 | 1.917    6.13 | 3.417   19.91 |  4.92    4.59
              0.500    3.06 | 2.000    6.13 | 3.500   19.91 |  5.00    4.59
              0.583    3.06 | 2.083    8.42 | 3.583   14.55 |  5.08    3.83
              0.667    3.06 | 2.167    8.42 | 3.667   14.55 |  5.17    3.83
              0.750    3.06 | 2.250    8.42 | 3.750   14.55 |  5.25    3.83
              0.833    3.06 | 2.333   10.72 | 3.833    9.19 |  5.33    3.06
              0.917    3.06 | 2.417   10.72 | 3.917    9.19 |  5.42    3.06
              1.000    3.06 | 2.500   10.72 | 4.000    9.19 |  5.50    3.06
              1.083    4.59 | 2.583   44.41 | 4.083    7.66 |  5.58    3.06
              1.167    4.59 | 2.667   44.41 | 4.167    7.66 |  5.67    3.06
              1.250    4.59 | 2.750   44.41 | 4.250    7.66 |  5.75    3.06
              1.333    6.13 | 2.833   78.10 | 4.333    6.13 |  5.83    3.06
              1.417    6.13 | 2.917   78.10 | 4.417    6.13 |  5.92    3.06
              1.500    6.13 | 3.000   78.10 | 4.500    6.13 |  6.00    3.06

     Max.Eff.Inten.(mm/hr)=      78.10        17.41
               over (min)         5.00        20.00
     Storage Coeff.  (min)=       1.56 (ii)   15.77 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.33         0.07
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.00          0.031 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33           3.00
     RUNOFF VOLUME    (mm)=      74.19        17.62          54.35
     TOTAL RAINFALL   (mm)=      76.19        76.19          76.19
     RUNOFF COEFFICIENT   =       0.97         0.23           0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0015)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    21.36   0.155     5.47    26.84
     + ID2= 2 (  2102):     0.21   0.031     3.00    54.35
       ================================================
       ID = 3 (  0015):    21.57   0.156     5.47    27.11

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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**********************************
** SIMULATION:3.1 SCS II 12hr 2yr **
**********************************
--------------------
| MASS STORM       |    Filename: C:\Users\rbrockie\AppD
|                  |              ata\Local\Temp\
|                  |              913e2f46-79e8-42d3-b20d-3fb65cefc10e\e17838a5
| Ptotal= 45.30 mm |    Comments: SCS 12 HOUR TYPE II STORM DISTRIBUTION
--------------------
                       Duration of storm    = 12.00 hrs
                       Mass curve time step = 30.00 min
                       New Storm time step  = 15.00 min


                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.45 |  3.00    1.81 |  6.00   24.46 |  9.00    1.81
                0.25    0.91 |  3.25    1.81 |  6.25    8.15 |  9.25    1.81
                0.50    0.91 |  3.50    1.81 |  6.50    5.89 |  9.50    1.36
                0.75    0.91 |  3.75    1.81 |  6.75    3.62 |  9.75    0.91
                1.00    0.91 |  4.00    2.26 |  7.00    3.17 | 10.00    0.91
                1.25    0.91 |  4.25    2.72 |  7.25    2.72 | 10.25    0.91
                1.50    0.91 |  4.50    3.17 |  7.50    2.72 | 10.50    0.91
                1.75    0.91 |  4.75    3.62 |  7.75    2.72 | 10.75    0.91
                2.00    1.36 |  5.00    4.53 |  8.00    2.27 | 11.00    0.91
                2.25    1.81 |  5.25    5.44 |  8.25    1.81 | 11.25    0.91
                2.50    1.81 |  5.50   23.10 |  8.50    1.81 | 11.50    0.91
                2.75    1.81 |  5.75   40.77 |  8.75    1.81 | 11.75    0.91

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--------------------
| CALIB            |
| STANDHYD (  2101)|   Area    (ha)=  17.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  43.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.08          6.23
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     339.71         40.00
     Mannings n             =     0.013         0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    0.45 | 3.083    1.81 | 6.083   24.46 |  9.08    1.81
               0.167    0.45 | 3.167    1.81 | 6.167   24.46 |  9.17    1.81
               0.250    0.45 | 3.250    1.81 | 6.250   24.46 |  9.25    1.81
               0.333    0.91 | 3.333    1.81 | 6.333    8.15 |  9.33    1.81
               0.417    0.91 | 3.417    1.81 | 6.417    8.15 |  9.42    1.81
               0.500    0.91 | 3.500    1.81 | 6.500    8.15 |  9.50    1.81
               0.583    0.91 | 3.583    1.81 | 6.583    5.89 |  9.58    1.36
               0.667    0.91 | 3.667    1.81 | 6.667    5.89 |  9.67    1.36
               0.750    0.91 | 3.750    1.81 | 6.750    5.89 |  9.75    1.36
               0.833    0.91 | 3.833    1.81 | 6.833    3.62 |  9.83    0.91
               0.917    0.91 | 3.917    1.81 | 6.917    3.62 |  9.92    0.91
               1.000    0.91 | 4.000    1.81 | 7.000    3.62 | 10.00    0.91
               1.083    0.91 | 4.083    2.26 | 7.083    3.17 | 10.08    0.91
               1.167    0.91 | 4.167    2.26 | 7.167    3.17 | 10.17    0.91
               1.250    0.91 | 4.250    2.26 | 7.250    3.17 | 10.25    0.91
               1.333    0.91 | 4.333    2.72 | 7.333    2.72 | 10.33    0.91
               1.417    0.91 | 4.417    2.72 | 7.417    2.72 | 10.42    0.91
               1.500    0.91 | 4.500    2.72 | 7.500    2.72 | 10.50    0.91
               1.583    0.91 | 4.583    3.17 | 7.583    2.72 | 10.58    0.91
               1.667    0.91 | 4.667    3.17 | 7.667    2.72 | 10.67    0.91
               1.750    0.91 | 4.750    3.17 | 7.750    2.72 | 10.75    0.91
               1.833    0.91 | 4.833    3.62 | 7.833    2.72 | 10.83    0.91
               1.917    0.91 | 4.917    3.62 | 7.917    2.72 | 10.92    0.91
               2.000    0.91 | 5.000    3.62 | 8.000    2.72 | 11.00    0.91
```

2.083	1.36	5.083	4.53	8.083	2.27	11.08	0.91
2.167	1.36	5.167	4.53	8.167	2.27	11.17	0.91
2.250	1.36	5.250	4.53	8.250	2.26	11.25	0.91
2.333	1.81	5.333	5.44	8.333	1.81	11.33	0.91
2.417	1.81	5.417	5.44	8.417	1.81	11.42	0.91
2.500	1.81	5.500	5.44	8.500	1.81	11.50	0.91
2.583	1.81	5.583	23.10	8.583	1.81	11.58	0.91
2.667	1.81	5.667	23.10	8.667	1.81	11.67	0.91
2.750	1.81	5.750	23.10	8.750	1.81	11.75	0.91
2.833	1.81	5.833	40.77	8.833	1.81	11.83	0.91
2.917	1.81	5.917	40.77	8.917	1.81	11.92	0.91
3.000	1.81	6.000	40.77	9.000	1.81	12.00	0.91

Max.Eff.Inten.(mm/hr)=	40.77	13.47	
over (min)	10.00	25.00	
Storage Coeff. (min)=	7.62 (ii)	23.36 (ii)	
Unit Hyd. Tpeak (min)=	10.00	25.00	
Unit Hyd. peak (cms)=	0.13	0.05	
			TOTALS
PEAK FLOW (cms)=	0.75	0.16	0.830 (iii)
TIME TO PEAK (hrs)=	6.00	6.42	6.08
RUNOFF VOLUME (mm)=	43.19	9.89	24.20
TOTAL RAINFALL (mm)=	45.19	45.19	45.19
RUNOFF COEFFICIENT =	0.96	0.22	0.54

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0096)	Area (ha)= 1.16
ID= 1 DT= 5.0 min	Total Imp(%)= 22.00 Dir. Conn.(%)= 22.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.26	0.90
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.94	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.45	3.083	1.81	6.083	24.46	9.08	1.81
0.167	0.45	3.167	1.81	6.167	24.46	9.17	1.81
0.250	0.45	3.250	1.81	6.250	24.46	9.25	1.81
0.333	0.91	3.333	1.81	6.333	8.15	9.33	1.81
0.417	0.91	3.417	1.81	6.417	8.15	9.42	1.81
0.500	0.91	3.500	1.81	6.500	8.15	9.50	1.81
0.583	0.91	3.583	1.81	6.583	5.89	9.58	1.36
0.667	0.91	3.667	1.81	6.667	5.89	9.67	1.36
0.750	0.91	3.750	1.81	6.750	5.89	9.75	1.36
0.833	0.91	3.833	1.81	6.833	3.62	9.83	0.91
0.917	0.91	3.917	1.81	6.917	3.62	9.92	0.91
1.000	0.91	4.000	1.81	7.000	3.62	10.00	0.91
1.083	0.91	4.083	2.26	7.083	3.17	10.08	0.91
1.167	0.91	4.167	2.26	7.167	3.17	10.17	0.91
1.250	0.91	4.250	2.26	7.250	3.17	10.25	0.91
1.333	0.91	4.333	2.72	7.333	2.72	10.33	0.91
1.417	0.91	4.417	2.72	7.417	2.72	10.42	0.91
1.500	0.91	4.500	2.72	7.500	2.72	10.50	0.91
1.583	0.91	4.583	3.17	7.583	2.72	10.58	0.91
1.667	0.91	4.667	3.17	7.667	2.72	10.67	0.91
1.750	0.91	4.750	3.17	7.750	2.72	10.75	0.91
1.833	0.91	4.833	3.62	7.833	2.72	10.83	0.91
1.917	0.91	4.917	3.62	7.917	2.72	10.92	0.91
2.000	0.91	5.000	3.62	8.000	2.72	11.00	0.91
2.083	1.36	5.083	4.53	8.083	2.27	11.08	0.91
2.167	1.36	5.167	4.53	8.167	2.27	11.17	0.91
2.250	1.36	5.250	4.53	8.250	2.26	11.25	0.91
2.333	1.81	5.333	5.44	8.333	1.81	11.33	0.91
2.417	1.81	5.417	5.44	8.417	1.81	11.42	0.91
2.500	1.81	5.500	5.44	8.500	1.81	11.50	0.91
2.583	1.81	5.583	23.10	8.583	1.81	11.58	0.91
2.667	1.81	5.667	23.10	8.667	1.81	11.67	0.91
2.750	1.81	5.750	23.10	8.750	1.81	11.75	0.91

2.833	1.81	5.833	40.77	8.833	1.81	11.83	0.91
2.917	1.81	5.917	40.77	8.917	1.81	11.92	0.91
3.000	1.81	6.000	40.77	9.000	1.81	12.00	0.91

Max.Eff.Inten.(mm/hr)=	40.77	5.28		
over (min)	5.00	30.00		
Storage Coeff. (min)=	3.39 (ii)	26.27 (ii)		
Unit Hyd. Tpeak (min)=	5.00	30.00		
Unit Hyd. peak (cms)=	0.26	0.04		
			TOTALS	
PEAK FLOW (cms)=	0.03	0.01	0.032 (iii)	
TIME TO PEAK (hrs)=	6.00	6.50	6.00	
RUNOFF VOLUME (mm)=	43.19	6.29	14.40	
TOTAL RAINFALL (mm)=	45.19	45.19	45.19	
RUNOFF COEFFICIENT =	0.96	0.14	0.32	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (3100)| Area (ha)= 2.89
ID= 1 DT= 1.0 min | Total Imp(%)= 68.00 Dir. Conn.(%)= 39.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	0.45	3.017	1.81	6.017	24.46	9.02	1.81
0.033	0.45	3.033	1.81	6.033	24.46	9.03	1.81
0.050	0.45	3.050	1.81	6.050	24.46	9.05	1.81
0.067	0.45	3.067	1.81	6.067	24.46	9.07	1.81
0.083	0.45	3.083	1.81	6.083	24.46	9.08	1.81
0.100	0.45	3.100	1.81	6.100	24.46	9.10	1.81
0.117	0.45	3.117	1.81	6.117	24.46	9.12	1.81
0.133	0.45	3.133	1.81	6.133	24.46	9.13	1.81
0.150	0.45	3.150	1.81	6.150	24.46	9.15	1.81
0.167	0.45	3.167	1.81	6.167	24.46	9.17	1.81
0.183	0.45	3.183	1.81	6.183	24.46	9.18	1.81
0.200	0.45	3.200	1.81	6.200	24.46	9.20	1.81
0.217	0.45	3.217	1.81	6.217	24.46	9.22	1.81
0.233	0.45	3.233	1.81	6.233	24.46	9.23	1.81
0.250	0.45	3.250	1.81	6.250	24.44	9.25	1.81
0.267	0.91	3.267	1.81	6.267	8.15	9.27	1.81
0.283	0.91	3.283	1.81	6.283	8.15	9.28	1.81
0.300	0.91	3.300	1.81	6.300	8.15	9.30	1.81
0.317	0.91	3.317	1.81	6.317	8.15	9.32	1.81
0.333	0.91	3.333	1.81	6.333	8.15	9.33	1.81
0.350	0.91	3.350	1.81	6.350	8.15	9.35	1.81
0.367	0.91	3.367	1.81	6.367	8.15	9.37	1.81
0.383	0.91	3.383	1.81	6.383	8.15	9.38	1.81
0.400	0.91	3.400	1.81	6.400	8.15	9.40	1.81
0.417	0.91	3.417	1.81	6.417	8.15	9.42	1.81
0.433	0.91	3.433	1.81	6.433	8.15	9.43	1.81
0.450	0.91	3.450	1.81	6.450	8.15	9.45	1.81
0.467	0.91	3.467	1.81	6.467	8.15	9.47	1.81
0.483	0.91	3.483	1.81	6.483	8.15	9.48	1.81
0.500	0.91	3.500	1.81	6.500	8.15	9.50	1.81
0.517	0.91	3.517	1.81	6.517	5.89	9.52	1.36
0.533	0.91	3.533	1.81	6.533	5.89	9.53	1.36
0.550	0.91	3.550	1.81	6.550	5.89	9.55	1.36
0.567	0.91	3.567	1.81	6.567	5.89	9.57	1.36
0.583	0.91	3.583	1.81	6.583	5.89	9.58	1.36
0.600	0.91	3.600	1.81	6.600	5.89	9.60	1.36
0.617	0.91	3.617	1.81	6.617	5.89	9.62	1.36
0.633	0.91	3.633	1.81	6.633	5.89	9.63	1.36
0.650	0.91	3.650	1.81	6.650	5.89	9.65	1.36
0.667	0.91	3.667	1.81	6.667	5.89	9.67	1.36
0.683	0.91	3.683	1.81	6.683	5.89	9.68	1.36

0.700	0.91	3.700	1.81	6.700	5.89	9.70	1.36
0.717	0.91	3.717	1.81	6.717	5.89	9.72	1.36
0.733	0.91	3.733	1.81	6.733	5.89	9.73	1.36
0.750	0.91	3.750	1.81	6.750	5.88	9.75	1.36
0.767	0.91	3.767	1.81	6.767	3.62	9.77	0.91
0.783	0.91	3.783	1.81	6.783	3.62	9.78	0.91
0.800	0.91	3.800	1.81	6.800	3.62	9.80	0.91
0.817	0.91	3.817	1.81	6.817	3.62	9.82	0.91
0.833	0.91	3.833	1.81	6.833	3.62	9.83	0.91
0.850	0.91	3.850	1.81	6.850	3.62	9.85	0.91
0.867	0.91	3.867	1.81	6.867	3.62	9.87	0.91
0.883	0.91	3.883	1.81	6.883	3.62	9.88	0.91
0.900	0.91	3.900	1.81	6.900	3.62	9.90	0.91
0.917	0.91	3.917	1.81	6.917	3.62	9.92	0.91
0.933	0.91	3.933	1.81	6.933	3.62	9.93	0.91
0.950	0.91	3.950	1.81	6.950	3.62	9.95	0.91
0.967	0.91	3.967	1.81	6.967	3.62	9.97	0.91
0.983	0.91	3.983	1.81	6.983	3.62	9.98	0.91
1.000	0.91	4.000	1.81	7.000	3.62	10.00	0.91
1.017	0.91	4.017	2.26	7.017	3.17	10.02	0.91
1.033	0.91	4.033	2.26	7.033	3.17	10.03	0.91
1.050	0.91	4.050	2.26	7.050	3.17	10.05	0.91
1.067	0.91	4.067	2.26	7.067	3.17	10.07	0.91
1.083	0.91	4.083	2.26	7.083	3.17	10.08	0.91
1.100	0.91	4.100	2.26	7.100	3.17	10.10	0.91
1.117	0.91	4.117	2.26	7.117	3.17	10.12	0.91
1.133	0.91	4.133	2.26	7.133	3.17	10.13	0.91
1.150	0.91	4.150	2.26	7.150	3.17	10.15	0.91
1.167	0.91	4.167	2.26	7.167	3.17	10.17	0.91
1.183	0.91	4.183	2.26	7.183	3.17	10.18	0.91
1.200	0.91	4.200	2.26	7.200	3.17	10.20	0.91
1.217	0.91	4.217	2.26	7.217	3.17	10.22	0.91
1.233	0.91	4.233	2.26	7.233	3.17	10.23	0.91
1.250	0.91	4.250	2.26	7.250	3.17	10.25	0.91
1.267	0.91	4.267	2.72	7.267	2.72	10.27	0.91
1.283	0.91	4.283	2.72	7.283	2.72	10.28	0.91
1.300	0.91	4.300	2.72	7.300	2.72	10.30	0.91
1.317	0.91	4.317	2.72	7.317	2.72	10.32	0.91
1.333	0.91	4.333	2.72	7.333	2.72	10.33	0.91
1.350	0.91	4.350	2.72	7.350	2.72	10.35	0.91
1.367	0.91	4.367	2.72	7.367	2.72	10.37	0.91
1.383	0.91	4.383	2.72	7.383	2.72	10.38	0.91
1.400	0.91	4.400	2.72	7.400	2.72	10.40	0.91
1.417	0.91	4.417	2.72	7.417	2.72	10.42	0.91
1.433	0.91	4.433	2.72	7.433	2.72	10.43	0.91
1.450	0.91	4.450	2.72	7.450	2.72	10.45	0.91
1.467	0.91	4.467	2.72	7.467	2.72	10.47	0.91
1.483	0.91	4.483	2.72	7.483	2.72	10.48	0.91
1.500	0.91	4.500	2.72	7.500	2.72	10.50	0.91
1.517	0.91	4.517	3.17	7.517	2.72	10.52	0.91
1.533	0.91	4.533	3.17	7.533	2.72	10.53	0.91
1.550	0.91	4.550	3.17	7.550	2.72	10.55	0.91
1.567	0.91	4.567	3.17	7.567	2.72	10.57	0.91
1.583	0.91	4.583	3.17	7.583	2.72	10.58	0.91
1.600	0.91	4.600	3.17	7.600	2.72	10.60	0.91
1.617	0.91	4.617	3.17	7.617	2.72	10.62	0.91
1.633	0.91	4.633	3.17	7.633	2.72	10.63	0.91
1.650	0.91	4.650	3.17	7.650	2.72	10.65	0.91
1.667	0.91	4.667	3.17	7.667	2.72	10.67	0.91
1.683	0.91	4.683	3.17	7.683	2.72	10.68	0.91
1.700	0.91	4.700	3.17	7.700	2.72	10.70	0.91
1.717	0.91	4.717	3.17	7.717	2.72	10.72	0.91
1.733	0.91	4.733	3.17	7.733	2.72	10.73	0.91
1.750	0.91	4.750	3.17	7.750	2.72	10.75	0.91
1.767	0.91	4.767	3.62	7.767	2.72	10.77	0.91
1.783	0.91	4.783	3.62	7.783	2.72	10.78	0.91
1.800	0.91	4.800	3.62	7.800	2.72	10.80	0.91
1.817	0.91	4.817	3.62	7.817	2.72	10.82	0.91
1.833	0.91	4.833	3.62	7.833	2.72	10.83	0.91
1.850	0.91	4.850	3.62	7.850	2.72	10.85	0.91
1.867	0.91	4.867	3.62	7.867	2.72	10.87	0.91
1.883	0.91	4.883	3.62	7.883	2.72	10.88	0.91
1.900	0.91	4.900	3.62	7.900	2.72	10.90	0.91
1.917	0.91	4.917	3.62	7.917	2.72	10.92	0.91
1.933	0.91	4.933	3.62	7.933	2.72	10.93	0.91
1.950	0.91	4.950	3.62	7.950	2.72	10.95	0.91
1.967	0.91	4.967	3.62	7.967	2.72	10.97	0.91
1.983	0.91	4.983	3.62	7.983	2.72	10.98	0.91
2.000	0.91	5.000	3.62	8.000	2.72	11.00	0.91
2.017	1.36	5.017	4.53	8.017	2.27	11.02	0.91
2.033	1.36	5.033	4.53	8.033	2.27	11.03	0.91
2.050	1.36	5.050	4.53	8.050	2.27	11.05	0.91
2.067	1.36	5.067	4.53	8.067	2.27	11.07	0.91
2.083	1.36	5.083	4.53	8.083	2.27	11.08	0.91

2.100	1.36	5.100	4.53	8.100	2.27	11.10	0.91
2.117	1.36	5.117	4.53	8.117	2.27	11.12	0.91
2.133	1.36	5.133	4.53	8.133	2.27	11.13	0.91
2.150	1.36	5.150	4.53	8.150	2.27	11.15	0.91
2.167	1.36	5.167	4.53	8.167	2.27	11.17	0.91
2.183	1.36	5.183	4.53	8.183	2.27	11.18	0.91
2.200	1.36	5.200	4.53	8.200	2.27	11.20	0.91
2.217	1.36	5.217	4.53	8.217	2.27	11.22	0.91
2.233	1.36	5.233	4.53	8.233	2.27	11.23	0.91
2.250	1.36	5.250	4.53	8.250	2.26	11.25	0.91
2.267	1.81	5.267	5.44	8.267	1.81	11.27	0.91
2.283	1.81	5.283	5.44	8.283	1.81	11.28	0.91
2.300	1.81	5.300	5.44	8.300	1.81	11.30	0.91
2.317	1.81	5.317	5.44	8.317	1.81	11.32	0.91
2.333	1.81	5.333	5.44	8.333	1.81	11.33	0.91
2.350	1.81	5.350	5.44	8.350	1.81	11.35	0.91
2.367	1.81	5.367	5.44	8.367	1.81	11.37	0.91
2.383	1.81	5.383	5.44	8.383	1.81	11.38	0.91
2.400	1.81	5.400	5.44	8.400	1.81	11.40	0.91
2.417	1.81	5.417	5.44	8.417	1.81	11.42	0.91
2.433	1.81	5.433	5.44	8.433	1.81	11.43	0.91
2.450	1.81	5.450	5.44	8.450	1.81	11.45	0.91
2.467	1.81	5.467	5.44	8.467	1.81	11.47	0.91
2.483	1.81	5.483	5.44	8.483	1.81	11.48	0.91
2.500	1.81	5.500	5.45	8.500	1.81	11.50	0.91
2.517	1.81	5.517	23.10	8.517	1.81	11.52	0.91
2.533	1.81	5.533	23.10	8.533	1.81	11.53	0.91
2.550	1.81	5.550	23.10	8.550	1.81	11.55	0.91
2.567	1.81	5.567	23.10	8.567	1.81	11.57	0.91
2.583	1.81	5.583	23.10	8.583	1.81	11.58	0.91
2.600	1.81	5.600	23.10	8.600	1.81	11.60	0.91
2.617	1.81	5.617	23.10	8.617	1.81	11.62	0.91
2.633	1.81	5.633	23.10	8.633	1.81	11.63	0.91
2.650	1.81	5.650	23.10	8.650	1.81	11.65	0.91
2.667	1.81	5.667	23.10	8.667	1.81	11.67	0.91
2.683	1.81	5.683	23.10	8.683	1.81	11.68	0.91
2.700	1.81	5.700	23.10	8.700	1.81	11.70	0.91
2.717	1.81	5.717	23.10	8.717	1.81	11.72	0.91
2.733	1.81	5.733	23.10	8.733	1.81	11.73	0.91
2.750	1.81	5.750	23.12	8.750	1.81	11.75	0.91
2.767	1.81	5.767	40.77	8.767	1.81	11.77	0.91
2.783	1.81	5.783	40.77	8.783	1.81	11.78	0.91
2.800	1.81	5.800	40.77	8.800	1.81	11.80	0.91
2.817	1.81	5.817	40.77	8.817	1.81	11.82	0.91
2.833	1.81	5.833	40.77	8.833	1.81	11.83	0.91
2.850	1.81	5.850	40.77	8.850	1.81	11.85	0.91
2.867	1.81	5.867	40.77	8.867	1.81	11.87	0.91
2.883	1.81	5.883	40.77	8.883	1.81	11.88	0.91
2.900	1.81	5.900	40.77	8.900	1.81	11.90	0.91
2.917	1.81	5.917	40.77	8.917	1.81	11.92	0.91
2.933	1.81	5.933	40.77	8.933	1.81	11.93	0.91
2.950	1.81	5.950	40.77	8.950	1.81	11.95	0.91
2.967	1.81	5.967	40.77	8.967	1.81	11.97	0.91
2.983	1.81	5.983	40.77	8.983	1.81	11.98	0.91
3.000	1.81	6.000	40.75	9.000	1.81	12.00	0.91

Max.Eff.Inten.(mm/hr)=	40.77	20.82	
over (min)	5.00	18.00	
Storage Coeff. (min)=	4.45 (ii)	17.67 (ii)	
Unit Hyd. Tpeak (min)=	5.00	18.00	
Unit Hyd. peak (cms)=	0.24	0.06	
			TOTALS
PEAK FLOW (cms)=	0.12	0.04	0.146 (iii)
TIME TO PEAK (hrs)=	6.00	6.30	6.02
RUNOFF VOLUME (mm)=	43.18	11.61	23.92
TOTAL RAINFALL (mm)=	45.19	45.19	45.19
RUNOFF COEFFICIENT =	0.96	0.26	0.53

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (2101):		17.31	0.830	6.08	24.20
+ ID2= 2 (3100):		2.89	0.146	6.02	23.92
		==========	==========	==========	==========

```
        ID = 3 (  0097):    20.20   0.974     6.02    24.16

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

--------------------
| ADD HYD  (  0097)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0097):    20.20   0.974     6.02    24.16
      + ID2= 2 (  0096):     1.16   0.032     6.00    14.40
        ================================================
        ID = 1 (  0097):    21.36   1.005     6.00    23.63

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000      0.0000   |    0.0400      0.6360
                          0.0160      0.1070   |    0.0790      0.7870
                          0.0240      0.2260   |    0.2900      0.9450
                          0.0300      0.3550   |    0.4710      1.0430
                          0.0350      0.4920   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0097)     21.360      1.005      6.00      23.63
   OUTFLOW: ID= 1 (  0001)     21.360      0.033     12.03      13.57

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.24
                  TIME SHIFT OF PEAK FLOW         (min)=362.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.4266

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--------------------
| CALIB            |
| STANDHYD (  2102)|   Area    (ha)=   0.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.14         0.07
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      37.42        40.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
  TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
   hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
 0.083     0.45 | 3.083     1.81 | 6.083    24.46 |  9.08     1.81
 0.167     0.45 | 3.167     1.81 | 6.167    24.46 |  9.17     1.81
 0.250     0.45 | 3.250     1.81 | 6.250    24.46 |  9.25     1.81
 0.333     0.91 | 3.333     1.81 | 6.333     8.15 |  9.33     1.81
 0.417     0.91 | 3.417     1.81 | 6.417     8.15 |  9.42     1.81
 0.500     0.91 | 3.500     1.81 | 6.500     8.15 |  9.50     1.81
 0.583     0.91 | 3.583     1.81 | 6.583     5.89 |  9.58     1.36
 0.667     0.91 | 3.667     1.81 | 6.667     5.89 |  9.67     1.36
 0.750     0.91 | 3.750     1.81 | 6.750     5.89 |  9.75     1.36
 0.833     0.91 | 3.833     1.81 | 6.833     3.62 |  9.83     0.91
 0.917     0.91 | 3.917     1.81 | 6.917     3.62 |  9.92     0.91
 1.000     0.91 | 4.000     1.81 | 7.000     3.62 | 10.00     0.91
 1.083     0.91 | 4.083     2.26 | 7.083     3.17 | 10.08     0.91
 1.167     0.91 | 4.167     2.26 | 7.167     3.17 | 10.17     0.91
 1.250     0.91 | 4.250     2.26 | 7.250     3.17 | 10.25     0.91
 1.333     0.91 | 4.333     2.72 | 7.333     2.72 | 10.33     0.91
 1.417     0.91 | 4.417     2.72 | 7.417     2.72 | 10.42     0.91
 1.500     0.91 | 4.500     2.72 | 7.500     2.72 | 10.50     0.91
 1.583     0.91 | 4.583     3.17 | 7.583     2.72 | 10.58     0.91
 1.667     0.91 | 4.667     3.17 | 7.667     2.72 | 10.67     0.91
 1.750     0.91 | 4.750     3.17 | 7.750     2.72 | 10.75     0.91
 1.833     0.91 | 4.833     3.62 | 7.833     2.72 | 10.83     0.91
 1.917     0.91 | 4.917     3.62 | 7.917     2.72 | 10.92     0.91
 2.000     0.91 | 5.000     3.62 | 8.000     2.72 | 11.00     0.91
 2.083     1.36 | 5.083     4.53 | 8.083     2.27 | 11.08     0.91
 2.167     1.36 | 5.167     4.53 | 8.167     2.27 | 11.17     0.91
 2.250     1.36 | 5.250     4.53 | 8.250     2.26 | 11.25     0.91
 2.333     1.81 | 5.333     5.44 | 8.333     1.81 | 11.33     0.91
 2.417     1.81 | 5.417     5.44 | 8.417     1.81 | 11.42     0.91
```

2.500	1.81	5.500	5.44	8.500	1.81	11.50	0.91
2.583	1.81	5.583	23.10	8.583	1.81	11.58	0.91
2.667	1.81	5.667	23.10	8.667	1.81	11.67	0.91
2.750	1.81	5.750	23.10	8.750	1.81	11.75	0.91
2.833	1.81	5.833	40.77	8.833	1.81	11.83	0.91
2.917	1.81	5.917	40.77	8.917	1.81	11.92	0.91
3.000	1.81	6.000	40.77	9.000	1.81	12.00	0.91

Max.Eff.Inten.(mm/hr)=	40.77	5.28	
over (min)	5.00	25.00	
Storage Coeff. (min)=	2.03 (ii)	24.92 (ii)	
Unit Hyd. Tpeak (min)=	5.00	25.00	
Unit Hyd. peak (cms)=	0.31	0.05	
			TOTALS
PEAK FLOW (cms)=	0.02	0.00	0.016 (iii)
TIME TO PEAK (hrs)=	6.00	6.42	6.00
RUNOFF VOLUME (mm)=	43.19	6.29	30.22
TOTAL RAINFALL (mm)=	45.19	45.19	45.19
RUNOFF COEFFICIENT =	0.96	0.14	0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0015)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0001):	21.36	0.033	12.03	13.57
	+ ID2= 2 (2102):	0.21	0.016	6.00	30.22
	ID = 3 (0015):	21.57	0.036	6.00	13.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:3.2 SCS II 12hr 5yr **
****

MASS STORM	Filename: C:\Users\rbrockie\AppData\Local\Temp\913e2f46-79e8-42d3-b20d-3fb65cefc10e\cfced977
Ptotal= 58.91 mm	Comments: SCS 12 HOUR TYPE II STORM DISTRIBUTION

Duration of storm = 12.00 hrs
Mass curve time step = 30.00 min
New Storm time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.59	3.00	2.36	6.00	31.81	9.00	2.36
0.25	1.18	3.25	2.36	6.25	10.60	9.25	2.36
0.50	1.18	3.50	2.36	6.50	7.66	9.50	1.77
0.75	1.18	3.75	2.36	6.75	4.71	9.75	1.18
1.00	1.18	4.00	2.95	7.00	4.12	10.00	1.18
1.25	1.18	4.25	3.53	7.25	3.53	10.25	1.18
1.50	1.18	4.50	4.12	7.50	3.53	10.50	1.18
1.75	1.18	4.75	4.71	7.75	3.53	10.75	1.18
2.00	1.77	5.00	5.89	8.00	2.95	11.00	1.18
2.25	2.36	5.25	7.07	8.25	2.36	11.25	1.18
2.50	2.36	5.50	30.04	8.50	2.36	11.50	1.18
2.75	2.36	5.75	53.02	8.75	2.36	11.75	1.18

CALIB STANDHYD (2101)	Area (ha)= 17.31
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.08	6.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	339.71	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.59	3.083	2.36	6.083	31.81	9.08	2.36
0.167	0.59	3.167	2.36	6.167	31.81	9.17	2.36
0.250	0.59	3.250	2.36	6.250	31.81	9.25	2.36
0.333	1.18	3.333	2.36	6.333	10.60	9.33	2.36
0.417	1.18	3.417	2.36	6.417	10.60	9.42	2.36
0.500	1.18	3.500	2.36	6.500	10.60	9.50	2.36
0.583	1.18	3.583	2.36	6.583	7.66	9.58	1.77
0.667	1.18	3.667	2.36	6.667	7.66	9.67	1.77
0.750	1.18	3.750	2.36	6.750	7.66	9.75	1.77
0.833	1.18	3.833	2.36	6.833	4.71	9.83	1.18
0.917	1.18	3.917	2.36	6.917	4.71	9.92	1.18
1.000	1.18	4.000	2.36	7.000	4.71	10.00	1.18
1.083	1.18	4.083	2.95	7.083	4.12	10.08	1.18
1.167	1.18	4.167	2.95	7.167	4.12	10.17	1.18
1.250	1.18	4.250	2.95	7.250	4.12	10.25	1.18
1.333	1.18	4.333	3.53	7.333	3.53	10.33	1.18
1.417	1.18	4.417	3.53	7.417	3.53	10.42	1.18
1.500	1.18	4.500	3.53	7.500	3.53	10.50	1.18
1.583	1.18	4.583	4.12	7.583	3.53	10.58	1.18
1.667	1.18	4.667	4.12	7.667	3.53	10.67	1.18
1.750	1.18	4.750	4.12	7.750	3.53	10.75	1.18
1.833	1.18	4.833	4.71	7.833	3.53	10.83	1.18
1.917	1.18	4.917	4.71	7.917	3.53	10.92	1.18
2.000	1.18	5.000	4.71	8.000	3.53	11.00	1.18
2.083	1.77	5.083	5.89	8.083	2.95	11.08	1.18
2.167	1.77	5.167	5.89	8.167	2.95	11.17	1.18
2.250	1.77	5.250	5.89	8.250	2.95	11.25	1.18
2.333	2.36	5.333	7.07	8.333	2.36	11.33	1.18
2.417	2.36	5.417	7.07	8.417	2.36	11.42	1.18
2.500	2.36	5.500	7.07	8.500	2.36	11.50	1.18
2.583	2.36	5.583	30.04	8.583	2.36	11.58	1.18
2.667	2.36	5.667	30.04	8.667	2.36	11.67	1.18
2.750	2.36	5.750	30.04	8.750	2.36	11.75	1.18
2.833	2.36	5.833	53.02	8.833	2.36	11.83	1.18
2.917	2.36	5.917	53.02	8.917	2.36	11.92	1.18
3.000	2.36	6.000	53.02	9.000	2.36	12.00	1.18

Max.Eff.Inten.(mm/hr)=	53.02	23.73	
over (min)	5.00	20.00	
Storage Coeff. (min)=	6.86 (ii)	19.41 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.18	0.06	
			TOTALS
PEAK FLOW (cms)=	1.04	0.28	1.205 (iii)
TIME TO PEAK (hrs)=	6.00	6.33	6.00
RUNOFF VOLUME (mm)=	56.76	16.08	33.57
TOTAL RAINFALL (mm)=	58.76	58.76	58.76
RUNOFF COEFFICIENT =	0.97	0.27	0.57

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0096)
ID= 1 DT= 5.0 min

Area (ha)= 1.16
Total Imp(%)= 22.00 Dir. Conn.(%)= 22.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.26	0.90
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	87.94	40.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.59	3.083	2.36	6.083	31.81	9.08	2.36
0.167	0.59	3.167	2.36	6.167	31.81	9.17	2.36
0.250	0.59	3.250	2.36	6.250	31.81	9.25	2.36
0.333	1.18	3.333	2.36	6.333	10.60	9.33	2.36

0.417	1.18	3.417	2.36	6.417	10.60	9.42	2.36
0.500	1.18	3.500	2.36	6.500	10.60	9.50	2.36
0.583	1.18	3.583	2.36	6.583	7.66	9.58	1.77
0.667	1.18	3.667	2.36	6.667	7.66	9.67	1.77
0.750	1.18	3.750	2.36	6.750	7.66	9.75	1.77
0.833	1.18	3.833	2.36	6.833	4.71	9.83	1.18
0.917	1.18	3.917	2.36	6.917	4.71	9.92	1.18
1.000	1.18	4.000	2.36	7.000	4.71	10.00	1.18
1.083	1.18	4.083	2.95	7.083	4.12	10.08	1.18
1.167	1.18	4.167	2.95	7.167	4.12	10.17	1.18
1.250	1.18	4.250	2.95	7.250	4.12	10.25	1.18
1.333	1.18	4.333	3.53	7.333	3.53	10.33	1.18
1.417	1.18	4.417	3.53	7.417	3.53	10.42	1.18
1.500	1.18	4.500	3.53	7.500	3.53	10.50	1.18
1.583	1.18	4.583	4.12	7.583	3.53	10.58	1.18
1.667	1.18	4.667	4.12	7.667	3.53	10.67	1.18
1.750	1.18	4.750	4.12	7.750	3.53	10.75	1.18
1.833	1.18	4.833	4.71	7.833	3.53	10.83	1.18
1.917	1.18	4.917	4.71	7.917	3.53	10.92	1.18
2.000	1.18	5.000	4.71	8.000	3.53	11.00	1.18
2.083	1.77	5.083	5.89	8.083	2.95	11.08	1.18
2.167	1.77	5.167	5.89	8.167	2.95	11.17	1.18
2.250	1.77	5.250	5.89	8.250	2.95	11.25	1.18
2.333	2.36	5.333	7.07	8.333	2.36	11.33	1.18
2.417	2.36	5.417	7.07	8.417	2.36	11.42	1.18
2.500	2.36	5.500	7.07	8.500	2.36	11.50	1.18
2.583	2.36	5.583	30.04	8.583	2.36	11.58	1.18
2.667	2.36	5.667	30.04	8.667	2.36	11.67	1.18
2.750	2.36	5.750	30.04	8.750	2.36	11.75	1.18
2.833	2.36	5.833	53.02	8.833	2.36	11.83	1.18
2.917	2.36	5.917	53.02	8.917	2.36	11.92	1.18
3.000	2.36	6.000	53.02	9.000	2.36	12.00	1.18

Max.Eff.Inten.(mm/hr)=	53.02	9.11	
over (min)	5.00	25.00	
Storage Coeff. (min)=	3.05 (ii)	21.45 (ii)	
Unit Hyd. Tpeak (min)=	5.00	25.00	
Unit Hyd. peak (cms)=	0.27	0.05	
			TOTALS
PEAK FLOW (cms)=	0.04	0.02	0.045 (iii)
TIME TO PEAK (hrs)=	6.00	6.42	6.00
RUNOFF VOLUME (mm)=	56.76	10.70	20.82
TOTAL RAINFALL (mm)=	58.76	58.76	58.76
RUNOFF COEFFICIENT =	0.97	0.18	0.35

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (3100)	Area (ha)= 2.89
ID= 1 DT= 1.0 min	Total Imp(%)= 68.00 Dir. Conn.(%)= 39.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	0.59	3.017	2.36	6.017	31.81	9.02	2.36
0.033	0.59	3.033	2.36	6.033	31.81	9.03	2.36
0.050	0.59	3.050	2.36	6.050	31.81	9.05	2.36
0.067	0.59	3.067	2.36	6.067	31.81	9.07	2.36
0.083	0.59	3.083	2.36	6.083	31.81	9.08	2.36
0.100	0.59	3.100	2.36	6.100	31.81	9.10	2.36
0.117	0.59	3.117	2.36	6.117	31.81	9.12	2.36
0.133	0.59	3.133	2.36	6.133	31.81	9.13	2.36
0.150	0.59	3.150	2.36	6.150	31.81	9.15	2.36
0.167	0.59	3.167	2.36	6.167	31.81	9.17	2.36
0.183	0.59	3.183	2.36	6.183	31.81	9.18	2.36
0.200	0.59	3.200	2.36	6.200	31.81	9.20	2.36

0.217	0.59	3.217	2.36	6.217	31.81	9.22	2.36
0.233	0.59	3.233	2.36	6.233	31.81	9.23	2.36
0.250	0.59	3.250	2.36	6.250	31.78	9.25	2.36
0.267	1.18	3.267	2.36	6.267	10.60	9.27	2.36
0.283	1.18	3.283	2.36	6.283	10.60	9.28	2.36
0.300	1.18	3.300	2.36	6.300	10.60	9.30	2.36
0.317	1.18	3.317	2.36	6.317	10.60	9.32	2.36
0.333	1.18	3.333	2.36	6.333	10.60	9.33	2.36
0.350	1.18	3.350	2.36	6.350	10.60	9.35	2.36
0.367	1.18	3.367	2.36	6.367	10.60	9.37	2.36
0.383	1.18	3.383	2.36	6.383	10.60	9.38	2.36
0.400	1.18	3.400	2.36	6.400	10.60	9.40	2.36
0.417	1.18	3.417	2.36	6.417	10.60	9.42	2.36
0.433	1.18	3.433	2.36	6.433	10.60	9.43	2.36
0.450	1.18	3.450	2.36	6.450	10.60	9.45	2.36
0.467	1.18	3.467	2.36	6.467	10.60	9.47	2.36
0.483	1.18	3.483	2.36	6.483	10.60	9.48	2.36
0.500	1.18	3.500	2.36	6.500	10.60	9.50	2.36
0.517	1.18	3.517	2.36	6.517	7.66	9.52	1.77
0.533	1.18	3.533	2.36	6.533	7.66	9.53	1.77
0.550	1.18	3.550	2.36	6.550	7.66	9.55	1.77
0.567	1.18	3.567	2.36	6.567	7.66	9.57	1.77
0.583	1.18	3.583	2.36	6.583	7.66	9.58	1.77
0.600	1.18	3.600	2.36	6.600	7.66	9.60	1.77
0.617	1.18	3.617	2.36	6.617	7.66	9.62	1.77
0.633	1.18	3.633	2.36	6.633	7.66	9.63	1.77
0.650	1.18	3.650	2.36	6.650	7.66	9.65	1.77
0.667	1.18	3.667	2.36	6.667	7.66	9.67	1.77
0.683	1.18	3.683	2.36	6.683	7.66	9.68	1.77
0.700	1.18	3.700	2.36	6.700	7.66	9.70	1.77
0.717	1.18	3.717	2.36	6.717	7.66	9.72	1.77
0.733	1.18	3.733	2.36	6.733	7.66	9.73	1.77
0.750	1.18	3.750	2.36	6.750	7.65	9.75	1.77
0.767	1.18	3.767	2.36	6.767	4.71	9.77	1.18
0.783	1.18	3.783	2.36	6.783	4.71	9.78	1.18
0.800	1.18	3.800	2.36	6.800	4.71	9.80	1.18
0.817	1.18	3.817	2.36	6.817	4.71	9.82	1.18
0.833	1.18	3.833	2.36	6.833	4.71	9.83	1.18
0.850	1.18	3.850	2.36	6.850	4.71	9.85	1.18
0.867	1.18	3.867	2.36	6.867	4.71	9.87	1.18
0.883	1.18	3.883	2.36	6.883	4.71	9.88	1.18
0.900	1.18	3.900	2.36	6.900	4.71	9.90	1.18
0.917	1.18	3.917	2.36	6.917	4.71	9.92	1.18
0.933	1.18	3.933	2.36	6.933	4.71	9.93	1.18
0.950	1.18	3.950	2.36	6.950	4.71	9.95	1.18
0.967	1.18	3.967	2.36	6.967	4.71	9.97	1.18
0.983	1.18	3.983	2.36	6.983	4.71	9.98	1.18
1.000	1.18	4.000	2.36	7.000	4.71	10.00	1.18
1.017	1.18	4.017	2.95	7.017	4.12	10.02	1.18
1.033	1.18	4.033	2.95	7.033	4.12	10.03	1.18
1.050	1.18	4.050	2.95	7.050	4.12	10.05	1.18
1.067	1.18	4.067	2.95	7.067	4.12	10.07	1.18
1.083	1.18	4.083	2.95	7.083	4.12	10.08	1.18
1.100	1.18	4.100	2.95	7.100	4.12	10.10	1.18
1.117	1.18	4.117	2.95	7.117	4.12	10.12	1.18
1.133	1.18	4.133	2.95	7.133	4.12	10.13	1.18
1.150	1.18	4.150	2.95	7.150	4.12	10.15	1.18
1.167	1.18	4.167	2.95	7.167	4.12	10.17	1.18
1.183	1.18	4.183	2.95	7.183	4.12	10.18	1.18
1.200	1.18	4.200	2.95	7.200	4.12	10.20	1.18
1.217	1.18	4.217	2.95	7.217	4.12	10.22	1.18
1.233	1.18	4.233	2.95	7.233	4.12	10.23	1.18
1.250	1.18	4.250	2.95	7.250	4.12	10.25	1.18
1.267	1.18	4.267	3.53	7.267	3.53	10.27	1.18
1.283	1.18	4.283	3.53	7.283	3.53	10.28	1.18
1.300	1.18	4.300	3.53	7.300	3.53	10.30	1.18
1.317	1.18	4.317	3.53	7.317	3.53	10.32	1.18
1.333	1.18	4.333	3.53	7.333	3.53	10.33	1.18
1.350	1.18	4.350	3.53	7.350	3.53	10.35	1.18
1.367	1.18	4.367	3.53	7.367	3.53	10.37	1.18
1.383	1.18	4.383	3.53	7.383	3.53	10.38	1.18
1.400	1.18	4.400	3.53	7.400	3.53	10.40	1.18
1.417	1.18	4.417	3.53	7.417	3.53	10.42	1.18
1.433	1.18	4.433	3.53	7.433	3.53	10.43	1.18
1.450	1.18	4.450	3.53	7.450	3.53	10.45	1.18
1.467	1.18	4.467	3.53	7.467	3.53	10.47	1.18
1.483	1.18	4.483	3.53	7.483	3.53	10.48	1.18
1.500	1.18	4.500	3.53	7.500	3.53	10.50	1.18
1.517	1.18	4.517	4.12	7.517	3.53	10.52	1.18
1.533	1.18	4.533	4.12	7.533	3.53	10.53	1.18
1.550	1.18	4.550	4.12	7.550	3.53	10.55	1.18
1.567	1.18	4.567	4.12	7.567	3.53	10.57	1.18
1.583	1.18	4.583	4.12	7.583	3.53	10.58	1.18
1.600	1.18	4.600	4.12	7.600	3.53	10.60	1.18

1.617	1.18	4.617	4.12	7.617	3.53	10.62	1.18
1.633	1.18	4.633	4.12	7.633	3.53	10.63	1.18
1.650	1.18	4.650	4.12	7.650	3.53	10.65	1.18
1.667	1.18	4.667	4.12	7.667	3.53	10.67	1.18
1.683	1.18	4.683	4.12	7.683	3.53	10.68	1.18
1.700	1.18	4.700	4.12	7.700	3.53	10.70	1.18
1.717	1.18	4.717	4.12	7.717	3.53	10.72	1.18
1.733	1.18	4.733	4.12	7.733	3.53	10.73	1.18
1.750	1.18	4.750	4.12	7.750	3.53	10.75	1.18
1.767	1.18	4.767	4.71	7.767	3.53	10.77	1.18
1.783	1.18	4.783	4.71	7.783	3.53	10.78	1.18
1.800	1.18	4.800	4.71	7.800	3.53	10.80	1.18
1.817	1.18	4.817	4.71	7.817	3.53	10.82	1.18
1.833	1.18	4.833	4.71	7.833	3.53	10.83	1.18
1.850	1.18	4.850	4.71	7.850	3.53	10.85	1.18
1.867	1.18	4.867	4.71	7.867	3.53	10.87	1.18
1.883	1.18	4.883	4.71	7.883	3.53	10.88	1.18
1.900	1.18	4.900	4.71	7.900	3.53	10.90	1.18
1.917	1.18	4.917	4.71	7.917	3.53	10.92	1.18
1.933	1.18	4.933	4.71	7.933	3.53	10.93	1.18
1.950	1.18	4.950	4.71	7.950	3.53	10.95	1.18
1.967	1.18	4.967	4.71	7.967	3.53	10.97	1.18
1.983	1.18	4.983	4.71	7.983	3.53	10.98	1.18
2.000	1.18	5.000	4.71	8.000	3.53	11.00	1.18
2.017	1.77	5.017	5.89	8.017	2.95	11.02	1.18
2.033	1.77	5.033	5.89	8.033	2.95	11.03	1.18
2.050	1.77	5.050	5.89	8.050	2.95	11.05	1.18
2.067	1.77	5.067	5.89	8.067	2.95	11.07	1.18
2.083	1.77	5.083	5.89	8.083	2.95	11.08	1.18
2.100	1.77	5.100	5.89	8.100	2.95	11.10	1.18
2.117	1.77	5.117	5.89	8.117	2.95	11.12	1.18
2.133	1.77	5.133	5.89	8.133	2.95	11.13	1.18
2.150	1.77	5.150	5.89	8.150	2.95	11.15	1.18
2.167	1.77	5.167	5.89	8.167	2.95	11.17	1.18
2.183	1.77	5.183	5.89	8.183	2.95	11.18	1.18
2.200	1.77	5.200	5.89	8.200	2.95	11.20	1.18
2.217	1.77	5.217	5.89	8.217	2.95	11.22	1.18
2.233	1.77	5.233	5.89	8.233	2.95	11.23	1.18
2.250	1.77	5.250	5.89	8.250	2.94	11.25	1.18
2.267	2.36	5.267	7.07	8.267	2.36	11.27	1.18
2.283	2.36	5.283	7.07	8.283	2.36	11.28	1.18
2.300	2.36	5.300	7.07	8.300	2.36	11.30	1.18
2.317	2.36	5.317	7.07	8.317	2.36	11.32	1.18
2.333	2.36	5.333	7.07	8.333	2.36	11.33	1.18
2.350	2.36	5.350	7.07	8.350	2.36	11.35	1.18
2.367	2.36	5.367	7.07	8.367	2.36	11.37	1.18
2.383	2.36	5.383	7.07	8.383	2.36	11.38	1.18
2.400	2.36	5.400	7.07	8.400	2.36	11.40	1.18
2.417	2.36	5.417	7.07	8.417	2.36	11.42	1.18
2.433	2.36	5.433	7.07	8.433	2.36	11.43	1.18
2.450	2.36	5.450	7.07	8.450	2.36	11.45	1.18
2.467	2.36	5.467	7.07	8.467	2.36	11.47	1.18
2.483	2.36	5.483	7.07	8.483	2.36	11.48	1.18
2.500	2.36	5.500	7.09	8.500	2.36	11.50	1.18
2.517	2.36	5.517	30.04	8.517	2.36	11.52	1.18
2.533	2.36	5.533	30.04	8.533	2.36	11.53	1.18
2.550	2.36	5.550	30.04	8.550	2.36	11.55	1.18
2.567	2.36	5.567	30.04	8.567	2.36	11.57	1.18
2.583	2.36	5.583	30.04	8.583	2.36	11.58	1.18
2.600	2.36	5.600	30.04	8.600	2.36	11.60	1.18
2.617	2.36	5.617	30.04	8.617	2.36	11.62	1.18
2.633	2.36	5.633	30.04	8.633	2.36	11.63	1.18
2.650	2.36	5.650	30.04	8.650	2.36	11.65	1.18
2.667	2.36	5.667	30.04	8.667	2.36	11.67	1.18
2.683	2.36	5.683	30.04	8.683	2.36	11.68	1.18
2.700	2.36	5.700	30.04	8.700	2.36	11.70	1.18
2.717	2.36	5.717	30.04	8.717	2.36	11.72	1.18
2.733	2.36	5.733	30.04	8.733	2.36	11.73	1.18
2.750	2.36	5.750	30.07	8.750	2.36	11.75	1.18
2.767	2.36	5.767	53.02	8.767	2.36	11.77	1.18
2.783	2.36	5.783	53.02	8.783	2.36	11.78	1.18
2.800	2.36	5.800	53.02	8.800	2.36	11.80	1.18
2.817	2.36	5.817	53.02	8.817	2.36	11.82	1.18
2.833	2.36	5.833	53.02	8.833	2.36	11.83	1.18
2.850	2.36	5.850	53.02	8.850	2.36	11.85	1.18
2.867	2.36	5.867	53.02	8.867	2.36	11.87	1.18
2.883	2.36	5.883	53.02	8.883	2.36	11.88	1.18
2.900	2.36	5.900	53.02	8.900	2.36	11.90	1.18
2.917	2.36	5.917	53.02	8.917	2.36	11.92	1.18
2.933	2.36	5.933	53.02	8.933	2.36	11.93	1.18
2.950	2.36	5.950	53.02	8.950	2.36	11.95	1.18
2.967	2.36	5.967	53.02	8.967	2.36	11.97	1.18
2.983	2.36	5.983	53.02	8.983	2.36	11.98	1.18
3.000	2.36	6.000	52.99	9.000	2.36	12.00	1.18

```
     Max.Eff.Inten.(mm/hr)=      53.02        35.58
                 over (min)       5.00        13.00
     Storage Coeff.  (min)=       4.01 (ii)   12.41 (ii)
     Unit Hyd. Tpeak (min)=       5.00        13.00
     Unit Hyd. peak  (cms)=       0.26         0.09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.16         0.07        0.215 (iii)
     TIME TO PEAK    (hrs)=       6.00         6.20         6.02
     RUNOFF VOLUME    (mm)=      56.76        18.58        33.47
     TOTAL RAINFALL   (mm)=      58.76        58.76        58.76
     RUNOFF COEFFICIENT   =       0.97         0.32         0.57


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0097)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  2101):    17.31   1.205     6.00    33.57
     + ID2= 2 (  3100):     2.89   0.215     6.02    33.47
       ================================================
       ID = 3 (  0097):    20.20   1.419     6.00    33.56

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

--------------------
| ADD HYD  (  0097)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0097):    20.20   1.419     6.00    33.56
     + ID2= 2 (  0096):     1.16   0.045     6.00    20.82
       ================================================
       ID = 1 (  0097):    21.36   1.464     6.00    32.87

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000      0.0000   |    0.0400      0.6360
                          0.0160      0.1070   |    0.0790      0.7870
                          0.0240      0.2260   |    0.2900      0.9450
                          0.0300      0.3550   |    0.4710      1.0430
                          0.0350      0.4920   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0097)     21.360      1.464      6.00      32.87
   OUTFLOW: ID= 1 (  0001)     21.360      0.039     12.05      16.56

                 PEAK   FLOW   REDUCTION [Qout/Qin](%)=  2.66
                 TIME SHIFT OF PEAK FLOW         (min)=363.00
                 MAXIMUM  STORAGE   USED       (ha.m.)=  0.6073

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2102)|   Area    (ha)=   0.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.14         0.07
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      37.42        40.00
     Mannings n           =      0.013        0.250

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


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

0.083	0.59	3.083	2.36	6.083	31.81	9.08	2.36
0.167	0.59	3.167	2.36	6.167	31.81	9.17	2.36
0.250	0.59	3.250	2.36	6.250	31.81	9.25	2.36
0.333	1.18	3.333	2.36	6.333	10.60	9.33	2.36
0.417	1.18	3.417	2.36	6.417	10.60	9.42	2.36
0.500	1.18	3.500	2.36	6.500	10.60	9.50	2.36
0.583	1.18	3.583	2.36	6.583	7.66	9.58	1.77
0.667	1.18	3.667	2.36	6.667	7.66	9.67	1.77
0.750	1.18	3.750	2.36	6.750	7.66	9.75	1.77
0.833	1.18	3.833	2.36	6.833	4.71	9.83	1.18
0.917	1.18	3.917	2.36	6.917	4.71	9.92	1.18
1.000	1.18	4.000	2.36	7.000	4.71	10.00	1.18
1.083	1.18	4.083	2.95	7.083	4.12	10.08	1.18
1.167	1.18	4.167	2.95	7.167	4.12	10.17	1.18
1.250	1.18	4.250	2.95	7.250	4.12	10.25	1.18
1.333	1.18	4.333	3.53	7.333	3.53	10.33	1.18
1.417	1.18	4.417	3.53	7.417	3.53	10.42	1.18
1.500	1.18	4.500	3.53	7.500	3.53	10.50	1.18
1.583	1.18	4.583	4.12	7.583	3.53	10.58	1.18
1.667	1.18	4.667	4.12	7.667	3.53	10.67	1.18
1.750	1.18	4.750	4.12	7.750	3.53	10.75	1.18
1.833	1.18	4.833	4.71	7.833	3.53	10.83	1.18
1.917	1.18	4.917	4.71	7.917	3.53	10.92	1.18
2.000	1.18	5.000	4.71	8.000	3.53	11.00	1.18
2.083	1.77	5.083	5.89	8.083	2.95	11.08	1.18
2.167	1.77	5.167	5.89	8.167	2.95	11.17	1.18
2.250	1.77	5.250	5.89	8.250	2.95	11.25	1.18
2.333	2.36	5.333	7.07	8.333	2.36	11.33	1.18
2.417	2.36	5.417	7.07	8.417	2.36	11.42	1.18
2.500	2.36	5.500	7.07	8.500	2.36	11.50	1.18
2.583	2.36	5.583	30.04	8.583	2.36	11.58	1.18
2.667	2.36	5.667	30.04	8.667	2.36	11.67	1.18
2.750	2.36	5.750	30.04	8.750	2.36	11.75	1.18
2.833	2.36	5.833	53.02	8.833	2.36	11.83	1.18
2.917	2.36	5.917	53.02	8.917	2.36	11.92	1.18
3.000	2.36	6.000	53.02	9.000	2.36	12.00	1.18

Max.Eff.Inten.(mm/hr)=	53.02	9.11		
over (min)	5.00	25.00		
Storage Coeff. (min)=	1.83 (ii)	20.23 (ii)		
Unit Hyd. Tpeak (min)=	5.00	25.00		
Unit Hyd. peak (cms)=	0.32	0.05		
			TOTALS	
PEAK FLOW (cms)=	0.02	0.00	0.021 (iii)	
TIME TO PEAK (hrs)=	6.00	6.33	6.00	
RUNOFF VOLUME (mm)=	56.76	10.70	40.58	
TOTAL RAINFALL (mm)=	58.76	58.76	58.76	
RUNOFF COEFFICIENT =	0.97	0.18	0.69	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0015)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0001):	21.36	0.039	12.05	16.56
	+ ID2= 2 (2102):	0.21	0.021	6.00	40.58
	ID = 3 (0015):	21.57	0.046	6.00	16.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:3.3 SCS II 12hr 10yr **
****

MASS STORM	Filename: C:\Users\rbrockie\AppData\Local\Temp\913e2f46-79e8-42d3-b20d-3fb65cefc10e\10820067
Ptotal= 67.67 mm	Comments: SCS 12 HOUR TYPE II STORM DISTRIBUTION

Duration of storm = 12.00 hrs
Mass curve time step = 30.00 min
New Storm time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.68	3.00	2.71	6.00	36.54	9.00	2.71
0.25	1.35	3.25	2.71	6.25	12.18	9.25	2.71
0.50	1.35	3.50	2.71	6.50	8.80	9.50	2.03
0.75	1.35	3.75	2.71	6.75	5.41	9.75	1.35
1.00	1.35	4.00	3.38	7.00	4.74	10.00	1.35
1.25	1.35	4.25	4.06	7.25	4.06	10.25	1.35
1.50	1.35	4.50	4.74	7.50	4.06	10.50	1.35
1.75	1.35	4.75	5.41	7.75	4.06	10.75	1.35
2.00	2.03	5.00	6.77	8.00	3.38	11.00	1.35
2.25	2.71	5.25	8.12	8.25	2.71	11.25	1.35
2.50	2.71	5.50	34.51	8.50	2.71	11.50	1.35
2.75	2.71	5.75	60.90	8.75	2.71	11.75	1.35

CALIB STANDHYD (2101)	Area (ha)= 17.31
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.08	6.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	339.71	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.68	3.083	2.71	6.083	36.54	9.08	2.71
0.167	0.68	3.167	2.71	6.167	36.54	9.17	2.71
0.250	0.68	3.250	2.71	6.250	36.54	9.25	2.71
0.333	1.35	3.333	2.71	6.333	12.18	9.33	2.71
0.417	1.35	3.417	2.71	6.417	12.18	9.42	2.71
0.500	1.35	3.500	2.71	6.500	12.18	9.50	2.71
0.583	1.35	3.583	2.71	6.583	8.80	9.58	2.03
0.667	1.35	3.667	2.71	6.667	8.80	9.67	2.03
0.750	1.35	3.750	2.71	6.750	8.80	9.75	2.03
0.833	1.35	3.833	2.71	6.833	5.41	9.83	1.35
0.917	1.35	3.917	2.71	6.917	5.41	9.92	1.35
1.000	1.35	4.000	2.71	7.000	5.41	10.00	1.35
1.083	1.35	4.083	3.38	7.083	4.74	10.08	1.35
1.167	1.35	4.167	3.38	7.167	4.74	10.17	1.35
1.250	1.35	4.250	3.38	7.250	4.74	10.25	1.35
1.333	1.35	4.333	4.06	7.333	4.06	10.33	1.35
1.417	1.35	4.417	4.06	7.417	4.06	10.42	1.35
1.500	1.35	4.500	4.06	7.500	4.06	10.50	1.35
1.583	1.35	4.583	4.74	7.583	4.06	10.58	1.35
1.667	1.35	4.667	4.74	7.667	4.06	10.67	1.35
1.750	1.35	4.750	4.74	7.750	4.06	10.75	1.35
1.833	1.35	4.833	5.41	7.833	4.06	10.83	1.35
1.917	1.35	4.917	5.41	7.917	4.06	10.92	1.35
2.000	1.35	5.000	5.41	8.000	4.06	11.00	1.35
2.083	2.03	5.083	6.77	8.083	3.38	11.08	1.35
2.167	2.03	5.167	6.77	8.167	3.38	11.17	1.35
2.250	2.03	5.250	6.77	8.250	3.38	11.25	1.35
2.333	2.71	5.333	8.12	8.333	2.71	11.33	1.35
2.417	2.71	5.417	8.12	8.417	2.71	11.42	1.35
2.500	2.71	5.500	8.12	8.500	2.71	11.50	1.35
2.583	2.71	5.583	34.51	8.583	2.71	11.58	1.35
2.667	2.71	5.667	34.51	8.667	2.71	11.67	1.35
2.750	2.71	5.750	34.51	8.750	2.71	11.75	1.35
2.833	2.71	5.833	60.90	8.833	2.71	11.83	1.35
2.917	2.71	5.917	60.90	8.917	2.71	11.92	1.35
3.000	2.71	6.000	60.90	9.000	2.71	12.00	1.35

Max.Eff.Inten.	(mm/hr)=	60.90	30.66	
	over (min)	5.00	20.00	
Storage Coeff.	(min)=	6.49 (ii)	17.81 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	20.00	
Unit Hyd. peak	(cms)=	0.18	0.06	
				TOTALS
PEAK FLOW	(cms)=	1.20	0.37	1.429 (iii)
TIME TO PEAK	(hrs)=	6.00	6.25	6.00
RUNOFF VOLUME	(mm)=	65.50	20.60	39.91
TOTAL RAINFALL	(mm)=	67.50	67.50	67.50
RUNOFF COEFFICIENT	=	0.97	0.31	0.59

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0096)	Area (ha)= 1.16
ID= 1 DT= 5.0 min	Total Imp(%)= 22.00 Dir. Conn.(%)= 22.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.26	0.90
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.94	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.68	3.083	2.71	6.083	36.54	9.08	2.71
0.167	0.68	3.167	2.71	6.167	36.54	9.17	2.71
0.250	0.68	3.250	2.71	6.250	36.54	9.25	2.71
0.333	1.35	3.333	2.71	6.333	12.18	9.33	2.71
0.417	1.35	3.417	2.71	6.417	12.18	9.42	2.71
0.500	1.35	3.500	2.71	6.500	12.18	9.50	2.71
0.583	1.35	3.583	2.71	6.583	8.80	9.58	2.03
0.667	1.35	3.667	2.71	6.667	8.80	9.67	2.03
0.750	1.35	3.750	2.71	6.750	8.80	9.75	2.03
0.833	1.35	3.833	2.71	6.833	5.41	9.83	1.35
0.917	1.35	3.917	2.71	6.917	5.41	9.92	1.35
1.000	1.35	4.000	2.71	7.000	5.41	10.00	1.35
1.083	1.35	4.083	3.38	7.083	4.74	10.08	1.35
1.167	1.35	4.167	3.38	7.167	4.74	10.17	1.35
1.250	1.35	4.250	3.38	7.250	4.74	10.25	1.35
1.333	1.35	4.333	4.06	7.333	4.06	10.33	1.35
1.417	1.35	4.417	4.06	7.417	4.06	10.42	1.35
1.500	1.35	4.500	4.06	7.500	4.06	10.50	1.35
1.583	1.35	4.583	4.74	7.583	4.06	10.58	1.35
1.667	1.35	4.667	4.74	7.667	4.06	10.67	1.35
1.750	1.35	4.750	4.74	7.750	4.06	10.75	1.35
1.833	1.35	4.833	5.41	7.833	4.06	10.83	1.35
1.917	1.35	4.917	5.41	7.917	4.06	10.92	1.35
2.000	1.35	5.000	5.41	8.000	4.06	11.00	1.35
2.083	2.03	5.083	6.77	8.083	3.38	11.08	1.35
2.167	2.03	5.167	6.77	8.167	3.38	11.17	1.35
2.250	2.03	5.250	6.77	8.250	3.38	11.25	1.35
2.333	2.71	5.333	8.12	8.333	2.71	11.33	1.35
2.417	2.71	5.417	8.12	8.417	2.71	11.42	1.35
2.500	2.71	5.500	8.12	8.500	2.71	11.50	1.35
2.583	2.71	5.583	34.51	8.583	2.71	11.58	1.35
2.667	2.71	5.667	34.51	8.667	2.71	11.67	1.35
2.750	2.71	5.750	34.51	8.750	2.71	11.75	1.35
2.833	2.71	5.833	60.90	8.833	2.71	11.83	1.35
2.917	2.71	5.917	60.90	8.917	2.71	11.92	1.35
3.000	2.71	6.000	60.90	9.000	2.71	12.00	1.35

Max.Eff.Inten.(mm/hr)=	60.90	12.01		
over (min)	5.00	20.00		
Storage Coeff. (min)=	2.88 (ii)	19.36 (ii)		
Unit Hyd. Tpeak (min)=	5.00	20.00		
Unit Hyd. peak (cms)=	0.28	0.06		
			TOTALS	
PEAK FLOW (cms)=	0.04	0.02	0.056 (iii)	
TIME TO PEAK (hrs)=	6.00	6.33	6.00	
RUNOFF VOLUME (mm)=	65.50	14.01	25.33	
TOTAL RAINFALL (mm)=	67.50	67.50	67.50	
RUNOFF COEFFICIENT =	0.97	0.21	0.38	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (3100)	Area (ha)= 2.89
ID= 1 DT= 1.0 min	Total Imp(%)= 68.00 Dir. Conn.(%)= 39.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	0.68	3.017	2.71	6.017	36.54	9.02	2.71
0.033	0.68	3.033	2.71	6.033	36.54	9.03	2.71
0.050	0.68	3.050	2.71	6.050	36.54	9.05	2.71
0.067	0.68	3.067	2.71	6.067	36.54	9.07	2.71
0.083	0.68	3.083	2.71	6.083	36.54	9.08	2.71
0.100	0.68	3.100	2.71	6.100	36.54	9.10	2.71
0.117	0.68	3.117	2.71	6.117	36.54	9.12	2.71
0.133	0.68	3.133	2.71	6.133	36.54	9.13	2.71
0.150	0.68	3.150	2.71	6.150	36.54	9.15	2.71
0.167	0.68	3.167	2.71	6.167	36.54	9.17	2.71
0.183	0.68	3.183	2.71	6.183	36.54	9.18	2.71
0.200	0.68	3.200	2.71	6.200	36.54	9.20	2.71
0.217	0.68	3.217	2.71	6.217	36.54	9.22	2.71
0.233	0.68	3.233	2.71	6.233	36.54	9.23	2.71
0.250	0.68	3.250	2.71	6.250	36.50	9.25	2.71
0.267	1.35	3.267	2.71	6.267	12.18	9.27	2.71
0.283	1.35	3.283	2.71	6.283	12.18	9.28	2.71
0.300	1.35	3.300	2.71	6.300	12.18	9.30	2.71
0.317	1.35	3.317	2.71	6.317	12.18	9.32	2.71
0.333	1.35	3.333	2.71	6.333	12.18	9.33	2.71
0.350	1.35	3.350	2.71	6.350	12.18	9.35	2.71
0.367	1.35	3.367	2.71	6.367	12.18	9.37	2.71
0.383	1.35	3.383	2.71	6.383	12.18	9.38	2.71
0.400	1.35	3.400	2.71	6.400	12.18	9.40	2.71
0.417	1.35	3.417	2.71	6.417	12.18	9.42	2.71
0.433	1.35	3.433	2.71	6.433	12.18	9.43	2.71
0.450	1.35	3.450	2.71	6.450	12.18	9.45	2.71
0.467	1.35	3.467	2.71	6.467	12.18	9.47	2.71
0.483	1.35	3.483	2.71	6.483	12.18	9.48	2.71
0.500	1.35	3.500	2.71	6.500	12.17	9.50	2.71
0.517	1.35	3.517	2.71	6.517	8.80	9.52	2.03
0.533	1.35	3.533	2.71	6.533	8.80	9.53	2.03
0.550	1.35	3.550	2.71	6.550	8.80	9.55	2.03
0.567	1.35	3.567	2.71	6.567	8.80	9.57	2.03
0.583	1.35	3.583	2.71	6.583	8.80	9.58	2.03
0.600	1.35	3.600	2.71	6.600	8.80	9.60	2.03
0.617	1.35	3.617	2.71	6.617	8.80	9.62	2.03
0.633	1.35	3.633	2.71	6.633	8.80	9.63	2.03
0.650	1.35	3.650	2.71	6.650	8.80	9.65	2.03
0.667	1.35	3.667	2.71	6.667	8.80	9.67	2.03
0.683	1.35	3.683	2.71	6.683	8.80	9.68	2.03
0.700	1.35	3.700	2.71	6.700	8.80	9.70	2.03
0.717	1.35	3.717	2.71	6.717	8.80	9.72	2.03
0.733	1.35	3.733	2.71	6.733	8.80	9.73	2.03
0.750	1.35	3.750	2.71	6.750	8.79	9.75	2.03
0.767	1.35	3.767	2.71	6.767	5.41	9.77	1.35
0.783	1.35	3.783	2.71	6.783	5.41	9.78	1.35
0.800	1.35	3.800	2.71	6.800	5.41	9.80	1.35
0.817	1.35	3.817	2.71	6.817	5.41	9.82	1.35
0.833	1.35	3.833	2.71	6.833	5.41	9.83	1.35
0.850	1.35	3.850	2.71	6.850	5.41	9.85	1.35
0.867	1.35	3.867	2.71	6.867	5.41	9.87	1.35
0.883	1.35	3.883	2.71	6.883	5.41	9.88	1.35
0.900	1.35	3.900	2.71	6.900	5.41	9.90	1.35
0.917	1.35	3.917	2.71	6.917	5.41	9.92	1.35
0.933	1.35	3.933	2.71	6.933	5.41	9.93	1.35
0.950	1.35	3.950	2.71	6.950	5.41	9.95	1.35
0.967	1.35	3.967	2.71	6.967	5.41	9.97	1.35
0.983	1.35	3.983	2.71	6.983	5.41	9.98	1.35
1.000	1.35	4.000	2.71	7.000	5.41	10.00	1.35
1.017	1.35	4.017	3.38	7.017	4.74	10.02	1.35
1.033	1.35	4.033	3.38	7.033	4.74	10.03	1.35
1.050	1.35	4.050	3.38	7.050	4.74	10.05	1.35
1.067	1.35	4.067	3.38	7.067	4.74	10.07	1.35
1.083	1.35	4.083	3.38	7.083	4.74	10.08	1.35
1.100	1.35	4.100	3.38	7.100	4.74	10.10	1.35
1.117	1.35	4.117	3.38	7.117	4.74	10.12	1.35

1.133	1.35	4.133	3.38	7.133	4.74	10.13	1.35
1.150	1.35	4.150	3.38	7.150	4.74	10.15	1.35
1.167	1.35	4.167	3.38	7.167	4.74	10.17	1.35
1.183	1.35	4.183	3.38	7.183	4.74	10.18	1.35
1.200	1.35	4.200	3.38	7.200	4.74	10.20	1.35
1.217	1.35	4.217	3.38	7.217	4.74	10.22	1.35
1.233	1.35	4.233	3.38	7.233	4.74	10.23	1.35
1.250	1.35	4.250	3.38	7.250	4.74	10.25	1.35
1.267	1.35	4.267	4.06	7.267	4.06	10.27	1.35
1.283	1.35	4.283	4.06	7.283	4.06	10.28	1.35
1.300	1.35	4.300	4.06	7.300	4.06	10.30	1.35
1.317	1.35	4.317	4.06	7.317	4.06	10.32	1.35
1.333	1.35	4.333	4.06	7.333	4.06	10.33	1.35
1.350	1.35	4.350	4.06	7.350	4.06	10.35	1.35
1.367	1.35	4.367	4.06	7.367	4.06	10.37	1.35
1.383	1.35	4.383	4.06	7.383	4.06	10.38	1.35
1.400	1.35	4.400	4.06	7.400	4.06	10.40	1.35
1.417	1.35	4.417	4.06	7.417	4.06	10.42	1.35
1.433	1.35	4.433	4.06	7.433	4.06	10.43	1.35
1.450	1.35	4.450	4.06	7.450	4.06	10.45	1.35
1.467	1.35	4.467	4.06	7.467	4.06	10.47	1.35
1.483	1.35	4.483	4.06	7.483	4.06	10.48	1.35
1.500	1.35	4.500	4.06	7.500	4.06	10.50	1.35
1.517	1.35	4.517	4.74	7.517	4.06	10.52	1.35
1.533	1.35	4.533	4.74	7.533	4.06	10.53	1.35
1.550	1.35	4.550	4.74	7.550	4.06	10.55	1.35
1.567	1.35	4.567	4.74	7.567	4.06	10.57	1.35
1.583	1.35	4.583	4.74	7.583	4.06	10.58	1.35
1.600	1.35	4.600	4.74	7.600	4.06	10.60	1.35
1.617	1.35	4.617	4.74	7.617	4.06	10.62	1.35
1.633	1.35	4.633	4.74	7.633	4.06	10.63	1.35
1.650	1.35	4.650	4.74	7.650	4.06	10.65	1.35
1.667	1.35	4.667	4.74	7.667	4.06	10.67	1.35
1.683	1.35	4.683	4.74	7.683	4.06	10.68	1.35
1.700	1.35	4.700	4.74	7.700	4.06	10.70	1.35
1.717	1.35	4.717	4.74	7.717	4.06	10.72	1.35
1.733	1.35	4.733	4.74	7.733	4.06	10.73	1.35
1.750	1.35	4.750	4.74	7.750	4.06	10.75	1.35
1.767	1.35	4.767	5.41	7.767	4.06	10.77	1.35
1.783	1.35	4.783	5.41	7.783	4.06	10.78	1.35
1.800	1.35	4.800	5.41	7.800	4.06	10.80	1.35
1.817	1.35	4.817	5.41	7.817	4.06	10.82	1.35
1.833	1.35	4.833	5.41	7.833	4.06	10.83	1.35
1.850	1.35	4.850	5.41	7.850	4.06	10.85	1.35
1.867	1.35	4.867	5.41	7.867	4.06	10.87	1.35
1.883	1.35	4.883	5.41	7.883	4.06	10.88	1.35
1.900	1.35	4.900	5.41	7.900	4.06	10.90	1.35
1.917	1.35	4.917	5.41	7.917	4.06	10.92	1.35
1.933	1.35	4.933	5.41	7.933	4.06	10.93	1.35
1.950	1.35	4.950	5.41	7.950	4.06	10.95	1.35
1.967	1.35	4.967	5.41	7.967	4.06	10.97	1.35
1.983	1.35	4.983	5.41	7.983	4.06	10.98	1.35
2.000	1.35	5.000	5.41	8.000	4.06	11.00	1.35
2.017	2.03	5.017	6.77	8.017	3.38	11.02	1.35
2.033	2.03	5.033	6.77	8.033	3.38	11.03	1.35
2.050	2.03	5.050	6.77	8.050	3.38	11.05	1.35
2.067	2.03	5.067	6.77	8.067	3.38	11.07	1.35
2.083	2.03	5.083	6.77	8.083	3.38	11.08	1.35
2.100	2.03	5.100	6.77	8.100	3.38	11.10	1.35
2.117	2.03	5.117	6.77	8.117	3.38	11.12	1.35
2.133	2.03	5.133	6.77	8.133	3.38	11.13	1.35
2.150	2.03	5.150	6.77	8.150	3.38	11.15	1.35
2.167	2.03	5.167	6.77	8.167	3.38	11.17	1.35
2.183	2.03	5.183	6.77	8.183	3.38	11.18	1.35
2.200	2.03	5.200	6.77	8.200	3.38	11.20	1.35
2.217	2.03	5.217	6.77	8.217	3.38	11.22	1.35
2.233	2.03	5.233	6.77	8.233	3.38	11.23	1.35
2.250	2.03	5.250	6.77	8.250	3.38	11.25	1.35
2.267	2.71	5.267	8.12	8.267	2.71	11.27	1.35
2.283	2.71	5.283	8.12	8.283	2.71	11.28	1.35
2.300	2.71	5.300	8.12	8.300	2.71	11.30	1.35
2.317	2.71	5.317	8.12	8.317	2.71	11.32	1.35
2.333	2.71	5.333	8.12	8.333	2.71	11.33	1.35
2.350	2.71	5.350	8.12	8.350	2.71	11.35	1.35
2.367	2.71	5.367	8.12	8.367	2.71	11.37	1.35
2.383	2.71	5.383	8.12	8.383	2.71	11.38	1.35
2.400	2.71	5.400	8.12	8.400	2.71	11.40	1.35
2.417	2.71	5.417	8.12	8.417	2.71	11.42	1.35
2.433	2.71	5.433	8.12	8.433	2.71	11.43	1.35
2.450	2.71	5.450	8.12	8.450	2.71	11.45	1.35
2.467	2.71	5.467	8.12	8.467	2.71	11.47	1.35
2.483	2.71	5.483	8.12	8.483	2.71	11.48	1.35
2.500	2.71	5.500	8.15	8.500	2.71	11.50	1.35
2.517	2.71	5.517	34.51	8.517	2.71	11.52	1.35

2.533	2.71	5.533	34.51	8.533	2.71	11.53	1.35
2.550	2.71	5.550	34.51	8.550	2.71	11.55	1.35
2.567	2.71	5.567	34.51	8.567	2.71	11.57	1.35
2.583	2.71	5.583	34.51	8.583	2.71	11.58	1.35
2.600	2.71	5.600	34.51	8.600	2.71	11.60	1.35
2.617	2.71	5.617	34.51	8.617	2.71	11.62	1.35
2.633	2.71	5.633	34.51	8.633	2.71	11.63	1.35
2.650	2.71	5.650	34.51	8.650	2.71	11.65	1.35
2.667	2.71	5.667	34.51	8.667	2.71	11.67	1.35
2.683	2.71	5.683	34.51	8.683	2.71	11.68	1.35
2.700	2.71	5.700	34.51	8.700	2.71	11.70	1.35
2.717	2.71	5.717	34.51	8.717	2.71	11.72	1.35
2.733	2.71	5.733	34.51	8.733	2.71	11.73	1.35
2.750	2.71	5.750	34.54	8.750	2.71	11.75	1.35
2.767	2.71	5.767	60.90	8.767	2.71	11.77	1.35
2.783	2.71	5.783	60.90	8.783	2.71	11.78	1.35
2.800	2.71	5.800	60.90	8.800	2.71	11.80	1.35
2.817	2.71	5.817	60.90	8.817	2.71	11.82	1.35
2.833	2.71	5.833	60.90	8.833	2.71	11.83	1.35
2.850	2.71	5.850	60.90	8.850	2.71	11.85	1.35
2.867	2.71	5.867	60.90	8.867	2.71	11.87	1.35
2.883	2.71	5.883	60.90	8.883	2.71	11.88	1.35
2.900	2.71	5.900	60.90	8.900	2.71	11.90	1.35
2.917	2.71	5.917	60.90	8.917	2.71	11.92	1.35
2.933	2.71	5.933	60.90	8.933	2.71	11.93	1.35
2.950	2.71	5.950	60.90	8.950	2.71	11.95	1.35
2.967	2.71	5.967	60.90	8.967	2.71	11.97	1.35
2.983	2.71	5.983	60.90	8.983	2.71	11.98	1.35
3.000	2.71	6.000	60.87	9.000	2.71	12.00	1.35

Max.Eff.Inten.(mm/hr)=	60.90	45.42		
over (min)	5.00	12.00		
Storage Coeff. (min)=	3.79 (ii)	11.74 (ii)		
Unit Hyd. Tpeak (min)=	5.00	12.00		
Unit Hyd. peak (cms)=	0.27	0.10		
			TOTALS	
PEAK FLOW (cms)=	0.19	0.09	0.259 (iii)	
TIME TO PEAK (hrs)=	6.00	6.17	6.02	
RUNOFF VOLUME (mm)=	65.50	23.59	39.94	
TOTAL RAINFALL (mm)=	67.50	67.50	67.50	
RUNOFF COEFFICIENT =	0.97	0.35	0.59	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
1 + 2 = 3	ID1= 1 (2101):	17.31	1.429	6.00	39.91
	+ ID2= 2 (3100):	2.89	0.259	6.02	39.94
	ID = 3 (0097):	20.20	1.687	6.00	39.91

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
3 + 2 = 1	ID1= 3 (0097):	20.20	1.687	6.00	39.91
	+ ID2= 2 (0096):	1.16	0.056	6.00	25.33
	ID = 1 (0097):	21.36	1.742	6.00	39.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001) | IN= 2---> OUT= 1 | DT= 1.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0400	0.6360
0.0160	0.1070	0.0790	0.7870
0.0240	0.2260	0.2900	0.9450
0.0300	0.3550	0.4710	1.0430
0.0350	0.4920	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0097)	21.360	1.742	6.00	39.12
OUTFLOW: ID= 1 (0001)	21.360	0.059	10.70	19.61

PEAK FLOW REDUCTION [Qout/Qin](%)= 3.39
TIME SHIFT OF PEAK FLOW (min)=282.00
MAXIMUM STORAGE USED (ha.m.)= 0.7095

CALIB
STANDHYD (2102)
ID= 1 DT= 5.0 min

Area (ha)= 0.21
Total Imp(%)= 65.00 Dir. Conn.(%)= 65.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.14	0.07
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	37.42	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.68	3.083	2.71	6.083	36.54	9.08	2.71
0.167	0.68	3.167	2.71	6.167	36.54	9.17	2.71
0.250	0.68	3.250	2.71	6.250	36.54	9.25	2.71
0.333	1.35	3.333	2.71	6.333	12.18	9.33	2.71
0.417	1.35	3.417	2.71	6.417	12.18	9.42	2.71
0.500	1.35	3.500	2.71	6.500	12.18	9.50	2.71
0.583	1.35	3.583	2.71	6.583	8.80	9.58	2.03
0.667	1.35	3.667	2.71	6.667	8.80	9.67	2.03
0.750	1.35	3.750	2.71	6.750	8.80	9.75	2.03
0.833	1.35	3.833	2.71	6.833	5.41	9.83	1.35
0.917	1.35	3.917	2.71	6.917	5.41	9.92	1.35
1.000	1.35	4.000	2.71	7.000	5.41	10.00	1.35
1.083	1.35	4.083	3.38	7.083	4.74	10.08	1.35
1.167	1.35	4.167	3.38	7.167	4.74	10.17	1.35
1.250	1.35	4.250	3.38	7.250	4.74	10.25	1.35
1.333	1.35	4.333	4.06	7.333	4.06	10.33	1.35
1.417	1.35	4.417	4.06	7.417	4.06	10.42	1.35
1.500	1.35	4.500	4.06	7.500	4.06	10.50	1.35
1.583	1.35	4.583	4.74	7.583	4.06	10.58	1.35
1.667	1.35	4.667	4.74	7.667	4.06	10.67	1.35
1.750	1.35	4.750	4.74	7.750	4.06	10.75	1.35
1.833	1.35	4.833	5.41	7.833	4.06	10.83	1.35
1.917	1.35	4.917	5.41	7.917	4.06	10.92	1.35
2.000	1.35	5.000	5.41	8.000	4.06	11.00	1.35
2.083	2.03	5.083	6.77	8.083	3.38	11.08	1.35
2.167	2.03	5.167	6.77	8.167	3.38	11.17	1.35
2.250	2.03	5.250	6.77	8.250	3.38	11.25	1.35
2.333	2.71	5.333	8.12	8.333	2.71	11.33	1.35
2.417	2.71	5.417	8.12	8.417	2.71	11.42	1.35
2.500	2.71	5.500	8.12	8.500	2.71	11.50	1.35
2.583	2.71	5.583	34.51	8.583	2.71	11.58	1.35
2.667	2.71	5.667	34.51	8.667	2.71	11.67	1.35
2.750	2.71	5.750	34.51	8.750	2.71	11.75	1.35
2.833	2.71	5.833	60.90	8.833	2.71	11.83	1.35
2.917	2.71	5.917	60.90	8.917	2.71	11.92	1.35
3.000	2.71	6.000	60.90	9.000	2.71	12.00	1.35

Max.Eff.Inten.	(mm/hr)=	60.90	12.01	
	over (min)	5.00	20.00	
Storage Coeff.	(min)=	1.73 (ii)	18.20 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	20.00	
Unit Hyd. peak	(cms)=	0.32	0.06	
				TOTALS
PEAK FLOW	(cms)=	0.02	0.00	0.024 (iii)
TIME TO PEAK	(hrs)=	6.00	6.33	6.00
RUNOFF VOLUME	(mm)=	65.50	14.01	47.42
TOTAL RAINFALL	(mm)=	67.50	67.50	67.50
RUNOFF COEFFICIENT	=	0.97	0.21	0.70

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.

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

ADD HYD (0015)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0001):	21.36	0.059	10.70	19.61
	+ ID2= 2 (2102):	0.21	0.024	6.00	47.42
	ID = 3 (0015):	21.57	0.060	10.63	19.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:3.4 SCS II 12hr 25yr **
****

MASS STORM	Filename: C:\Users\rbrockie\AppData\Local\Temp\913e2f46-79e8-42d3-b20d-3fb65cefc10e\ee92dc1e
Ptotal= 79.02 mm	Comments: SCS 12 HOUR TYPE II STORM DISTRIBUTION

Duration of storm = 12.00 hrs
Mass curve time step = 30.00 min
New Storm time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.79	3.00	3.16	6.00	42.67	9.00	3.16
0.25	1.58	3.25	3.16	6.25	14.22	9.25	3.16
0.50	1.58	3.50	3.16	6.50	10.27	9.50	2.37
0.75	1.58	3.75	3.16	6.75	6.32	9.75	1.58
1.00	1.58	4.00	3.95	7.00	5.53	10.00	1.58
1.25	1.58	4.25	4.74	7.25	4.74	10.25	1.58
1.50	1.58	4.50	5.53	7.50	4.74	10.50	1.58
1.75	1.58	4.75	6.32	7.75	4.74	10.75	1.58
2.00	2.37	5.00	7.90	8.00	3.95	11.00	1.58
2.25	3.16	5.25	9.48	8.25	3.16	11.25	1.58
2.50	3.16	5.50	40.30	8.50	3.16	11.50	1.58
2.75	3.16	5.75	71.12	8.75	3.16	11.75	1.58

CALIB STANDHYD (2101)	Area (ha)= 17.31
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.08	6.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	339.71	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.79	3.083	3.16	6.083	42.67	9.08	3.16
0.167	0.79	3.167	3.16	6.167	42.67	9.17	3.16
0.250	0.79	3.250	3.16	6.250	42.67	9.25	3.16
0.333	1.58	3.333	3.16	6.333	14.22	9.33	3.16
0.417	1.58	3.417	3.16	6.417	14.22	9.42	3.16
0.500	1.58	3.500	3.16	6.500	14.22	9.50	3.16
0.583	1.58	3.583	3.16	6.583	10.27	9.58	2.37
0.667	1.58	3.667	3.16	6.667	10.27	9.67	2.37
0.750	1.58	3.750	3.16	6.750	10.27	9.75	2.37
0.833	1.58	3.833	3.16	6.833	6.32	9.83	1.58
0.917	1.58	3.917	3.16	6.917	6.32	9.92	1.58
1.000	1.58	4.000	3.16	7.000	6.32	10.00	1.58
1.083	1.58	4.083	3.95	7.083	5.53	10.08	1.58
1.167	1.58	4.167	3.95	7.167	5.53	10.17	1.58
1.250	1.58	4.250	3.95	7.250	5.53	10.25	1.58
1.333	1.58	4.333	4.74	7.333	4.74	10.33	1.58
1.417	1.58	4.417	4.74	7.417	4.74	10.42	1.58
1.500	1.58	4.500	4.74	7.500	4.74	10.50	1.58
1.583	1.58	4.583	5.53	7.583	4.74	10.58	1.58
1.667	1.58	4.667	5.53	7.667	4.74	10.67	1.58
1.750	1.58	4.750	5.53	7.750	4.74	10.75	1.58

1.833	1.58	4.833	6.32	7.833	4.74	10.83	1.58
1.917	1.58	4.917	6.32	7.917	4.74	10.92	1.58
2.000	1.58	5.000	6.32	8.000	4.74	11.00	1.58
2.083	2.37	5.083	7.90	8.083	3.95	11.08	1.58
2.167	2.37	5.167	7.90	8.167	3.95	11.17	1.58
2.250	2.37	5.250	7.90	8.250	3.95	11.25	1.58
2.333	3.16	5.333	9.48	8.333	3.16	11.33	1.58
2.417	3.16	5.417	9.48	8.417	3.16	11.42	1.58
2.500	3.16	5.500	9.48	8.500	3.16	11.50	1.58
2.583	3.16	5.583	40.30	8.583	3.16	11.58	1.58
2.667	3.16	5.667	40.30	8.667	3.16	11.67	1.58
2.750	3.16	5.750	40.30	8.750	3.16	11.75	1.58
2.833	3.16	5.833	71.12	8.833	3.16	11.83	1.58
2.917	3.16	5.917	71.12	8.917	3.16	11.92	1.58
3.000	3.16	6.000	71.12	9.000	3.16	12.00	1.58

Max.Eff.Inten.(mm/hr)=	71.12	43.06	
over (min)	5.00	20.00	
Storage Coeff. (min)=	6.10 (ii)	15.98 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.19	0.07	
			TOTALS
PEAK FLOW (cms)=	1.41	0.51	1.735 (iii)
TIME TO PEAK (hrs)=	6.00	6.25	6.00
RUNOFF VOLUME (mm)=	76.82	26.96	48.40
TOTAL RAINFALL (mm)=	78.82	78.82	78.82
RUNOFF COEFFICIENT =	0.97	0.34	0.61

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0096)	Area (ha)= 1.16
ID= 1 DT= 5.0 min	Total Imp(%)= 22.00 Dir. Conn.(%)= 22.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.26	0.90
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.94	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.79	3.083	3.16	6.083	42.67	9.08	3.16
0.167	0.79	3.167	3.16	6.167	42.67	9.17	3.16
0.250	0.79	3.250	3.16	6.250	42.67	9.25	3.16
0.333	1.58	3.333	3.16	6.333	14.22	9.33	3.16
0.417	1.58	3.417	3.16	6.417	14.22	9.42	3.16
0.500	1.58	3.500	3.16	6.500	14.22	9.50	3.16
0.583	1.58	3.583	3.16	6.583	10.27	9.58	2.37
0.667	1.58	3.667	3.16	6.667	10.27	9.67	2.37
0.750	1.58	3.750	3.16	6.750	10.27	9.75	2.37
0.833	1.58	3.833	3.16	6.833	6.32	9.83	1.58
0.917	1.58	3.917	3.16	6.917	6.32	9.92	1.58
1.000	1.58	4.000	3.16	7.000	6.32	10.00	1.58
1.083	1.58	4.083	3.95	7.083	5.53	10.08	1.58
1.167	1.58	4.167	3.95	7.167	5.53	10.17	1.58
1.250	1.58	4.250	3.95	7.250	5.53	10.25	1.58
1.333	1.58	4.333	4.74	7.333	4.74	10.33	1.58
1.417	1.58	4.417	4.74	7.417	4.74	10.42	1.58
1.500	1.58	4.500	4.74	7.500	4.74	10.50	1.58
1.583	1.58	4.583	5.53	7.583	4.74	10.58	1.58
1.667	1.58	4.667	5.53	7.667	4.74	10.67	1.58
1.750	1.58	4.750	5.53	7.750	4.74	10.75	1.58
1.833	1.58	4.833	6.32	7.833	4.74	10.83	1.58
1.917	1.58	4.917	6.32	7.917	4.74	10.92	1.58
2.000	1.58	5.000	6.32	8.000	4.74	11.00	1.58
2.083	2.37	5.083	7.90	8.083	3.95	11.08	1.58
2.167	2.37	5.167	7.90	8.167	3.95	11.17	1.58
2.250	2.37	5.250	7.90	8.250	3.95	11.25	1.58
2.333	3.16	5.333	9.48	8.333	3.16	11.33	1.58
2.417	3.16	5.417	9.48	8.417	3.16	11.42	1.58
2.500	3.16	5.500	9.48	8.500	3.16	11.50	1.58

2.583	3.16	5.583	40.30	8.583	3.16	11.58	1.58
2.667	3.16	5.667	40.30	8.667	3.16	11.67	1.58
2.750	3.16	5.750	40.30	8.750	3.16	11.75	1.58
2.833	3.16	5.833	71.12	8.833	3.16	11.83	1.58
2.917	3.16	5.917	71.12	8.917	3.16	11.92	1.58
3.000	3.16	6.000	71.12	9.000	3.16	12.00	1.58

Max.Eff.Inten.(mm/hr)=	71.12	17.31	
over (min)	5.00	20.00	
Storage Coeff. (min)=	2.71 (ii)	16.95 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.29	0.06	
			TOTALS
PEAK FLOW (cms)=	0.05	0.03	0.069 (iii)
TIME TO PEAK (hrs)=	6.00	6.25	6.00
RUNOFF VOLUME (mm)=	76.82	18.78	31.54
TOTAL RAINFALL (mm)=	78.82	78.82	78.82
RUNOFF COEFFICIENT =	0.97	0.24	0.40

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (3100)	Area (ha)= 2.89
ID= 1 DT= 1.0 min	Total Imp(%)= 68.00 Dir. Conn.(%)= 39.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	0.79	3.017	3.16	6.017	42.67	9.02	3.16
0.033	0.79	3.033	3.16	6.033	42.67	9.03	3.16
0.050	0.79	3.050	3.16	6.050	42.67	9.05	3.16
0.067	0.79	3.067	3.16	6.067	42.67	9.07	3.16
0.083	0.79	3.083	3.16	6.083	42.67	9.08	3.16
0.100	0.79	3.100	3.16	6.100	42.67	9.10	3.16
0.117	0.79	3.117	3.16	6.117	42.67	9.12	3.16
0.133	0.79	3.133	3.16	6.133	42.67	9.13	3.16
0.150	0.79	3.150	3.16	6.150	42.67	9.15	3.16
0.167	0.79	3.167	3.16	6.167	42.67	9.17	3.16
0.183	0.79	3.183	3.16	6.183	42.67	9.18	3.16
0.200	0.79	3.200	3.16	6.200	42.67	9.20	3.16
0.217	0.79	3.217	3.16	6.217	42.67	9.22	3.16
0.233	0.79	3.233	3.16	6.233	42.67	9.23	3.16
0.250	0.79	3.250	3.16	6.250	42.63	9.25	3.16
0.267	1.58	3.267	3.16	6.267	14.22	9.27	3.16
0.283	1.58	3.283	3.16	6.283	14.22	9.28	3.16
0.300	1.58	3.300	3.16	6.300	14.22	9.30	3.16
0.317	1.58	3.317	3.16	6.317	14.22	9.32	3.16
0.333	1.58	3.333	3.16	6.333	14.22	9.33	3.16
0.350	1.58	3.350	3.16	6.350	14.22	9.35	3.16
0.367	1.58	3.367	3.16	6.367	14.22	9.37	3.16
0.383	1.58	3.383	3.16	6.383	14.22	9.38	3.16
0.400	1.58	3.400	3.16	6.400	14.22	9.40	3.16
0.417	1.58	3.417	3.16	6.417	14.22	9.42	3.16
0.433	1.58	3.433	3.16	6.433	14.22	9.43	3.16
0.450	1.58	3.450	3.16	6.450	14.22	9.45	3.16
0.467	1.58	3.467	3.16	6.467	14.22	9.47	3.16
0.483	1.58	3.483	3.16	6.483	14.22	9.48	3.16
0.500	1.58	3.500	3.16	6.500	14.22	9.50	3.16
0.517	1.58	3.517	3.16	6.517	10.27	9.52	2.37
0.533	1.58	3.533	3.16	6.533	10.27	9.53	2.37
0.550	1.58	3.550	3.16	6.550	10.27	9.55	2.37
0.567	1.58	3.567	3.16	6.567	10.27	9.57	2.37
0.583	1.58	3.583	3.16	6.583	10.27	9.58	2.37
0.600	1.58	3.600	3.16	6.600	10.27	9.60	2.37
0.617	1.58	3.617	3.16	6.617	10.27	9.62	2.37
0.633	1.58	3.633	3.16	6.633	10.27	9.63	2.37

0.650	1.58	3.650	3.16	6.650	10.27	9.65	2.37
0.667	1.58	3.667	3.16	6.667	10.27	9.67	2.37
0.683	1.58	3.683	3.16	6.683	10.27	9.68	2.37
0.700	1.58	3.700	3.16	6.700	10.27	9.70	2.37
0.717	1.58	3.717	3.16	6.717	10.27	9.72	2.37
0.733	1.58	3.733	3.16	6.733	10.27	9.73	2.37
0.750	1.58	3.750	3.16	6.750	10.26	9.75	2.37
0.767	1.58	3.767	3.16	6.767	6.32	9.77	1.58
0.783	1.58	3.783	3.16	6.783	6.32	9.78	1.58
0.800	1.58	3.800	3.16	6.800	6.32	9.80	1.58
0.817	1.58	3.817	3.16	6.817	6.32	9.82	1.58
0.833	1.58	3.833	3.16	6.833	6.32	9.83	1.58
0.850	1.58	3.850	3.16	6.850	6.32	9.85	1.58
0.867	1.58	3.867	3.16	6.867	6.32	9.87	1.58
0.883	1.58	3.883	3.16	6.883	6.32	9.88	1.58
0.900	1.58	3.900	3.16	6.900	6.32	9.90	1.58
0.917	1.58	3.917	3.16	6.917	6.32	9.92	1.58
0.933	1.58	3.933	3.16	6.933	6.32	9.93	1.58
0.950	1.58	3.950	3.16	6.950	6.32	9.95	1.58
0.967	1.58	3.967	3.16	6.967	6.32	9.97	1.58
0.983	1.58	3.983	3.16	6.983	6.32	9.98	1.58
1.000	1.58	4.000	3.16	7.000	6.32	10.00	1.58
1.017	1.58	4.017	3.95	7.017	5.53	10.02	1.58
1.033	1.58	4.033	3.95	7.033	5.53	10.03	1.58
1.050	1.58	4.050	3.95	7.050	5.53	10.05	1.58
1.067	1.58	4.067	3.95	7.067	5.53	10.07	1.58
1.083	1.58	4.083	3.95	7.083	5.53	10.08	1.58
1.100	1.58	4.100	3.95	7.100	5.53	10.10	1.58
1.117	1.58	4.117	3.95	7.117	5.53	10.12	1.58
1.133	1.58	4.133	3.95	7.133	5.53	10.13	1.58
1.150	1.58	4.150	3.95	7.150	5.53	10.15	1.58
1.167	1.58	4.167	3.95	7.167	5.53	10.17	1.58
1.183	1.58	4.183	3.95	7.183	5.53	10.18	1.58
1.200	1.58	4.200	3.95	7.200	5.53	10.20	1.58
1.217	1.58	4.217	3.95	7.217	5.53	10.22	1.58
1.233	1.58	4.233	3.95	7.233	5.53	10.23	1.58
1.250	1.58	4.250	3.95	7.250	5.53	10.25	1.58
1.267	1.58	4.267	4.74	7.267	4.74	10.27	1.58
1.283	1.58	4.283	4.74	7.283	4.74	10.28	1.58
1.300	1.58	4.300	4.74	7.300	4.74	10.30	1.58
1.317	1.58	4.317	4.74	7.317	4.74	10.32	1.58
1.333	1.58	4.333	4.74	7.333	4.74	10.33	1.58
1.350	1.58	4.350	4.74	7.350	4.74	10.35	1.58
1.367	1.58	4.367	4.74	7.367	4.74	10.37	1.58
1.383	1.58	4.383	4.74	7.383	4.74	10.38	1.58
1.400	1.58	4.400	4.74	7.400	4.74	10.40	1.58
1.417	1.58	4.417	4.74	7.417	4.74	10.42	1.58
1.433	1.58	4.433	4.74	7.433	4.74	10.43	1.58
1.450	1.58	4.450	4.74	7.450	4.74	10.45	1.58
1.467	1.58	4.467	4.74	7.467	4.74	10.47	1.58
1.483	1.58	4.483	4.74	7.483	4.74	10.48	1.58
1.500	1.58	4.500	4.74	7.500	4.74	10.50	1.58
1.517	1.58	4.517	5.53	7.517	4.74	10.52	1.58
1.533	1.58	4.533	5.53	7.533	4.74	10.53	1.58
1.550	1.58	4.550	5.53	7.550	4.74	10.55	1.58
1.567	1.58	4.567	5.53	7.567	4.74	10.57	1.58
1.583	1.58	4.583	5.53	7.583	4.74	10.58	1.58
1.600	1.58	4.600	5.53	7.600	4.74	10.60	1.58
1.617	1.58	4.617	5.53	7.617	4.74	10.62	1.58
1.633	1.58	4.633	5.53	7.633	4.74	10.63	1.58
1.650	1.58	4.650	5.53	7.650	4.74	10.65	1.58
1.667	1.58	4.667	5.53	7.667	4.74	10.67	1.58
1.683	1.58	4.683	5.53	7.683	4.74	10.68	1.58
1.700	1.58	4.700	5.53	7.700	4.74	10.70	1.58
1.717	1.58	4.717	5.53	7.717	4.74	10.72	1.58
1.733	1.58	4.733	5.53	7.733	4.74	10.73	1.58
1.750	1.58	4.750	5.53	7.750	4.74	10.75	1.58
1.767	1.58	4.767	6.32	7.767	4.74	10.77	1.58
1.783	1.58	4.783	6.32	7.783	4.74	10.78	1.58
1.800	1.58	4.800	6.32	7.800	4.74	10.80	1.58
1.817	1.58	4.817	6.32	7.817	4.74	10.82	1.58
1.833	1.58	4.833	6.32	7.833	4.74	10.83	1.58
1.850	1.58	4.850	6.32	7.850	4.74	10.85	1.58
1.867	1.58	4.867	6.32	7.867	4.74	10.87	1.58
1.883	1.58	4.883	6.32	7.883	4.74	10.88	1.58
1.900	1.58	4.900	6.32	7.900	4.74	10.90	1.58
1.917	1.58	4.917	6.32	7.917	4.74	10.92	1.58
1.933	1.58	4.933	6.32	7.933	4.74	10.93	1.58
1.950	1.58	4.950	6.32	7.950	4.74	10.95	1.58
1.967	1.58	4.967	6.32	7.967	4.74	10.97	1.58
1.983	1.58	4.983	6.32	7.983	4.74	10.98	1.58
2.000	1.58	5.000	6.32	8.000	4.74	11.00	1.58
2.017	2.37	5.017	7.90	8.017	3.95	11.02	1.58
2.033	2.37	5.033	7.90	8.033	3.95	11.03	1.58

2.050	2.37	5.050	7.90	8.050	3.95	11.05	1.58
2.067	2.37	5.067	7.90	8.067	3.95	11.07	1.58
2.083	2.37	5.083	7.90	8.083	3.95	11.08	1.58
2.100	2.37	5.100	7.90	8.100	3.95	11.10	1.58
2.117	2.37	5.117	7.90	8.117	3.95	11.12	1.58
2.133	2.37	5.133	7.90	8.133	3.95	11.13	1.58
2.150	2.37	5.150	7.90	8.150	3.95	11.15	1.58
2.167	2.37	5.167	7.90	8.167	3.95	11.17	1.58
2.183	2.37	5.183	7.90	8.183	3.95	11.18	1.58
2.200	2.37	5.200	7.90	8.200	3.95	11.20	1.58
2.217	2.37	5.217	7.90	8.217	3.95	11.22	1.58
2.233	2.37	5.233	7.90	8.233	3.95	11.23	1.58
2.250	2.37	5.250	7.90	8.250	3.95	11.25	1.58
2.267	3.16	5.267	9.48	8.267	3.16	11.27	1.58
2.283	3.16	5.283	9.48	8.283	3.16	11.28	1.58
2.300	3.16	5.300	9.48	8.300	3.16	11.30	1.58
2.317	3.16	5.317	9.48	8.317	3.16	11.32	1.58
2.333	3.16	5.333	9.48	8.333	3.16	11.33	1.58
2.350	3.16	5.350	9.48	8.350	3.16	11.35	1.58
2.367	3.16	5.367	9.48	8.367	3.16	11.37	1.58
2.383	3.16	5.383	9.48	8.383	3.16	11.38	1.58
2.400	3.16	5.400	9.48	8.400	3.16	11.40	1.58
2.417	3.16	5.417	9.48	8.417	3.16	11.42	1.58
2.433	3.16	5.433	9.48	8.433	3.16	11.43	1.58
2.450	3.16	5.450	9.48	8.450	3.16	11.45	1.58
2.467	3.16	5.467	9.48	8.467	3.16	11.47	1.58
2.483	3.16	5.483	9.48	8.483	3.16	11.48	1.58
2.500	3.16	5.500	9.51	8.500	3.16	11.50	1.58
2.517	3.16	5.517	40.30	8.517	3.16	11.52	1.58
2.533	3.16	5.533	40.30	8.533	3.16	11.53	1.58
2.550	3.16	5.550	40.30	8.550	3.16	11.55	1.58
2.567	3.16	5.567	40.30	8.567	3.16	11.57	1.58
2.583	3.16	5.583	40.30	8.583	3.16	11.58	1.58
2.600	3.16	5.600	40.30	8.600	3.16	11.60	1.58
2.617	3.16	5.617	40.30	8.617	3.16	11.62	1.58
2.633	3.16	5.633	40.30	8.633	3.16	11.63	1.58
2.650	3.16	5.650	40.30	8.650	3.16	11.65	1.58
2.667	3.16	5.667	40.30	8.667	3.16	11.67	1.58
2.683	3.16	5.683	40.30	8.683	3.16	11.68	1.58
2.700	3.16	5.700	40.30	8.700	3.16	11.70	1.58
2.717	3.16	5.717	40.30	8.717	3.16	11.72	1.58
2.733	3.16	5.733	40.30	8.733	3.16	11.73	1.58
2.750	3.16	5.750	40.34	8.750	3.16	11.75	1.58
2.767	3.16	5.767	71.12	8.767	3.16	11.77	1.58
2.783	3.16	5.783	71.12	8.783	3.16	11.78	1.58
2.800	3.16	5.800	71.12	8.800	3.16	11.80	1.58
2.817	3.16	5.817	71.12	8.817	3.16	11.82	1.58
2.833	3.16	5.833	71.12	8.833	3.16	11.83	1.58
2.850	3.16	5.850	71.12	8.850	3.16	11.85	1.58
2.867	3.16	5.867	71.12	8.867	3.16	11.87	1.58
2.883	3.16	5.883	71.12	8.883	3.16	11.88	1.58
2.900	3.16	5.900	71.12	8.900	3.16	11.90	1.58
2.917	3.16	5.917	71.12	8.917	3.16	11.92	1.58
2.933	3.16	5.933	71.12	8.933	3.16	11.93	1.58
2.950	3.16	5.950	71.12	8.950	3.16	11.95	1.58
2.967	3.16	5.967	71.12	8.967	3.16	11.97	1.58
2.983	3.16	5.983	71.12	8.983	3.16	11.98	1.58
3.000	3.16	6.000	71.08	9.000	3.16	12.00	1.58

Max.Eff.Inten.(mm/hr)=	71.12	59.23		
over (min)	5.00	12.00		
Storage Coeff. (min)=	3.56 (ii)	11.04 (ii)		
Unit Hyd. Tpeak (min)=	5.00	12.00		
Unit Hyd. peak (cms)=	0.28	0.10		
			TOTALS	
PEAK FLOW (cms)=	0.22	0.12	0.316 (iii)	
TIME TO PEAK (hrs)=	6.00	6.17	6.02	
RUNOFF VOLUME (mm)=	76.82	30.60	48.63	
TOTAL RAINFALL (mm)=	78.82	78.82	78.82	
RUNOFF COEFFICIENT =	0.97	0.39	0.62	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0097)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)

```
       ID1= 1 (  2101):    17.31   1.735     6.00    48.40
     + ID2= 2 (  3100):     2.89   0.316     6.02    48.63
       ================================================
       ID = 3 (  0097):    20.20   2.049     6.00    48.43

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0097)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK      R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
       ID1= 3 (  0097):    20.20   2.049     6.00    48.43
     + ID2= 2 (  0096):     1.16   0.069     6.00    31.54
       ================================================
       ID = 1 (  0097):    21.36   2.118     6.00    47.52

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.0400      0.6360
                           0.0160      0.1070   |    0.0790      0.7870
                           0.0240      0.2260   |    0.2900      0.9450
                           0.0300      0.3550   |    0.4710      1.0430
                           0.0350      0.4920   |    0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0097)     21.360      2.118      6.00      47.52
   OUTFLOW: ID= 1 (  0001)     21.360      0.122      9.65      26.14

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.77
                  TIME SHIFT OF PEAK FLOW         (min)=219.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.8193

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--------------------
| CALIB            |
| STANDHYD (  2102)|   Area    (ha)=   0.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.14         0.07
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      37.42        40.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
   TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
    hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
  0.083    0.79 | 3.083    3.16 | 6.083   42.67 |  9.08    3.16
  0.167    0.79 | 3.167    3.16 | 6.167   42.67 |  9.17    3.16
  0.250    0.79 | 3.250    3.16 | 6.250   42.67 |  9.25    3.16
  0.333    1.58 | 3.333    3.16 | 6.333   14.22 |  9.33    3.16
  0.417    1.58 | 3.417    3.16 | 6.417   14.22 |  9.42    3.16
  0.500    1.58 | 3.500    3.16 | 6.500   14.22 |  9.50    3.16
  0.583    1.58 | 3.583    3.16 | 6.583   10.27 |  9.58    2.37
  0.667    1.58 | 3.667    3.16 | 6.667   10.27 |  9.67    2.37
  0.750    1.58 | 3.750    3.16 | 6.750   10.27 |  9.75    2.37
  0.833    1.58 | 3.833    3.16 | 6.833    6.32 |  9.83    1.58
  0.917    1.58 | 3.917    3.16 | 6.917    6.32 |  9.92    1.58
  1.000    1.58 | 4.000    3.16 | 7.000    6.32 | 10.00    1.58
  1.083    1.58 | 4.083    3.95 | 7.083    5.53 | 10.08    1.58
  1.167    1.58 | 4.167    3.95 | 7.167    5.53 | 10.17    1.58
  1.250    1.58 | 4.250    3.95 | 7.250    5.53 | 10.25    1.58
  1.333    1.58 | 4.333    4.74 | 7.333    4.74 | 10.33    1.58
  1.417    1.58 | 4.417    4.74 | 7.417    4.74 | 10.42    1.58
  1.500    1.58 | 4.500    4.74 | 7.500    4.74 | 10.50    1.58
  1.583    1.58 | 4.583    5.53 | 7.583    4.74 | 10.58    1.58
  1.667    1.58 | 4.667    5.53 | 7.667    4.74 | 10.67    1.58
  1.750    1.58 | 4.750    5.53 | 7.750    4.74 | 10.75    1.58
  1.833    1.58 | 4.833    6.32 | 7.833    4.74 | 10.83    1.58
  1.917    1.58 | 4.917    6.32 | 7.917    4.74 | 10.92    1.58
  2.000    1.58 | 5.000    6.32 | 8.000    4.74 | 11.00    1.58
  2.083    2.37 | 5.083    7.90 | 8.083    3.95 | 11.08    1.58
  2.167    2.37 | 5.167    7.90 | 8.167    3.95 | 11.17    1.58
```

2.250	2.37	5.250	7.90	8.250	3.95	11.25	1.58
2.333	3.16	5.333	9.48	8.333	3.16	11.33	1.58
2.417	3.16	5.417	9.48	8.417	3.16	11.42	1.58
2.500	3.16	5.500	9.48	8.500	3.16	11.50	1.58
2.583	3.16	5.583	40.30	8.583	3.16	11.58	1.58
2.667	3.16	5.667	40.30	8.667	3.16	11.67	1.58
2.750	3.16	5.750	40.30	8.750	3.16	11.75	1.58
2.833	3.16	5.833	71.12	8.833	3.16	11.83	1.58
2.917	3.16	5.917	71.12	8.917	3.16	11.92	1.58
3.000	3.16	6.000	71.12	9.000	3.16	12.00	1.58

Max.Eff.Inten.(mm/hr)=	71.12	17.31	
over (min)	5.00	20.00	
Storage Coeff. (min)=	1.62 (ii)	15.86 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.32	0.07	
			TOTALS
PEAK FLOW (cms)=	0.03	0.00	0.029 (iii)
TIME TO PEAK (hrs)=	6.00	6.25	6.00
RUNOFF VOLUME (mm)=	76.82	18.78	56.47
TOTAL RAINFALL (mm)=	78.82	78.82	78.82
RUNOFF COEFFICIENT =	0.97	0.24	0.72

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0015)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0001):		21.36	0.122	9.65	26.14
+ ID2= 2 (2102):		0.21	0.029	6.00	56.47
ID = 3 (0015):		21.57	0.123	9.65	26.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:3.5 SCS II 12hr 50yr **
****

MASS STORM	Filename: C:\Users\rbrockie\AppData\Local\Temp\913e2f46-79e8-42d3-b20d-3fb65cefc10e\306310a1
Ptotal= 87.48 mm	Comments: SCS 12 HOUR TYPE II STORM DISTRIBUTION

Duration of storm = 12.00 hrs
Mass curve time step = 30.00 min
New Storm time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.87	3.00	3.50	6.00	47.24	9.00	3.50
0.25	1.75	3.25	3.50	6.25	15.75	9.25	3.50
0.50	1.75	3.50	3.50	6.50	11.37	9.50	2.62
0.75	1.75	3.75	3.50	6.75	7.00	9.75	1.75
1.00	1.75	4.00	4.37	7.00	6.12	10.00	1.75
1.25	1.75	4.25	5.25	7.25	5.25	10.25	1.75
1.50	1.75	4.50	6.12	7.50	5.25	10.50	1.75
1.75	1.75	4.75	7.00	7.75	5.25	10.75	1.75
2.00	2.62	5.00	8.75	8.00	4.37	11.00	1.75
2.25	3.50	5.25	10.50	8.25	3.50	11.25	1.75
2.50	3.50	5.50	44.61	8.50	3.50	11.50	1.75
2.75	3.50	5.75	78.73	8.75	3.50	11.75	1.75

CALIB	
STANDHYD (2101)	Area (ha)= 17.31
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.08	6.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	339.71	40.00

Mannings n = 0.013 0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.87	3.083	3.50	6.083	47.24	9.08	3.50
0.167	0.87	3.167	3.50	6.167	47.24	9.17	3.50
0.250	0.87	3.250	3.50	6.250	47.24	9.25	3.50
0.333	1.75	3.333	3.50	6.333	15.75	9.33	3.50
0.417	1.75	3.417	3.50	6.417	15.75	9.42	3.50
0.500	1.75	3.500	3.50	6.500	15.75	9.50	3.50
0.583	1.75	3.583	3.50	6.583	11.37	9.58	2.62
0.667	1.75	3.667	3.50	6.667	11.37	9.67	2.62
0.750	1.75	3.750	3.50	6.750	11.37	9.75	2.62
0.833	1.75	3.833	3.50	6.833	7.00	9.83	1.75
0.917	1.75	3.917	3.50	6.917	7.00	9.92	1.75
1.000	1.75	4.000	3.50	7.000	7.00	10.00	1.75
1.083	1.75	4.083	4.37	7.083	6.12	10.08	1.75
1.167	1.75	4.167	4.37	7.167	6.12	10.17	1.75
1.250	1.75	4.250	4.37	7.250	6.12	10.25	1.75
1.333	1.75	4.333	5.25	7.333	5.25	10.33	1.75
1.417	1.75	4.417	5.25	7.417	5.25	10.42	1.75
1.500	1.75	4.500	5.25	7.500	5.25	10.50	1.75
1.583	1.75	4.583	6.12	7.583	5.25	10.58	1.75
1.667	1.75	4.667	6.12	7.667	5.25	10.67	1.75
1.750	1.75	4.750	6.12	7.750	5.25	10.75	1.75
1.833	1.75	4.833	7.00	7.833	5.25	10.83	1.75
1.917	1.75	4.917	7.00	7.917	5.25	10.92	1.75
2.000	1.75	5.000	7.00	8.000	5.25	11.00	1.75
2.083	2.62	5.083	8.75	8.083	4.37	11.08	1.75
2.167	2.62	5.167	8.75	8.167	4.37	11.17	1.75
2.250	2.62	5.250	8.75	8.250	4.37	11.25	1.75
2.333	3.50	5.333	10.50	8.333	3.50	11.33	1.75
2.417	3.50	5.417	10.50	8.417	3.50	11.42	1.75
2.500	3.50	5.500	10.50	8.500	3.50	11.50	1.75
2.583	3.50	5.583	44.61	8.583	3.50	11.58	1.75
2.667	3.50	5.667	44.61	8.667	3.50	11.67	1.75
2.750	3.50	5.750	44.62	8.750	3.50	11.75	1.75
2.833	3.50	5.833	78.73	8.833	3.50	11.83	1.75
2.917	3.50	5.917	78.73	8.917	3.50	11.92	1.75
3.000	3.50	6.000	78.73	9.000	3.50	12.00	1.75

Max.Eff.Inten.(mm/hr)=	78.73	51.36	
over (min)	5.00	20.00	
Storage Coeff. (min)=	5.86 (ii)	15.07 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.20	0.07	
			TOTALS
PEAK FLOW (cms)=	1.57	0.63	1.970 (iii)
TIME TO PEAK (hrs)=	6.00	6.25	6.00
RUNOFF VOLUME (mm)=	85.26	32.04	54.93
TOTAL RAINFALL (mm)=	87.26	87.26	87.26
RUNOFF COEFFICIENT =	0.98	0.37	0.63

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB STANDHYD (0096) ID= 1 DT= 5.0 min	Area (ha)= 1.16 Total Imp(%)= 22.00 Dir. Conn.(%)= 22.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.26	0.90
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.94	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.87	3.083	3.50	6.083	47.24	9.08	3.50

0.167	0.87	3.167	3.50	6.167	47.24	9.17	3.50
0.250	0.87	3.250	3.50	6.250	47.24	9.25	3.50
0.333	1.75	3.333	3.50	6.333	15.75	9.33	3.50
0.417	1.75	3.417	3.50	6.417	15.75	9.42	3.50
0.500	1.75	3.500	3.50	6.500	15.75	9.50	3.50
0.583	1.75	3.583	3.50	6.583	11.37	9.58	2.62
0.667	1.75	3.667	3.50	6.667	11.37	9.67	2.62
0.750	1.75	3.750	3.50	6.750	11.37	9.75	2.62
0.833	1.75	3.833	3.50	6.833	7.00	9.83	1.75
0.917	1.75	3.917	3.50	6.917	7.00	9.92	1.75
1.000	1.75	4.000	3.50	7.000	7.00	10.00	1.75
1.083	1.75	4.083	4.37	7.083	6.12	10.08	1.75
1.167	1.75	4.167	4.37	7.167	6.12	10.17	1.75
1.250	1.75	4.250	4.37	7.250	6.12	10.25	1.75
1.333	1.75	4.333	5.25	7.333	5.25	10.33	1.75
1.417	1.75	4.417	5.25	7.417	5.25	10.42	1.75
1.500	1.75	4.500	5.25	7.500	5.25	10.50	1.75
1.583	1.75	4.583	6.12	7.583	5.25	10.58	1.75
1.667	1.75	4.667	6.12	7.667	5.25	10.67	1.75
1.750	1.75	4.750	6.12	7.750	5.25	10.75	1.75
1.833	1.75	4.833	7.00	7.833	5.25	10.83	1.75
1.917	1.75	4.917	7.00	7.917	5.25	10.92	1.75
2.000	1.75	5.000	7.00	8.000	5.25	11.00	1.75
2.083	2.62	5.083	8.75	8.083	4.37	11.08	1.75
2.167	2.62	5.167	8.75	8.167	4.37	11.17	1.75
2.250	2.62	5.250	8.75	8.250	4.37	11.25	1.75
2.333	3.50	5.333	10.50	8.333	3.50	11.33	1.75
2.417	3.50	5.417	10.50	8.417	3.50	11.42	1.75
2.500	3.50	5.500	10.50	8.500	3.50	11.50	1.75
2.583	3.50	5.583	44.61	8.583	3.50	11.58	1.75
2.667	3.50	5.667	44.61	8.667	3.50	11.67	1.75
2.750	3.50	5.750	44.62	8.750	3.50	11.75	1.75
2.833	3.50	5.833	78.73	8.833	3.50	11.83	1.75
2.917	3.50	5.917	78.73	8.917	3.50	11.92	1.75
3.000	3.50	6.000	78.73	9.000	3.50	12.00	1.75

Max.Eff.Inten.(mm/hr)=	78.73	21.03	
over (min)	5.00	20.00	
Storage Coeff. (min)=	2.60 (ii)	15.77 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.29	0.07	
			TOTALS
PEAK FLOW (cms)=	0.06	0.04	0.080 (iii)
TIME TO PEAK (hrs)=	6.00	6.25	6.00
RUNOFF VOLUME (mm)=	85.26	22.66	36.42
TOTAL RAINFALL (mm)=	87.26	87.26	87.26
RUNOFF COEFFICIENT =	0.98	0.26	0.42

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB		
STANDHYD (3100)	Area (ha)=	2.89
ID= 1 DT= 1.0 min	Total Imp(%)=	68.00 Dir. Conn.(%)= 39.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	0.87	3.017	3.50	6.017	47.24	9.02	3.50
0.033	0.87	3.033	3.50	6.033	47.24	9.03	3.50
0.050	0.87	3.050	3.50	6.050	47.24	9.05	3.50
0.067	0.87	3.067	3.50	6.067	47.24	9.07	3.50
0.083	0.87	3.083	3.50	6.083	47.24	9.08	3.50
0.100	0.87	3.100	3.50	6.100	47.24	9.10	3.50
0.117	0.87	3.117	3.50	6.117	47.24	9.12	3.50
0.133	0.87	3.133	3.50	6.133	47.24	9.13	3.50
0.150	0.87	3.150	3.50	6.150	47.24	9.15	3.50

0.167	0.87	3.167	3.50	6.167	47.24	9.17	3.50
0.183	0.87	3.183	3.50	6.183	47.24	9.18	3.50
0.200	0.87	3.200	3.50	6.200	47.24	9.20	3.50
0.217	0.87	3.217	3.50	6.217	47.24	9.22	3.50
0.233	0.87	3.233	3.50	6.233	47.24	9.23	3.50
0.250	0.87	3.250	3.50	6.250	47.19	9.25	3.50
0.267	1.75	3.267	3.50	6.267	15.75	9.27	3.50
0.283	1.75	3.283	3.50	6.283	15.75	9.28	3.50
0.300	1.75	3.300	3.50	6.300	15.75	9.30	3.50
0.317	1.75	3.317	3.50	6.317	15.75	9.32	3.50
0.333	1.75	3.333	3.50	6.333	15.75	9.33	3.50
0.350	1.75	3.350	3.50	6.350	15.75	9.35	3.50
0.367	1.75	3.367	3.50	6.367	15.75	9.37	3.50
0.383	1.75	3.383	3.50	6.383	15.75	9.38	3.50
0.400	1.75	3.400	3.50	6.400	15.75	9.40	3.50
0.417	1.75	3.417	3.50	6.417	15.75	9.42	3.50
0.433	1.75	3.433	3.50	6.433	15.75	9.43	3.50
0.450	1.75	3.450	3.50	6.450	15.75	9.45	3.50
0.467	1.75	3.467	3.50	6.467	15.75	9.47	3.50
0.483	1.75	3.483	3.50	6.483	15.75	9.48	3.50
0.500	1.75	3.500	3.50	6.500	15.74	9.50	3.50
0.517	1.75	3.517	3.50	6.517	11.37	9.52	2.62
0.533	1.75	3.533	3.50	6.533	11.37	9.53	2.62
0.550	1.75	3.550	3.50	6.550	11.37	9.55	2.62
0.567	1.75	3.567	3.50	6.567	11.37	9.57	2.62
0.583	1.75	3.583	3.50	6.583	11.37	9.58	2.62
0.600	1.75	3.600	3.50	6.600	11.37	9.60	2.62
0.617	1.75	3.617	3.50	6.617	11.37	9.62	2.62
0.633	1.75	3.633	3.50	6.633	11.37	9.63	2.62
0.650	1.75	3.650	3.50	6.650	11.37	9.65	2.62
0.667	1.75	3.667	3.50	6.667	11.37	9.67	2.62
0.683	1.75	3.683	3.50	6.683	11.37	9.68	2.62
0.700	1.75	3.700	3.50	6.700	11.37	9.70	2.62
0.717	1.75	3.717	3.50	6.717	11.37	9.72	2.62
0.733	1.75	3.733	3.50	6.733	11.37	9.73	2.62
0.750	1.75	3.750	3.50	6.750	11.36	9.75	2.62
0.767	1.75	3.767	3.50	6.767	7.00	9.77	1.75
0.783	1.75	3.783	3.50	6.783	7.00	9.78	1.75
0.800	1.75	3.800	3.50	6.800	7.00	9.80	1.75
0.817	1.75	3.817	3.50	6.817	7.00	9.82	1.75
0.833	1.75	3.833	3.50	6.833	7.00	9.83	1.75
0.850	1.75	3.850	3.50	6.850	7.00	9.85	1.75
0.867	1.75	3.867	3.50	6.867	7.00	9.87	1.75
0.883	1.75	3.883	3.50	6.883	7.00	9.88	1.75
0.900	1.75	3.900	3.50	6.900	7.00	9.90	1.75
0.917	1.75	3.917	3.50	6.917	7.00	9.92	1.75
0.933	1.75	3.933	3.50	6.933	7.00	9.93	1.75
0.950	1.75	3.950	3.50	6.950	7.00	9.95	1.75
0.967	1.75	3.967	3.50	6.967	7.00	9.97	1.75
0.983	1.75	3.983	3.50	6.983	7.00	9.98	1.75
1.000	1.75	4.000	3.50	7.000	7.00	10.00	1.75
1.017	1.75	4.017	4.37	7.017	6.12	10.02	1.75
1.033	1.75	4.033	4.37	7.033	6.12	10.03	1.75
1.050	1.75	4.050	4.37	7.050	6.12	10.05	1.75
1.067	1.75	4.067	4.37	7.067	6.12	10.07	1.75
1.083	1.75	4.083	4.37	7.083	6.12	10.08	1.75
1.100	1.75	4.100	4.37	7.100	6.12	10.10	1.75
1.117	1.75	4.117	4.37	7.117	6.12	10.12	1.75
1.133	1.75	4.133	4.37	7.133	6.12	10.13	1.75
1.150	1.75	4.150	4.37	7.150	6.12	10.15	1.75
1.167	1.75	4.167	4.37	7.167	6.12	10.17	1.75
1.183	1.75	4.183	4.37	7.183	6.12	10.18	1.75
1.200	1.75	4.200	4.37	7.200	6.12	10.20	1.75
1.217	1.75	4.217	4.37	7.217	6.12	10.22	1.75
1.233	1.75	4.233	4.37	7.233	6.12	10.23	1.75
1.250	1.75	4.250	4.37	7.250	6.12	10.25	1.75
1.267	1.75	4.267	5.25	7.267	5.25	10.27	1.75
1.283	1.75	4.283	5.25	7.283	5.25	10.28	1.75
1.300	1.75	4.300	5.25	7.300	5.25	10.30	1.75
1.317	1.75	4.317	5.25	7.317	5.25	10.32	1.75
1.333	1.75	4.333	5.25	7.333	5.25	10.33	1.75
1.350	1.75	4.350	5.25	7.350	5.25	10.35	1.75
1.367	1.75	4.367	5.25	7.367	5.25	10.37	1.75
1.383	1.75	4.383	5.25	7.383	5.25	10.38	1.75
1.400	1.75	4.400	5.25	7.400	5.25	10.40	1.75
1.417	1.75	4.417	5.25	7.417	5.25	10.42	1.75
1.433	1.75	4.433	5.25	7.433	5.25	10.43	1.75
1.450	1.75	4.450	5.25	7.450	5.25	10.45	1.75
1.467	1.75	4.467	5.25	7.467	5.25	10.47	1.75
1.483	1.75	4.483	5.25	7.483	5.25	10.48	1.75
1.500	1.75	4.500	5.25	7.500	5.25	10.50	1.75
1.517	1.75	4.517	6.12	7.517	5.25	10.52	1.75
1.533	1.75	4.533	6.12	7.533	5.25	10.53	1.75
1.550	1.75	4.550	6.12	7.550	5.25	10.55	1.75

1.567	1.75	4.567	6.12	7.567	5.25	10.57	1.75
1.583	1.75	4.583	6.12	7.583	5.25	10.58	1.75
1.600	1.75	4.600	6.12	7.600	5.25	10.60	1.75
1.617	1.75	4.617	6.12	7.617	5.25	10.62	1.75
1.633	1.75	4.633	6.12	7.633	5.25	10.63	1.75
1.650	1.75	4.650	6.12	7.650	5.25	10.65	1.75
1.667	1.75	4.667	6.12	7.667	5.25	10.67	1.75
1.683	1.75	4.683	6.12	7.683	5.25	10.68	1.75
1.700	1.75	4.700	6.12	7.700	5.25	10.70	1.75
1.717	1.75	4.717	6.12	7.717	5.25	10.72	1.75
1.733	1.75	4.733	6.12	7.733	5.25	10.73	1.75
1.750	1.75	4.750	6.12	7.750	5.25	10.75	1.75
1.767	1.75	4.767	7.00	7.767	5.25	10.77	1.75
1.783	1.75	4.783	7.00	7.783	5.25	10.78	1.75
1.800	1.75	4.800	7.00	7.800	5.25	10.80	1.75
1.817	1.75	4.817	7.00	7.817	5.25	10.82	1.75
1.833	1.75	4.833	7.00	7.833	5.25	10.83	1.75
1.850	1.75	4.850	7.00	7.850	5.25	10.85	1.75
1.867	1.75	4.867	7.00	7.867	5.25	10.87	1.75
1.883	1.75	4.883	7.00	7.883	5.25	10.88	1.75
1.900	1.75	4.900	7.00	7.900	5.25	10.90	1.75
1.917	1.75	4.917	7.00	7.917	5.25	10.92	1.75
1.933	1.75	4.933	7.00	7.933	5.25	10.93	1.75
1.950	1.75	4.950	7.00	7.950	5.25	10.95	1.75
1.967	1.75	4.967	7.00	7.967	5.25	10.97	1.75
1.983	1.75	4.983	7.00	7.983	5.25	10.98	1.75
2.000	1.75	5.000	7.00	8.000	5.25	11.00	1.75
2.017	2.62	5.017	8.75	8.017	4.37	11.02	1.75
2.033	2.62	5.033	8.75	8.033	4.37	11.03	1.75
2.050	2.62	5.050	8.75	8.050	4.37	11.05	1.75
2.067	2.62	5.067	8.75	8.067	4.37	11.07	1.75
2.083	2.62	5.083	8.75	8.083	4.37	11.08	1.75
2.100	2.62	5.100	8.75	8.100	4.37	11.10	1.75
2.117	2.62	5.117	8.75	8.117	4.37	11.12	1.75
2.133	2.62	5.133	8.75	8.133	4.37	11.13	1.75
2.150	2.62	5.150	8.75	8.150	4.37	11.15	1.75
2.167	2.62	5.167	8.75	8.167	4.37	11.17	1.75
2.183	2.62	5.183	8.75	8.183	4.37	11.18	1.75
2.200	2.62	5.200	8.75	8.200	4.37	11.20	1.75
2.217	2.62	5.217	8.75	8.217	4.37	11.22	1.75
2.233	2.62	5.233	8.75	8.233	4.37	11.23	1.75
2.250	2.62	5.250	8.75	8.250	4.37	11.25	1.75
2.267	3.50	5.267	10.50	8.267	3.50	11.27	1.75
2.283	3.50	5.283	10.50	8.283	3.50	11.28	1.75
2.300	3.50	5.300	10.50	8.300	3.50	11.30	1.75
2.317	3.50	5.317	10.50	8.317	3.50	11.32	1.75
2.333	3.50	5.333	10.50	8.333	3.50	11.33	1.75
2.350	3.50	5.350	10.50	8.350	3.50	11.35	1.75
2.367	3.50	5.367	10.50	8.367	3.50	11.37	1.75
2.383	3.50	5.383	10.50	8.383	3.50	11.38	1.75
2.400	3.50	5.400	10.50	8.400	3.50	11.40	1.75
2.417	3.50	5.417	10.50	8.417	3.50	11.42	1.75
2.433	3.50	5.433	10.50	8.433	3.50	11.43	1.75
2.450	3.50	5.450	10.50	8.450	3.50	11.45	1.75
2.467	3.50	5.467	10.50	8.467	3.50	11.47	1.75
2.483	3.50	5.483	10.50	8.483	3.50	11.48	1.75
2.500	3.50	5.500	10.53	8.500	3.50	11.50	1.75
2.517	3.50	5.517	44.61	8.517	3.50	11.52	1.75
2.533	3.50	5.533	44.61	8.533	3.50	11.53	1.75
2.550	3.50	5.550	44.61	8.550	3.50	11.55	1.75
2.567	3.50	5.567	44.61	8.567	3.50	11.57	1.75
2.583	3.50	5.583	44.61	8.583	3.50	11.58	1.75
2.600	3.50	5.600	44.61	8.600	3.50	11.60	1.75
2.617	3.50	5.617	44.61	8.617	3.50	11.62	1.75
2.633	3.50	5.633	44.61	8.633	3.50	11.63	1.75
2.650	3.50	5.650	44.61	8.650	3.50	11.65	1.75
2.667	3.50	5.667	44.61	8.667	3.50	11.67	1.75
2.683	3.50	5.683	44.61	8.683	3.50	11.68	1.75
2.700	3.50	5.700	44.61	8.700	3.50	11.70	1.75
2.717	3.50	5.717	44.61	8.717	3.50	11.72	1.75
2.733	3.50	5.733	44.61	8.733	3.50	11.73	1.75
2.750	3.50	5.750	44.66	8.750	3.50	11.75	1.75
2.767	3.50	5.767	78.73	8.767	3.50	11.77	1.75
2.783	3.50	5.783	78.73	8.783	3.50	11.78	1.75
2.800	3.50	5.800	78.73	8.800	3.50	11.80	1.75
2.817	3.50	5.817	78.73	8.817	3.50	11.82	1.75
2.833	3.50	5.833	78.73	8.833	3.50	11.83	1.75
2.850	3.50	5.850	78.73	8.850	3.50	11.85	1.75
2.867	3.50	5.867	78.73	8.867	3.50	11.87	1.75
2.883	3.50	5.883	78.73	8.883	3.50	11.88	1.75
2.900	3.50	5.900	78.73	8.900	3.50	11.90	1.75
2.917	3.50	5.917	78.73	8.917	3.50	11.92	1.75
2.933	3.50	5.933	78.73	8.933	3.50	11.93	1.75
2.950	3.50	5.950	78.73	8.950	3.50	11.95	1.75

```
              2.967    3.50 | 5.967   78.73 | 8.967    3.50 | 11.97    1.75
              2.983    3.50 | 5.983   78.73 | 8.983    3.50 | 11.98    1.75
              3.000    3.50 | 6.000   78.69 | 9.000    3.50 | 12.00    1.75

     Max.Eff.Inten.(mm/hr)=      78.73        70.19
               over (min)         5.00        11.00
     Storage Coeff.  (min)=       3.42 (ii)   10.60 (ii)
     Unit Hyd. Tpeak (min)=       5.00        11.00
     Unit Hyd. peak  (cms)=       0.29         0.11
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.24         0.14          0.364 (iii)
     TIME TO PEAK    (hrs)=       6.00         6.13           6.02
     RUNOFF VOLUME    (mm)=      85.26        36.15          55.30
     TOTAL RAINFALL   (mm)=      87.26        87.26          87.26
     RUNOFF COEFFICIENT   =       0.98         0.41           0.63


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0097)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2101):    17.31   1.970     6.00    54.93
      + ID2= 2 (  3100):     2.89   0.364     6.02    55.30
        ==================================================
        ID = 3 (  0097):    20.20   2.332     6.00    54.98

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

--------------------
| ADD HYD  (  0097)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0097):    20.20   2.332     6.00    54.98
      + ID2= 2 (  0096):     1.16   0.080     6.00    36.42
        ==================================================
        ID = 1 (  0097):    21.36   2.412     6.00    53.97

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000      0.0000   |    0.0400      0.6360
                          0.0160      0.1070   |    0.0790      0.7870
                          0.0240      0.2260   |    0.2900      0.9450
                          0.0300      0.3550   |    0.4710      1.0430
                          0.0350      0.4920   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0097)     21.360      2.412      6.00      53.97
   OUTFLOW: ID= 1 (  0001)     21.360      0.192      8.33      32.32

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.96
                  TIME SHIFT OF PEAK FLOW         (min)=140.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.8715

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2102)|   Area    (ha)=   0.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.14         0.07
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      37.42        40.00
     Mannings n           =      0.013        0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.87	3.083	3.50	6.083	47.24	9.08	3.50
0.167	0.87	3.167	3.50	6.167	47.24	9.17	3.50
0.250	0.87	3.250	3.50	6.250	47.24	9.25	3.50
0.333	1.75	3.333	3.50	6.333	15.75	9.33	3.50
0.417	1.75	3.417	3.50	6.417	15.75	9.42	3.50
0.500	1.75	3.500	3.50	6.500	15.75	9.50	3.50
0.583	1.75	3.583	3.50	6.583	11.37	9.58	2.62
0.667	1.75	3.667	3.50	6.667	11.37	9.67	2.62
0.750	1.75	3.750	3.50	6.750	11.37	9.75	2.62
0.833	1.75	3.833	3.50	6.833	7.00	9.83	1.75
0.917	1.75	3.917	3.50	6.917	7.00	9.92	1.75
1.000	1.75	4.000	3.50	7.000	7.00	10.00	1.75
1.083	1.75	4.083	4.37	7.083	6.12	10.08	1.75
1.167	1.75	4.167	4.37	7.167	6.12	10.17	1.75
1.250	1.75	4.250	4.37	7.250	6.12	10.25	1.75
1.333	1.75	4.333	5.25	7.333	5.25	10.33	1.75
1.417	1.75	4.417	5.25	7.417	5.25	10.42	1.75
1.500	1.75	4.500	5.25	7.500	5.25	10.50	1.75
1.583	1.75	4.583	6.12	7.583	5.25	10.58	1.75
1.667	1.75	4.667	6.12	7.667	5.25	10.67	1.75
1.750	1.75	4.750	6.12	7.750	5.25	10.75	1.75
1.833	1.75	4.833	7.00	7.833	5.25	10.83	1.75
1.917	1.75	4.917	7.00	7.917	5.25	10.92	1.75
2.000	1.75	5.000	7.00	8.000	5.25	11.00	1.75
2.083	2.62	5.083	8.75	8.083	4.37	11.08	1.75
2.167	2.62	5.167	8.75	8.167	4.37	11.17	1.75
2.250	2.62	5.250	8.75	8.250	4.37	11.25	1.75
2.333	3.50	5.333	10.50	8.333	3.50	11.33	1.75
2.417	3.50	5.417	10.50	8.417	3.50	11.42	1.75
2.500	3.50	5.500	10.50	8.500	3.50	11.50	1.75
2.583	3.50	5.583	44.61	8.583	3.50	11.58	1.75
2.667	3.50	5.667	44.61	8.667	3.50	11.67	1.75
2.750	3.50	5.750	44.62	8.750	3.50	11.75	1.75
2.833	3.50	5.833	78.73	8.833	3.50	11.83	1.75
2.917	3.50	5.917	78.73	8.917	3.50	11.92	1.75
3.000	3.50	6.000	78.73	9.000	3.50	12.00	1.75

Max.Eff.Inten.(mm/hr)=	78.73	21.03		
over (min)	5.00	15.00		
Storage Coeff. (min)=	1.56 (ii)	14.73 (ii)		
Unit Hyd. Tpeak (min)=	5.00	15.00		
Unit Hyd. peak (cms)=	0.33	0.08		
			TOTALS	
PEAK FLOW (cms)=	0.03	0.00	0.032 (iii)	
TIME TO PEAK (hrs)=	6.00	6.25	6.00	
RUNOFF VOLUME (mm)=	85.26	22.66	63.30	
TOTAL RAINFALL (mm)=	87.26	87.26	87.26	
RUNOFF COEFFICIENT =	0.98	0.26	0.73	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0015) | 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	21.36	0.192	8.33	32.32
+ ID2= 2 (2102):	0.21	0.032	6.00	63.30
ID = 3 (0015):	21.57	0.194	8.30	32.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:3.6 SCS II 12hr 100yr **
****

MASS STORM	Ptotal= 95.71 mm

Filename: C:\Users\rbrockie\AppData\Local\Temp\913e2f46-79e8-42d3-b20d-3fb65cefc10e\b640ac05
Comments: SCS 12 HOUR TYPE II STORM DISTRIBUTION

Duration of storm = 12.00 hrs
Mass curve time step = 30.00 min

New Storm time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.96	3.00	3.83	6.00	51.68	9.00	3.83
0.25	1.91	3.25	3.83	6.25	17.23	9.25	3.83
0.50	1.91	3.50	3.83	6.50	12.44	9.50	2.87
0.75	1.91	3.75	3.83	6.75	7.66	9.75	1.91
1.00	1.91	4.00	4.79	7.00	6.70	10.00	1.91
1.25	1.91	4.25	5.74	7.25	5.74	10.25	1.91
1.50	1.91	4.50	6.70	7.50	5.74	10.50	1.91
1.75	1.91	4.75	7.66	7.75	5.74	10.75	1.91
2.00	2.87	5.00	9.57	8.00	4.79	11.00	1.91
2.25	3.83	5.25	11.49	8.25	3.83	11.25	1.91
2.50	3.83	5.50	48.81	8.50	3.83	11.50	1.91
2.75	3.83	5.75	86.14	8.75	3.83	11.75	1.91

CALIB STANDHYD (2101) ID= 1 DT= 5.0 min	Area (ha)= 17.31 Total Imp(%)= 64.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.08	6.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	339.71	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.96	3.083	3.83	6.083	51.68	9.08	3.83
0.167	0.96	3.167	3.83	6.167	51.68	9.17	3.83
0.250	0.96	3.250	3.83	6.250	51.68	9.25	3.83
0.333	1.91	3.333	3.83	6.333	17.23	9.33	3.83
0.417	1.91	3.417	3.83	6.417	17.23	9.42	3.83
0.500	1.91	3.500	3.83	6.500	17.23	9.50	3.83
0.583	1.91	3.583	3.83	6.583	12.44	9.58	2.87
0.667	1.91	3.667	3.83	6.667	12.44	9.67	2.87
0.750	1.91	3.750	3.83	6.750	12.44	9.75	2.87
0.833	1.91	3.833	3.83	6.833	7.66	9.83	1.91
0.917	1.91	3.917	3.83	6.917	7.66	9.92	1.91
1.000	1.91	4.000	3.83	7.000	7.66	10.00	1.91
1.083	1.91	4.083	4.79	7.083	6.70	10.08	1.91
1.167	1.91	4.167	4.79	7.167	6.70	10.17	1.91
1.250	1.91	4.250	4.79	7.250	6.70	10.25	1.91
1.333	1.91	4.333	5.74	7.333	5.74	10.33	1.91
1.417	1.91	4.417	5.74	7.417	5.74	10.42	1.91
1.500	1.91	4.500	5.74	7.500	5.74	10.50	1.91
1.583	1.91	4.583	6.70	7.583	5.74	10.58	1.91
1.667	1.91	4.667	6.70	7.667	5.74	10.67	1.91
1.750	1.91	4.750	6.70	7.750	5.74	10.75	1.91
1.833	1.91	4.833	7.66	7.833	5.74	10.83	1.91
1.917	1.91	4.917	7.66	7.917	5.74	10.92	1.91
2.000	1.91	5.000	7.66	8.000	5.74	11.00	1.91
2.083	2.87	5.083	9.57	8.083	4.79	11.08	1.91
2.167	2.87	5.167	9.57	8.167	4.79	11.17	1.91
2.250	2.87	5.250	9.57	8.250	4.79	11.25	1.91
2.333	3.83	5.333	11.49	8.333	3.83	11.33	1.91
2.417	3.83	5.417	11.49	8.417	3.83	11.42	1.91
2.500	3.83	5.500	11.49	8.500	3.83	11.50	1.91
2.583	3.83	5.583	48.81	8.583	3.83	11.58	1.91
2.667	3.83	5.667	48.81	8.667	3.83	11.67	1.91
2.750	3.83	5.750	48.81	8.750	3.83	11.75	1.91
2.833	3.83	5.833	86.14	8.833	3.83	11.83	1.91
2.917	3.83	5.917	86.14	8.917	3.83	11.92	1.91
3.000	3.83	6.000	86.14	9.000	3.83	12.00	1.91

				TOTALS
Max.Eff.Inten.(mm/hr)=		86.14	59.84	
over (min)		5.00	15.00	
Storage Coeff.	(min)=	5.65 (ii)	14.32 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.20	0.08	
PEAK FLOW	(cms)=	1.72	0.74	2.304 (iii)
TIME TO PEAK	(hrs)=	6.00	6.17	6.00
RUNOFF VOLUME	(mm)=	93.47	37.22	61.41
TOTAL RAINFALL	(mm)=	95.47	95.47	95.47

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     RUNOFF COEFFICIENT   =       0.98         0.39           0.64


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD (  0096)|   Area    (ha)=   1.16
|ID= 1 DT= 5.0 min |   Total Imp(%)=  22.00   Dir. Conn.(%)=  22.00
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                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.26         0.90
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      87.94        40.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
                hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
              0.083     0.96 | 3.083     3.83 | 6.083    51.68 |  9.08     3.83
              0.167     0.96 | 3.167     3.83 | 6.167    51.68 |  9.17     3.83
              0.250     0.96 | 3.250     3.83 | 6.250    51.68 |  9.25     3.83
              0.333     1.91 | 3.333     3.83 | 6.333    17.23 |  9.33     3.83
              0.417     1.91 | 3.417     3.83 | 6.417    17.23 |  9.42     3.83
              0.500     1.91 | 3.500     3.83 | 6.500    17.23 |  9.50     3.83
              0.583     1.91 | 3.583     3.83 | 6.583    12.44 |  9.58     2.87
              0.667     1.91 | 3.667     3.83 | 6.667    12.44 |  9.67     2.87
              0.750     1.91 | 3.750     3.83 | 6.750    12.44 |  9.75     2.87
              0.833     1.91 | 3.833     3.83 | 6.833     7.66 |  9.83     1.91
              0.917     1.91 | 3.917     3.83 | 6.917     7.66 |  9.92     1.91
              1.000     1.91 | 4.000     3.83 | 7.000     7.66 | 10.00     1.91
              1.083     1.91 | 4.083     4.79 | 7.083     6.70 | 10.08     1.91
              1.167     1.91 | 4.167     4.79 | 7.167     6.70 | 10.17     1.91
              1.250     1.91 | 4.250     4.79 | 7.250     6.70 | 10.25     1.91
              1.333     1.91 | 4.333     5.74 | 7.333     5.74 | 10.33     1.91
              1.417     1.91 | 4.417     5.74 | 7.417     5.74 | 10.42     1.91
              1.500     1.91 | 4.500     5.74 | 7.500     5.74 | 10.50     1.91
              1.583     1.91 | 4.583     6.70 | 7.583     5.74 | 10.58     1.91
              1.667     1.91 | 4.667     6.70 | 7.667     5.74 | 10.67     1.91
              1.750     1.91 | 4.750     6.70 | 7.750     5.74 | 10.75     1.91
              1.833     1.91 | 4.833     7.66 | 7.833     5.74 | 10.83     1.91
              1.917     1.91 | 4.917     7.66 | 7.917     5.74 | 10.92     1.91
              2.000     1.91 | 5.000     7.66 | 8.000     5.74 | 11.00     1.91
              2.083     2.87 | 5.083     9.57 | 8.083     4.79 | 11.08     1.91
              2.167     2.87 | 5.167     9.57 | 8.167     4.79 | 11.17     1.91
              2.250     2.87 | 5.250     9.57 | 8.250     4.79 | 11.25     1.91
              2.333     3.83 | 5.333    11.49 | 8.333     3.83 | 11.33     1.91
              2.417     3.83 | 5.417    11.49 | 8.417     3.83 | 11.42     1.91
              2.500     3.83 | 5.500    11.49 | 8.500     3.83 | 11.50     1.91
              2.583     3.83 | 5.583    48.81 | 8.583     3.83 | 11.58     1.91
              2.667     3.83 | 5.667    48.81 | 8.667     3.83 | 11.67     1.91
              2.750     3.83 | 5.750    48.81 | 8.750     3.83 | 11.75     1.91
              2.833     3.83 | 5.833    86.14 | 8.833     3.83 | 11.83     1.91
              2.917     3.83 | 5.917    86.14 | 8.917     3.83 | 11.92     1.91
              3.000     3.83 | 6.000    86.14 | 9.000     3.83 | 12.00     1.91

     Max.Eff.Inten.(mm/hr)=      86.14        24.90
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       2.51 (ii)   14.82 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.08
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.06         0.05          0.097 (iii)
     TIME TO PEAK    (hrs)=       6.00         6.25           6.00
     RUNOFF VOLUME    (mm)=      93.47        26.67          41.36
     TOTAL RAINFALL   (mm)=      95.47        95.47          95.47
     RUNOFF COEFFICIENT   =       0.98         0.28           0.43

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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| CALIB            |
| STANDHYD (  3100)|   Area    (ha)=   2.89
|ID= 1 DT= 1.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  39.00
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                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.97         0.92
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     138.80        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   1.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.017	0.96	3.017	3.83	6.017	51.68	9.02	3.83
0.033	0.96	3.033	3.83	6.033	51.68	9.03	3.83
0.050	0.96	3.050	3.83	6.050	51.68	9.05	3.83
0.067	0.96	3.067	3.83	6.067	51.68	9.07	3.83
0.083	0.96	3.083	3.83	6.083	51.68	9.08	3.83
0.100	0.96	3.100	3.83	6.100	51.68	9.10	3.83
0.117	0.96	3.117	3.83	6.117	51.68	9.12	3.83
0.133	0.96	3.133	3.83	6.133	51.68	9.13	3.83
0.150	0.96	3.150	3.83	6.150	51.68	9.15	3.83
0.167	0.96	3.167	3.83	6.167	51.68	9.17	3.83
0.183	0.96	3.183	3.83	6.183	51.68	9.18	3.83
0.200	0.96	3.200	3.83	6.200	51.68	9.20	3.83
0.217	0.96	3.217	3.83	6.217	51.68	9.22	3.83
0.233	0.96	3.233	3.83	6.233	51.68	9.23	3.83
0.250	0.96	3.250	3.83	6.250	51.63	9.25	3.83
0.267	1.91	3.267	3.83	6.267	17.23	9.27	3.83
0.283	1.91	3.283	3.83	6.283	17.23	9.28	3.83
0.300	1.91	3.300	3.83	6.300	17.23	9.30	3.83
0.317	1.91	3.317	3.83	6.317	17.23	9.32	3.83
0.333	1.91	3.333	3.83	6.333	17.23	9.33	3.83
0.350	1.91	3.350	3.83	6.350	17.23	9.35	3.83
0.367	1.91	3.367	3.83	6.367	17.23	9.37	3.83
0.383	1.91	3.383	3.83	6.383	17.23	9.38	3.83
0.400	1.91	3.400	3.83	6.400	17.23	9.40	3.83
0.417	1.91	3.417	3.83	6.417	17.23	9.42	3.83
0.433	1.91	3.433	3.83	6.433	17.23	9.43	3.83
0.450	1.91	3.450	3.83	6.450	17.23	9.45	3.83
0.467	1.91	3.467	3.83	6.467	17.23	9.47	3.83
0.483	1.91	3.483	3.83	6.483	17.23	9.48	3.83
0.500	1.91	3.500	3.83	6.500	17.22	9.50	3.83
0.517	1.91	3.517	3.83	6.517	12.44	9.52	2.87
0.533	1.91	3.533	3.83	6.533	12.44	9.53	2.87
0.550	1.91	3.550	3.83	6.550	12.44	9.55	2.87
0.567	1.91	3.567	3.83	6.567	12.44	9.57	2.87
0.583	1.91	3.583	3.83	6.583	12.44	9.58	2.87
0.600	1.91	3.600	3.83	6.600	12.44	9.60	2.87
0.617	1.91	3.617	3.83	6.617	12.44	9.62	2.87
0.633	1.91	3.633	3.83	6.633	12.44	9.63	2.87
0.650	1.91	3.650	3.83	6.650	12.44	9.65	2.87
0.667	1.91	3.667	3.83	6.667	12.44	9.67	2.87
0.683	1.91	3.683	3.83	6.683	12.44	9.68	2.87
0.700	1.91	3.700	3.83	6.700	12.44	9.70	2.87
0.717	1.91	3.717	3.83	6.717	12.44	9.72	2.87
0.733	1.91	3.733	3.83	6.733	12.44	9.73	2.87
0.750	1.91	3.750	3.83	6.750	12.43	9.75	2.87
0.767	1.91	3.767	3.83	6.767	7.66	9.77	1.91
0.783	1.91	3.783	3.83	6.783	7.66	9.78	1.91
0.800	1.91	3.800	3.83	6.800	7.66	9.80	1.91
0.817	1.91	3.817	3.83	6.817	7.66	9.82	1.91
0.833	1.91	3.833	3.83	6.833	7.66	9.83	1.91
0.850	1.91	3.850	3.83	6.850	7.66	9.85	1.91
0.867	1.91	3.867	3.83	6.867	7.66	9.87	1.91
0.883	1.91	3.883	3.83	6.883	7.66	9.88	1.91
0.900	1.91	3.900	3.83	6.900	7.66	9.90	1.91
0.917	1.91	3.917	3.83	6.917	7.66	9.92	1.91
0.933	1.91	3.933	3.83	6.933	7.66	9.93	1.91
0.950	1.91	3.950	3.83	6.950	7.66	9.95	1.91
0.967	1.91	3.967	3.83	6.967	7.66	9.97	1.91
0.983	1.91	3.983	3.83	6.983	7.66	9.98	1.91
1.000	1.91	4.000	3.83	7.000	7.65	10.00	1.91
1.017	1.91	4.017	4.79	7.017	6.70	10.02	1.91
1.033	1.91	4.033	4.79	7.033	6.70	10.03	1.91
1.050	1.91	4.050	4.79	7.050	6.70	10.05	1.91
1.067	1.91	4.067	4.79	7.067	6.70	10.07	1.91

1.083	1.91	4.083	4.79	7.083	6.70	10.08	1.91
1.100	1.91	4.100	4.79	7.100	6.70	10.10	1.91
1.117	1.91	4.117	4.79	7.117	6.70	10.12	1.91
1.133	1.91	4.133	4.79	7.133	6.70	10.13	1.91
1.150	1.91	4.150	4.79	7.150	6.70	10.15	1.91
1.167	1.91	4.167	4.79	7.167	6.70	10.17	1.91
1.183	1.91	4.183	4.79	7.183	6.70	10.18	1.91
1.200	1.91	4.200	4.79	7.200	6.70	10.20	1.91
1.217	1.91	4.217	4.79	7.217	6.70	10.22	1.91
1.233	1.91	4.233	4.79	7.233	6.70	10.23	1.91
1.250	1.91	4.250	4.79	7.250	6.70	10.25	1.91
1.267	1.91	4.267	5.74	7.267	5.74	10.27	1.91
1.283	1.91	4.283	5.74	7.283	5.74	10.28	1.91
1.300	1.91	4.300	5.74	7.300	5.74	10.30	1.91
1.317	1.91	4.317	5.74	7.317	5.74	10.32	1.91
1.333	1.91	4.333	5.74	7.333	5.74	10.33	1.91
1.350	1.91	4.350	5.74	7.350	5.74	10.35	1.91
1.367	1.91	4.367	5.74	7.367	5.74	10.37	1.91
1.383	1.91	4.383	5.74	7.383	5.74	10.38	1.91
1.400	1.91	4.400	5.74	7.400	5.74	10.40	1.91
1.417	1.91	4.417	5.74	7.417	5.74	10.42	1.91
1.433	1.91	4.433	5.74	7.433	5.74	10.43	1.91
1.450	1.91	4.450	5.74	7.450	5.74	10.45	1.91
1.467	1.91	4.467	5.74	7.467	5.74	10.47	1.91
1.483	1.91	4.483	5.74	7.483	5.74	10.48	1.91
1.500	1.91	4.500	5.74	7.500	5.74	10.50	1.91
1.517	1.91	4.517	6.70	7.517	5.74	10.52	1.91
1.533	1.91	4.533	6.70	7.533	5.74	10.53	1.91
1.550	1.91	4.550	6.70	7.550	5.74	10.55	1.91
1.567	1.91	4.567	6.70	7.567	5.74	10.57	1.91
1.583	1.91	4.583	6.70	7.583	5.74	10.58	1.91
1.600	1.91	4.600	6.70	7.600	5.74	10.60	1.91
1.617	1.91	4.617	6.70	7.617	5.74	10.62	1.91
1.633	1.91	4.633	6.70	7.633	5.74	10.63	1.91
1.650	1.91	4.650	6.70	7.650	5.74	10.65	1.91
1.667	1.91	4.667	6.70	7.667	5.74	10.67	1.91
1.683	1.91	4.683	6.70	7.683	5.74	10.68	1.91
1.700	1.91	4.700	6.70	7.700	5.74	10.70	1.91
1.717	1.91	4.717	6.70	7.717	5.74	10.72	1.91
1.733	1.91	4.733	6.70	7.733	5.74	10.73	1.91
1.750	1.91	4.750	6.70	7.750	5.74	10.75	1.91
1.767	1.91	4.767	7.66	7.767	5.74	10.77	1.91
1.783	1.91	4.783	7.66	7.783	5.74	10.78	1.91
1.800	1.91	4.800	7.66	7.800	5.74	10.80	1.91
1.817	1.91	4.817	7.66	7.817	5.74	10.82	1.91
1.833	1.91	4.833	7.66	7.833	5.74	10.83	1.91
1.850	1.91	4.850	7.66	7.850	5.74	10.85	1.91
1.867	1.91	4.867	7.66	7.867	5.74	10.87	1.91
1.883	1.91	4.883	7.66	7.883	5.74	10.88	1.91
1.900	1.91	4.900	7.66	7.900	5.74	10.90	1.91
1.917	1.91	4.917	7.66	7.917	5.74	10.92	1.91
1.933	1.91	4.933	7.66	7.933	5.74	10.93	1.91
1.950	1.91	4.950	7.66	7.950	5.74	10.95	1.91
1.967	1.91	4.967	7.66	7.967	5.74	10.97	1.91
1.983	1.91	4.983	7.66	7.983	5.74	10.98	1.91
2.000	1.91	5.000	7.66	8.000	5.74	11.00	1.91
2.017	2.87	5.017	9.57	8.017	4.79	11.02	1.91
2.033	2.87	5.033	9.57	8.033	4.79	11.03	1.91
2.050	2.87	5.050	9.57	8.050	4.79	11.05	1.91
2.067	2.87	5.067	9.57	8.067	4.79	11.07	1.91
2.083	2.87	5.083	9.57	8.083	4.79	11.08	1.91
2.100	2.87	5.100	9.57	8.100	4.79	11.10	1.91
2.117	2.87	5.117	9.57	8.117	4.79	11.12	1.91
2.133	2.87	5.133	9.57	8.133	4.79	11.13	1.91
2.150	2.87	5.150	9.57	8.150	4.79	11.15	1.91
2.167	2.87	5.167	9.57	8.167	4.79	11.17	1.91
2.183	2.87	5.183	9.57	8.183	4.79	11.18	1.91
2.200	2.87	5.200	9.57	8.200	4.79	11.20	1.91
2.217	2.87	5.217	9.57	8.217	4.79	11.22	1.91
2.233	2.87	5.233	9.57	8.233	4.79	11.23	1.91
2.250	2.87	5.250	9.57	8.250	4.78	11.25	1.91
2.267	3.83	5.267	11.49	8.267	3.83	11.27	1.91
2.283	3.83	5.283	11.49	8.283	3.83	11.28	1.91
2.300	3.83	5.300	11.49	8.300	3.83	11.30	1.91
2.317	3.83	5.317	11.49	8.317	3.83	11.32	1.91
2.333	3.83	5.333	11.49	8.333	3.83	11.33	1.91
2.350	3.83	5.350	11.49	8.350	3.83	11.35	1.91
2.367	3.83	5.367	11.49	8.367	3.83	11.37	1.91
2.383	3.83	5.383	11.49	8.383	3.83	11.38	1.91
2.400	3.83	5.400	11.49	8.400	3.83	11.40	1.91
2.417	3.83	5.417	11.49	8.417	3.83	11.42	1.91
2.433	3.83	5.433	11.49	8.433	3.83	11.43	1.91
2.450	3.83	5.450	11.49	8.450	3.83	11.45	1.91
2.467	3.83	5.467	11.49	8.467	3.83	11.47	1.91

2.483	3.83	5.483	11.49	8.483	3.83	11.48	1.91
2.500	3.83	5.500	11.52	8.500	3.83	11.50	1.91
2.517	3.83	5.517	48.81	8.517	3.83	11.52	1.91
2.533	3.83	5.533	48.81	8.533	3.83	11.53	1.91
2.550	3.83	5.550	48.81	8.550	3.83	11.55	1.91
2.567	3.83	5.567	48.81	8.567	3.83	11.57	1.91
2.583	3.83	5.583	48.81	8.583	3.83	11.58	1.91
2.600	3.83	5.600	48.81	8.600	3.83	11.60	1.91
2.617	3.83	5.617	48.81	8.617	3.83	11.62	1.91
2.633	3.83	5.633	48.81	8.633	3.83	11.63	1.91
2.650	3.83	5.650	48.81	8.650	3.83	11.65	1.91
2.667	3.83	5.667	48.81	8.667	3.83	11.67	1.91
2.683	3.83	5.683	48.81	8.683	3.83	11.68	1.91
2.700	3.83	5.700	48.81	8.700	3.83	11.70	1.91
2.717	3.83	5.717	48.81	8.717	3.83	11.72	1.91
2.733	3.83	5.733	48.81	8.733	3.83	11.73	1.91
2.750	3.83	5.750	48.86	8.750	3.83	11.75	1.91
2.767	3.83	5.767	86.14	8.767	3.83	11.77	1.91
2.783	3.83	5.783	86.14	8.783	3.83	11.78	1.91
2.800	3.83	5.800	86.14	8.800	3.83	11.80	1.91
2.817	3.83	5.817	86.14	8.817	3.83	11.82	1.91
2.833	3.83	5.833	86.14	8.833	3.83	11.83	1.91
2.850	3.83	5.850	86.14	8.850	3.83	11.85	1.91
2.867	3.83	5.867	86.14	8.867	3.83	11.87	1.91
2.883	3.83	5.883	86.14	8.883	3.83	11.88	1.91
2.900	3.83	5.900	86.14	8.900	3.83	11.90	1.91
2.917	3.83	5.917	86.14	8.917	3.83	11.92	1.91
2.933	3.83	5.933	86.14	8.933	3.83	11.93	1.91
2.950	3.83	5.950	86.14	8.950	3.83	11.95	1.91
2.967	3.83	5.967	86.14	8.967	3.83	11.97	1.91
2.983	3.83	5.983	86.14	8.983	3.83	11.98	1.91
3.000	3.83	6.000	86.09	9.000	3.83	12.00	1.91

Max.Eff.Inten.(mm/hr)=	86.14	81.33	
over (min)	5.00	11.00	
Storage Coeff. (min)=	3.30 (ii)	10.22 (ii)	
Unit Hyd. Tpeak (min)=	5.00	11.00	
Unit Hyd. peak (cms)=	0.29	0.11	
			TOTALS
PEAK FLOW (cms)=	0.27	0.16	0.410 (iii)
TIME TO PEAK (hrs)=	6.00	6.13	6.02
RUNOFF VOLUME (mm)=	93.47	41.77	61.93
TOTAL RAINFALL (mm)=	95.47	95.47	95.47
RUNOFF COEFFICIENT =	0.98	0.44	0.65

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (2101):		17.31	2.304	6.00	61.41
+ ID2= 2 (3100):		2.89	0.410	6.02	61.93
ID = 3 (0097):		20.20	2.711	6.00	61.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0097):		20.20	2.711	6.00	61.48
+ ID2= 2 (0096):		1.16	0.097	6.00	41.36
ID = 1 (0097):		21.36	2.807	6.00	60.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 1.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0400	0.6360
	0.0160	0.1070	0.0790	0.7870

	0.0240	0.2260	0.2900	0.9450
	0.0300	0.3550	0.4710	1.0430
	0.0350	0.4920	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0097)	21.360	2.807	6.00	60.39
OUTFLOW: ID= 1 (0001)	21.360	0.268	7.75	38.55

PEAK FLOW REDUCTION [Qout/Qin](%)= 9.54
TIME SHIFT OF PEAK FLOW (min)=105.00
MAXIMUM STORAGE USED (ha.m.)= 0.9284

CALIB STANDHYD (2102) ID= 1 DT= 5.0 min	Area (ha)= 0.21 Total Imp(%)= 65.00 Dir. Conn.(%)= 65.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.14	0.07
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	37.42	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.96	3.083	3.83	6.083	51.68	9.08	3.83
0.167	0.96	3.167	3.83	6.167	51.68	9.17	3.83
0.250	0.96	3.250	3.83	6.250	51.68	9.25	3.83
0.333	1.91	3.333	3.83	6.333	17.23	9.33	3.83
0.417	1.91	3.417	3.83	6.417	17.23	9.42	3.83
0.500	1.91	3.500	3.83	6.500	17.23	9.50	3.83
0.583	1.91	3.583	3.83	6.583	12.44	9.58	2.87
0.667	1.91	3.667	3.83	6.667	12.44	9.67	2.87
0.750	1.91	3.750	3.83	6.750	12.44	9.75	2.87
0.833	1.91	3.833	3.83	6.833	7.66	9.83	1.91
0.917	1.91	3.917	3.83	6.917	7.66	9.92	1.91
1.000	1.91	4.000	3.83	7.000	7.66	10.00	1.91
1.083	1.91	4.083	4.79	7.083	6.70	10.08	1.91
1.167	1.91	4.167	4.79	7.167	6.70	10.17	1.91
1.250	1.91	4.250	4.79	7.250	6.70	10.25	1.91
1.333	1.91	4.333	5.74	7.333	5.74	10.33	1.91
1.417	1.91	4.417	5.74	7.417	5.74	10.42	1.91
1.500	1.91	4.500	5.74	7.500	5.74	10.50	1.91
1.583	1.91	4.583	6.70	7.583	5.74	10.58	1.91
1.667	1.91	4.667	6.70	7.667	5.74	10.67	1.91
1.750	1.91	4.750	6.70	7.750	5.74	10.75	1.91
1.833	1.91	4.833	7.66	7.833	5.74	10.83	1.91
1.917	1.91	4.917	7.66	7.917	5.74	10.92	1.91
2.000	1.91	5.000	7.66	8.000	5.74	11.00	1.91
2.083	2.87	5.083	9.57	8.083	4.79	11.08	1.91
2.167	2.87	5.167	9.57	8.167	4.79	11.17	1.91
2.250	2.87	5.250	9.57	8.250	4.79	11.25	1.91
2.333	3.83	5.333	11.49	8.333	3.83	11.33	1.91
2.417	3.83	5.417	11.49	8.417	3.83	11.42	1.91
2.500	3.83	5.500	11.49	8.500	3.83	11.50	1.91
2.583	3.83	5.583	48.81	8.583	3.83	11.58	1.91
2.667	3.83	5.667	48.81	8.667	3.83	11.67	1.91
2.750	3.83	5.750	48.81	8.750	3.83	11.75	1.91
2.833	3.83	5.833	86.14	8.833	3.83	11.83	1.91
2.917	3.83	5.917	86.14	8.917	3.83	11.92	1.91
3.000	3.83	6.000	86.14	9.000	3.83	12.00	1.91

Max.Eff.Inten.(mm/hr)=		86.14	24.90	
over (min)		5.00	15.00	
Storage Coeff. (min)=		1.50 (ii)	13.81 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		0.33	0.08	
				TOTALS
PEAK FLOW	(cms)=	0.03	0.00	0.036 (iii)
TIME TO PEAK	(hrs)=	6.00	6.25	6.00
RUNOFF VOLUME	(mm)=	93.47	26.67	70.06
TOTAL RAINFALL	(mm)=	95.47	95.47	95.47
RUNOFF COEFFICIENT	=	0.98	0.28	0.73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

```
           CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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ADD HYD (0015)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0001):	21.36	0.268	7.75	38.55
	+ ID2= 2 (2102):	0.21	0.036	6.00	70.06
	ID = 3 (0015):	21.57	0.271	7.75	38.86

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:4.1 SCS II 24hr 2yr **
****

MASS STORM	Filename: C:\Users\rbrockie\AppData\Local\Temp\913e2f46-79e8-42d3-b20d-3fb65cefc10e\38ba427f
Ptotal= 56.66 mm	Comments: SCS 24 HOUR TYPE II STORM DISTRIBUTION 1

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.62	6.00	1.02	12.00	8.16	18.00	1.02
0.25	0.62	6.25	1.02	12.25	8.16	18.25	1.02
0.50	0.62	6.50	1.02	12.50	4.19	18.50	1.02
0.75	0.62	6.75	1.02	12.75	4.19	18.75	1.02
1.00	0.62	7.00	1.25	13.00	3.06	19.00	1.02
1.25	0.62	7.25	1.25	13.25	3.06	19.25	1.02
1.50	0.62	7.50	1.25	13.50	2.38	19.50	1.02
1.75	0.62	7.75	1.25	13.75	2.38	19.75	1.02
2.00	0.74	8.00	1.47	14.00	1.70	20.00	0.68
2.25	0.74	8.25	1.47	14.25	1.70	20.25	0.68
2.50	0.74	8.50	1.59	14.50	1.70	20.50	0.68
2.75	0.74	8.75	1.59	14.75	1.70	20.75	0.68
3.00	0.74	9.00	1.81	15.00	1.70	21.00	0.68
3.25	0.74	9.25	1.81	15.25	1.70	21.25	0.68
3.50	0.74	9.50	2.04	15.50	1.70	21.50	0.68
3.75	0.74	9.75	2.04	15.75	1.70	21.75	0.68
4.00	0.91	10.00	2.61	16.00	1.02	22.00	0.68
4.25	0.91	10.25	2.61	16.25	1.02	22.25	0.68
4.50	0.91	10.50	3.51	16.50	1.02	22.50	0.68
4.75	0.91	10.75	3.51	16.75	1.02	22.75	0.68
5.00	0.91	11.00	5.44	17.00	1.02	23.00	0.68
5.25	0.91	11.25	5.44	17.25	1.02	23.25	0.68
5.50	0.91	11.50	16.77	17.50	1.02	23.50	0.68
5.75	0.91	11.75	69.35	17.75	1.02	23.75	0.68

CALIB STANDHYD (2101)	Area (ha)= 17.31
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.08	6.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	339.71	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.62	6.083	1.02	12.083	8.17	18.08	1.02
0.167	0.62	6.167	1.02	12.167	8.16	18.17	1.02
0.250	0.62	6.250	1.02	12.250	8.16	18.25	1.02
0.333	0.62	6.333	1.02	12.333	8.16	18.33	1.02
0.417	0.62	6.417	1.02	12.417	8.16	18.42	1.02
0.500	0.62	6.500	1.02	12.500	8.16	18.50	1.02
0.583	0.62	6.583	1.02	12.583	4.19	18.58	1.02
0.667	0.62	6.667	1.02	12.667	4.19	18.67	1.02

0.750	0.62	6.750	1.02	12.750	4.19	18.75	1.02
0.833	0.62	6.833	1.02	12.833	4.19	18.83	1.02
0.917	0.62	6.917	1.02	12.917	4.19	18.92	1.02
1.000	0.62	7.000	1.02	13.000	4.19	19.00	1.02
1.083	0.62	7.083	1.25	13.083	3.06	19.08	1.02
1.167	0.62	7.167	1.25	13.167	3.06	19.17	1.02
1.250	0.62	7.250	1.25	13.250	3.06	19.25	1.02
1.333	0.62	7.333	1.25	13.333	3.06	19.33	1.02
1.417	0.62	7.417	1.25	13.417	3.06	19.42	1.02
1.500	0.62	7.500	1.25	13.500	3.06	19.50	1.02
1.583	0.62	7.583	1.25	13.583	2.38	19.58	1.02
1.667	0.62	7.667	1.25	13.667	2.38	19.67	1.02
1.750	0.62	7.750	1.25	13.750	2.38	19.75	1.02
1.833	0.62	7.833	1.25	13.833	2.38	19.83	1.02
1.917	0.62	7.917	1.25	13.917	2.38	19.92	1.02
2.000	0.62	8.000	1.25	14.000	2.38	20.00	1.02
2.083	0.74	8.083	1.47	14.083	1.70	20.08	0.68
2.167	0.74	8.167	1.47	14.167	1.70	20.17	0.68
2.250	0.74	8.250	1.47	14.250	1.70	20.25	0.68
2.333	0.74	8.333	1.47	14.333	1.70	20.33	0.68
2.417	0.74	8.417	1.47	14.417	1.70	20.42	0.68
2.500	0.74	8.500	1.47	14.500	1.70	20.50	0.68
2.583	0.74	8.583	1.59	14.583	1.70	20.58	0.68
2.667	0.74	8.667	1.59	14.667	1.70	20.67	0.68
2.750	0.74	8.750	1.59	14.750	1.70	20.75	0.68
2.833	0.74	8.833	1.59	14.833	1.70	20.83	0.68
2.917	0.74	8.917	1.59	14.917	1.70	20.92	0.68
3.000	0.74	9.000	1.59	15.000	1.70	21.00	0.68
3.083	0.74	9.083	1.81	15.083	1.70	21.08	0.68
3.167	0.74	9.167	1.81	15.167	1.70	21.17	0.68
3.250	0.74	9.250	1.81	15.250	1.70	21.25	0.68
3.333	0.74	9.333	1.81	15.333	1.70	21.33	0.68
3.417	0.74	9.417	1.81	15.417	1.70	21.42	0.68
3.500	0.74	9.500	1.81	15.500	1.70	21.50	0.68
3.583	0.74	9.583	2.04	15.583	1.70	21.58	0.68
3.667	0.74	9.667	2.04	15.667	1.70	21.67	0.68
3.750	0.74	9.750	2.04	15.750	1.70	21.75	0.68
3.833	0.74	9.833	2.04	15.833	1.70	21.83	0.68
3.917	0.74	9.917	2.04	15.917	1.70	21.92	0.68
4.000	0.74	10.000	2.04	16.000	1.70	22.00	0.68
4.083	0.91	10.083	2.61	16.083	1.02	22.08	0.68
4.167	0.91	10.167	2.61	16.167	1.02	22.17	0.68
4.250	0.91	10.250	2.61	16.250	1.02	22.25	0.68
4.333	0.91	10.333	2.61	16.333	1.02	22.33	0.68
4.417	0.91	10.417	2.61	16.417	1.02	22.42	0.68
4.500	0.91	10.500	2.61	16.500	1.02	22.50	0.68
4.583	0.91	10.583	3.51	16.583	1.02	22.58	0.68
4.667	0.91	10.667	3.51	16.667	1.02	22.67	0.68
4.750	0.91	10.750	3.51	16.750	1.02	22.75	0.68
4.833	0.91	10.833	3.51	16.833	1.02	22.83	0.68
4.917	0.91	10.917	3.51	16.917	1.02	22.92	0.68
5.000	0.91	11.000	3.51	17.000	1.02	23.00	0.68
5.083	0.91	11.083	5.44	17.083	1.02	23.08	0.68
5.167	0.91	11.167	5.44	17.167	1.02	23.17	0.68
5.250	0.91	11.250	5.44	17.250	1.02	23.25	0.68
5.333	0.91	11.333	5.44	17.333	1.02	23.33	0.68
5.417	0.91	11.417	5.44	17.417	1.02	23.42	0.68
5.500	0.91	11.500	5.44	17.500	1.02	23.50	0.68
5.583	0.91	11.583	16.77	17.583	1.02	23.58	0.68
5.667	0.91	11.667	16.77	17.667	1.02	23.67	0.68
5.750	0.91	11.750	16.77	17.750	1.02	23.75	0.68
5.833	0.91	11.833	69.35	17.833	1.02	23.83	0.68
5.917	0.91	11.917	69.35	17.917	1.02	23.92	0.68
6.000	0.91	12.000	69.35	18.000	1.02	24.00	0.68

Max.Eff.Inten.(mm/hr)=	69.35	31.83		
over (min)	5.00	20.00		
Storage Coeff. (min)=	6.16 (ii)	17.32 (ii)		
Unit Hyd. Tpeak (min)=	5.00	20.00		
Unit Hyd. peak (cms)=	0.19	0.06		
			TOTALS	
PEAK FLOW (cms)=	1.34	0.29	1.522 (iii)	
TIME TO PEAK (hrs)=	12.00	12.17	12.00	
RUNOFF VOLUME (mm)=	54.66	15.05	32.08	
TOTAL RAINFALL (mm)=	56.66	56.66	56.66	
RUNOFF COEFFICIENT =	0.96	0.27	0.57	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD (  0096)|   Area    (ha)=   1.16
|ID= 1 DT= 5.0 min |   Total Imp(%)=  22.00   Dir. Conn.(%)=  22.00
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                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.26         0.90
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      87.94        40.00
     Mannings n             =    0.013        0.250

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


                        ---- TRANSFORMED HYETOGRAPH ----
  TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
   hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
 0.083     0.62 | 6.083     1.02 |12.083     8.17 | 18.08     1.02
 0.167     0.62 | 6.167     1.02 |12.167     8.16 | 18.17     1.02
 0.250     0.62 | 6.250     1.02 |12.250     8.16 | 18.25     1.02
 0.333     0.62 | 6.333     1.02 |12.333     8.16 | 18.33     1.02
 0.417     0.62 | 6.417     1.02 |12.417     8.16 | 18.42     1.02
 0.500     0.62 | 6.500     1.02 |12.500     8.16 | 18.50     1.02
 0.583     0.62 | 6.583     1.02 |12.583     4.19 | 18.58     1.02
 0.667     0.62 | 6.667     1.02 |12.667     4.19 | 18.67     1.02
 0.750     0.62 | 6.750     1.02 |12.750     4.19 | 18.75     1.02
 0.833     0.62 | 6.833     1.02 |12.833     4.19 | 18.83     1.02
 0.917     0.62 | 6.917     1.02 |12.917     4.19 | 18.92     1.02
 1.000     0.62 | 7.000     1.02 |13.000     4.19 | 19.00     1.02
 1.083     0.62 | 7.083     1.25 |13.083     3.06 | 19.08     1.02
 1.167     0.62 | 7.167     1.25 |13.167     3.06 | 19.17     1.02
 1.250     0.62 | 7.250     1.25 |13.250     3.06 | 19.25     1.02
 1.333     0.62 | 7.333     1.25 |13.333     3.06 | 19.33     1.02
 1.417     0.62 | 7.417     1.25 |13.417     3.06 | 19.42     1.02
 1.500     0.62 | 7.500     1.25 |13.500     3.06 | 19.50     1.02
 1.583     0.62 | 7.583     1.25 |13.583     2.38 | 19.58     1.02
 1.667     0.62 | 7.667     1.25 |13.667     2.38 | 19.67     1.02
 1.750     0.62 | 7.750     1.25 |13.750     2.38 | 19.75     1.02
 1.833     0.62 | 7.833     1.25 |13.833     2.38 | 19.83     1.02
 1.917     0.62 | 7.917     1.25 |13.917     2.38 | 19.92     1.02
 2.000     0.62 | 8.000     1.25 |14.000     2.38 | 20.00     1.02
 2.083     0.74 | 8.083     1.47 |14.083     1.70 | 20.08     0.68
 2.167     0.74 | 8.167     1.47 |14.167     1.70 | 20.17     0.68
 2.250     0.74 | 8.250     1.47 |14.250     1.70 | 20.25     0.68
 2.333     0.74 | 8.333     1.47 |14.333     1.70 | 20.33     0.68
 2.417     0.74 | 8.417     1.47 |14.417     1.70 | 20.42     0.68
 2.500     0.74 | 8.500     1.47 |14.500     1.70 | 20.50     0.68
 2.583     0.74 | 8.583     1.59 |14.583     1.70 | 20.58     0.68
 2.667     0.74 | 8.667     1.59 |14.667     1.70 | 20.67     0.68
 2.750     0.74 | 8.750     1.59 |14.750     1.70 | 20.75     0.68
 2.833     0.74 | 8.833     1.59 |14.833     1.70 | 20.83     0.68
 2.917     0.74 | 8.917     1.59 |14.917     1.70 | 20.92     0.68
 3.000     0.74 | 9.000     1.59 |15.000     1.70 | 21.00     0.68
 3.083     0.74 | 9.083     1.81 |15.083     1.70 | 21.08     0.68
 3.167     0.74 | 9.167     1.81 |15.167     1.70 | 21.17     0.68
 3.250     0.74 | 9.250     1.81 |15.250     1.70 | 21.25     0.68
 3.333     0.74 | 9.333     1.81 |15.333     1.70 | 21.33     0.68
 3.417     0.74 | 9.417     1.81 |15.417     1.70 | 21.42     0.68
 3.500     0.74 | 9.500     1.81 |15.500     1.70 | 21.50     0.68
 3.583     0.74 | 9.583     2.04 |15.583     1.70 | 21.58     0.68
 3.667     0.74 | 9.667     2.04 |15.667     1.70 | 21.67     0.68
 3.750     0.74 | 9.750     2.04 |15.750     1.70 | 21.75     0.68
 3.833     0.74 | 9.833     2.04 |15.833     1.70 | 21.83     0.68
 3.917     0.74 | 9.917     2.04 |15.917     1.70 | 21.92     0.68
 4.000     0.74 |10.000     2.04 |16.000     1.70 | 22.00     0.68
 4.083     0.91 |10.083     2.61 |16.083     1.02 | 22.08     0.68
 4.167     0.91 |10.167     2.61 |16.167     1.02 | 22.17     0.68
 4.250     0.91 |10.250     2.61 |16.250     1.02 | 22.25     0.68
 4.333     0.91 |10.333     2.61 |16.333     1.02 | 22.33     0.68
 4.417     0.91 |10.417     2.61 |16.417     1.02 | 22.42     0.68
 4.500     0.91 |10.500     2.61 |16.500     1.02 | 22.50     0.68
 4.583     0.91 |10.583     3.51 |16.583     1.02 | 22.58     0.68
 4.667     0.91 |10.667     3.51 |16.667     1.02 | 22.67     0.68
 4.750     0.91 |10.750     3.51 |16.750     1.02 | 22.75     0.68
 4.833     0.91 |10.833     3.51 |16.833     1.02 | 22.83     0.68
 4.917     0.91 |10.917     3.51 |16.917     1.02 | 22.92     0.68
 5.000     0.91 |11.000     3.51 |17.000     1.02 | 23.00     0.68
 5.083     0.91 |11.083     5.44 |17.083     1.02 | 23.08     0.68
 5.167     0.91 |11.167     5.44 |17.167     1.02 | 23.17     0.68
 5.250     0.91 |11.250     5.44 |17.250     1.02 | 23.25     0.68
 5.333     0.91 |11.333     5.44 |17.333     1.02 | 23.33     0.68
 5.417     0.91 |11.417     5.44 |17.417     1.02 | 23.42     0.68
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5.500	0.91	11.500	5.44	17.500	1.02	23.50	0.68
5.583	0.91	11.583	16.77	17.583	1.02	23.58	0.68
5.667	0.91	11.667	16.77	17.667	1.02	23.67	0.68
5.750	0.91	11.750	16.77	17.750	1.02	23.75	0.68
5.833	0.91	11.833	69.35	17.833	1.02	23.83	0.68
5.917	0.91	11.917	69.35	17.917	1.02	23.92	0.68
6.000	0.91	12.000	69.35	18.000	1.02	24.00	0.68

Max.Eff.Inten.(mm/hr)=	69.35	10.29	
over (min)	5.00	25.00	
Storage Coeff. (min)=	2.74 (ii)	20.27 (ii)	
Unit Hyd. Tpeak (min)=	5.00	25.00	
Unit Hyd. peak (cms)=	0.29	0.05	
			TOTALS
PEAK FLOW (cms)=	0.05	0.02	0.057 (iii)
TIME TO PEAK (hrs)=	12.00	12.25	12.00
RUNOFF VOLUME (mm)=	54.66	9.96	19.78
TOTAL RAINFALL (mm)=	56.66	56.66	56.66
RUNOFF COEFFICIENT =	0.96	0.18	0.35

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (3100)	Area (ha)= 2.89
ID= 1 DT= 1.0 min	Total Imp(%)= 68.00 Dir. Conn.(%)= 39.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	0.62	6.017	1.02	12.017	8.20	18.02	1.02
0.033	0.62	6.033	1.02	12.033	8.16	18.03	1.02
0.050	0.62	6.050	1.02	12.050	8.16	18.05	1.02
0.067	0.62	6.067	1.02	12.067	8.16	18.07	1.02
0.083	0.62	6.083	1.02	12.083	8.16	18.08	1.02
0.100	0.62	6.100	1.02	12.100	8.16	18.10	1.02
0.117	0.62	6.117	1.02	12.117	8.16	18.12	1.02
0.133	0.62	6.133	1.02	12.133	8.16	18.13	1.02
0.150	0.62	6.150	1.02	12.150	8.16	18.15	1.02
0.167	0.62	6.167	1.02	12.167	8.16	18.17	1.02
0.183	0.62	6.183	1.02	12.183	8.16	18.18	1.02
0.200	0.62	6.200	1.02	12.200	8.16	18.20	1.02
0.217	0.62	6.217	1.02	12.217	8.16	18.22	1.02
0.233	0.62	6.233	1.02	12.233	8.16	18.23	1.02
0.250	0.62	6.250	1.02	12.250	8.16	18.25	1.02
0.267	0.62	6.267	1.02	12.267	8.16	18.27	1.02
0.283	0.62	6.283	1.02	12.283	8.16	18.28	1.02
0.300	0.62	6.300	1.02	12.300	8.16	18.30	1.02
0.317	0.62	6.317	1.02	12.317	8.16	18.32	1.02
0.333	0.62	6.333	1.02	12.333	8.16	18.33	1.02
0.350	0.62	6.350	1.02	12.350	8.16	18.35	1.02
0.367	0.62	6.367	1.02	12.367	8.16	18.37	1.02
0.383	0.62	6.383	1.02	12.383	8.16	18.38	1.02
0.400	0.62	6.400	1.02	12.400	8.16	18.40	1.02
0.417	0.62	6.417	1.02	12.417	8.16	18.42	1.02
0.433	0.62	6.433	1.02	12.433	8.16	18.43	1.02
0.450	0.62	6.450	1.02	12.450	8.16	18.45	1.02
0.467	0.62	6.467	1.02	12.467	8.16	18.47	1.02
0.483	0.62	6.483	1.02	12.483	8.16	18.48	1.02
0.500	0.62	6.500	1.02	12.500	8.16	18.50	1.02
0.517	0.62	6.517	1.02	12.517	4.20	18.52	1.02
0.533	0.62	6.533	1.02	12.533	4.19	18.53	1.02
0.550	0.62	6.550	1.02	12.550	4.19	18.55	1.02
0.567	0.62	6.567	1.02	12.567	4.19	18.57	1.02
0.583	0.62	6.583	1.02	12.583	4.19	18.58	1.02
0.600	0.62	6.600	1.02	12.600	4.19	18.60	1.02
0.617	0.62	6.617	1.02	12.617	4.19	18.62	1.02

0.633	0.62	6.633	1.02	12.633	4.19	18.63	1.02
0.650	0.62	6.650	1.02	12.650	4.19	18.65	1.02
0.667	0.62	6.667	1.02	12.667	4.19	18.67	1.02
0.683	0.62	6.683	1.02	12.683	4.19	18.68	1.02
0.700	0.62	6.700	1.02	12.700	4.19	18.70	1.02
0.717	0.62	6.717	1.02	12.717	4.19	18.72	1.02
0.733	0.62	6.733	1.02	12.733	4.19	18.73	1.02
0.750	0.62	6.750	1.02	12.750	4.19	18.75	1.02
0.767	0.62	6.767	1.02	12.767	4.19	18.77	1.02
0.783	0.62	6.783	1.02	12.783	4.19	18.78	1.02
0.800	0.62	6.800	1.02	12.800	4.19	18.80	1.02
0.817	0.62	6.817	1.02	12.817	4.19	18.82	1.02
0.833	0.62	6.833	1.02	12.833	4.19	18.83	1.02
0.850	0.62	6.850	1.02	12.850	4.19	18.85	1.02
0.867	0.62	6.867	1.02	12.867	4.19	18.87	1.02
0.883	0.62	6.883	1.02	12.883	4.19	18.88	1.02
0.900	0.62	6.900	1.02	12.900	4.19	18.90	1.02
0.917	0.62	6.917	1.02	12.917	4.19	18.92	1.02
0.933	0.62	6.933	1.02	12.933	4.19	18.93	1.02
0.950	0.62	6.950	1.02	12.950	4.19	18.95	1.02
0.967	0.62	6.967	1.02	12.967	4.19	18.97	1.02
0.983	0.62	6.983	1.02	12.983	4.19	18.98	1.02
1.000	0.62	7.000	1.02	13.000	4.19	19.00	1.02
1.017	0.62	7.017	1.25	13.017	3.06	19.02	1.02
1.033	0.62	7.033	1.25	13.033	3.06	19.03	1.02
1.050	0.62	7.050	1.25	13.050	3.06	19.05	1.02
1.067	0.62	7.067	1.25	13.067	3.06	19.07	1.02
1.083	0.62	7.083	1.25	13.083	3.06	19.08	1.02
1.100	0.62	7.100	1.25	13.100	3.06	19.10	1.02
1.117	0.62	7.117	1.25	13.117	3.06	19.12	1.02
1.133	0.62	7.133	1.25	13.133	3.06	19.13	1.02
1.150	0.62	7.150	1.25	13.150	3.06	19.15	1.02
1.167	0.62	7.167	1.25	13.167	3.06	19.17	1.02
1.183	0.62	7.183	1.25	13.183	3.06	19.18	1.02
1.200	0.62	7.200	1.25	13.200	3.06	19.20	1.02
1.217	0.62	7.217	1.25	13.217	3.06	19.22	1.02
1.233	0.62	7.233	1.25	13.233	3.06	19.23	1.02
1.250	0.62	7.250	1.25	13.250	3.06	19.25	1.02
1.267	0.62	7.267	1.25	13.267	3.06	19.27	1.02
1.283	0.62	7.283	1.25	13.283	3.06	19.28	1.02
1.300	0.62	7.300	1.25	13.300	3.06	19.30	1.02
1.317	0.62	7.317	1.25	13.317	3.06	19.32	1.02
1.333	0.62	7.333	1.25	13.333	3.06	19.33	1.02
1.350	0.62	7.350	1.25	13.350	3.06	19.35	1.02
1.367	0.62	7.367	1.25	13.367	3.06	19.37	1.02
1.383	0.62	7.383	1.25	13.383	3.06	19.38	1.02
1.400	0.62	7.400	1.25	13.400	3.06	19.40	1.02
1.417	0.62	7.417	1.25	13.417	3.06	19.42	1.02
1.433	0.62	7.433	1.25	13.433	3.06	19.43	1.02
1.450	0.62	7.450	1.25	13.450	3.06	19.45	1.02
1.467	0.62	7.467	1.25	13.467	3.06	19.47	1.02
1.483	0.62	7.483	1.25	13.483	3.06	19.48	1.02
1.500	0.62	7.500	1.25	13.500	3.06	19.50	1.02
1.517	0.62	7.517	1.25	13.517	2.38	19.52	1.02
1.533	0.62	7.533	1.25	13.533	2.38	19.53	1.02
1.550	0.62	7.550	1.25	13.550	2.38	19.55	1.02
1.567	0.62	7.567	1.25	13.567	2.38	19.57	1.02
1.583	0.62	7.583	1.25	13.583	2.38	19.58	1.02
1.600	0.62	7.600	1.25	13.600	2.38	19.60	1.02
1.617	0.62	7.617	1.25	13.617	2.38	19.62	1.02
1.633	0.62	7.633	1.25	13.633	2.38	19.63	1.02
1.650	0.62	7.650	1.25	13.650	2.38	19.65	1.02
1.667	0.62	7.667	1.25	13.667	2.38	19.67	1.02
1.683	0.62	7.683	1.25	13.683	2.38	19.68	1.02
1.700	0.62	7.700	1.25	13.700	2.38	19.70	1.02
1.717	0.62	7.717	1.25	13.717	2.38	19.72	1.02
1.733	0.62	7.733	1.25	13.733	2.38	19.73	1.02
1.750	0.62	7.750	1.25	13.750	2.38	19.75	1.02
1.767	0.62	7.767	1.25	13.767	2.38	19.77	1.02
1.783	0.62	7.783	1.25	13.783	2.38	19.78	1.02
1.800	0.62	7.800	1.25	13.800	2.38	19.80	1.02
1.817	0.62	7.817	1.25	13.817	2.38	19.82	1.02
1.833	0.62	7.833	1.25	13.833	2.38	19.83	1.02
1.850	0.62	7.850	1.25	13.850	2.38	19.85	1.02
1.867	0.62	7.867	1.25	13.867	2.38	19.87	1.02
1.883	0.62	7.883	1.25	13.883	2.38	19.88	1.02
1.900	0.62	7.900	1.25	13.900	2.38	19.90	1.02
1.917	0.62	7.917	1.25	13.917	2.38	19.92	1.02
1.933	0.62	7.933	1.25	13.933	2.38	19.93	1.02
1.950	0.62	7.950	1.25	13.950	2.38	19.95	1.02
1.967	0.62	7.967	1.25	13.967	2.38	19.97	1.02
1.983	0.62	7.983	1.25	13.983	2.38	19.98	1.02
2.000	0.62	8.000	1.25	14.000	2.38	20.00	1.02
2.017	0.74	8.017	1.47	14.017	1.70	20.02	0.68

2.033	0.74	8.033	1.47	14.033	1.70	20.03	0.68
2.050	0.74	8.050	1.47	14.050	1.70	20.05	0.68
2.067	0.74	8.067	1.47	14.067	1.70	20.07	0.68
2.083	0.74	8.083	1.47	14.083	1.70	20.08	0.68
2.100	0.74	8.100	1.47	14.100	1.70	20.10	0.68
2.117	0.74	8.117	1.47	14.117	1.70	20.12	0.68
2.133	0.74	8.133	1.47	14.133	1.70	20.13	0.68
2.150	0.74	8.150	1.47	14.150	1.70	20.15	0.68
2.167	0.74	8.167	1.47	14.167	1.70	20.17	0.68
2.183	0.74	8.183	1.47	14.183	1.70	20.18	0.68
2.200	0.74	8.200	1.47	14.200	1.70	20.20	0.68
2.217	0.74	8.217	1.47	14.217	1.70	20.22	0.68
2.233	0.74	8.233	1.47	14.233	1.70	20.23	0.68
2.250	0.74	8.250	1.47	14.250	1.70	20.25	0.68
2.267	0.74	8.267	1.47	14.267	1.70	20.27	0.68
2.283	0.74	8.283	1.47	14.283	1.70	20.28	0.68
2.300	0.74	8.300	1.47	14.300	1.70	20.30	0.68
2.317	0.74	8.317	1.47	14.317	1.70	20.32	0.68
2.333	0.74	8.333	1.47	14.333	1.70	20.33	0.68
2.350	0.74	8.350	1.47	14.350	1.70	20.35	0.68
2.367	0.74	8.367	1.47	14.367	1.70	20.37	0.68
2.383	0.74	8.383	1.47	14.383	1.70	20.38	0.68
2.400	0.74	8.400	1.47	14.400	1.70	20.40	0.68
2.417	0.74	8.417	1.47	14.417	1.70	20.42	0.68
2.433	0.74	8.433	1.47	14.433	1.70	20.43	0.68
2.450	0.74	8.450	1.47	14.450	1.70	20.45	0.68
2.467	0.74	8.467	1.47	14.467	1.70	20.47	0.68
2.483	0.74	8.483	1.47	14.483	1.70	20.48	0.68
2.500	0.74	8.500	1.47	14.500	1.70	20.50	0.68
2.517	0.74	8.517	1.59	14.517	1.70	20.52	0.68
2.533	0.74	8.533	1.59	14.533	1.70	20.53	0.68
2.550	0.74	8.550	1.59	14.550	1.70	20.55	0.68
2.567	0.74	8.567	1.59	14.567	1.70	20.57	0.68
2.583	0.74	8.583	1.59	14.583	1.70	20.58	0.68
2.600	0.74	8.600	1.59	14.600	1.70	20.60	0.68
2.617	0.74	8.617	1.59	14.617	1.70	20.62	0.68
2.633	0.74	8.633	1.59	14.633	1.70	20.63	0.68
2.650	0.74	8.650	1.59	14.650	1.70	20.65	0.68
2.667	0.74	8.667	1.59	14.667	1.70	20.67	0.68
2.683	0.74	8.683	1.59	14.683	1.70	20.68	0.68
2.700	0.74	8.700	1.59	14.700	1.70	20.70	0.68
2.717	0.74	8.717	1.59	14.717	1.70	20.72	0.68
2.733	0.74	8.733	1.59	14.733	1.70	20.73	0.68
2.750	0.74	8.750	1.59	14.750	1.70	20.75	0.68
2.767	0.74	8.767	1.59	14.767	1.70	20.77	0.68
2.783	0.74	8.783	1.59	14.783	1.70	20.78	0.68
2.800	0.74	8.800	1.59	14.800	1.70	20.80	0.68
2.817	0.74	8.817	1.59	14.817	1.70	20.82	0.68
2.833	0.74	8.833	1.59	14.833	1.70	20.83	0.68
2.850	0.74	8.850	1.59	14.850	1.70	20.85	0.68
2.867	0.74	8.867	1.59	14.867	1.70	20.87	0.68
2.883	0.74	8.883	1.59	14.883	1.70	20.88	0.68
2.900	0.74	8.900	1.59	14.900	1.70	20.90	0.68
2.917	0.74	8.917	1.59	14.917	1.70	20.92	0.68
2.933	0.74	8.933	1.59	14.933	1.70	20.93	0.68
2.950	0.74	8.950	1.59	14.950	1.70	20.95	0.68
2.967	0.74	8.967	1.59	14.967	1.70	20.97	0.68
2.983	0.74	8.983	1.59	14.983	1.70	20.98	0.68
3.000	0.74	9.000	1.59	15.000	1.70	21.00	0.68
3.017	0.74	9.017	1.81	15.017	1.70	21.02	0.68
3.033	0.74	9.033	1.81	15.033	1.70	21.03	0.68
3.050	0.74	9.050	1.81	15.050	1.70	21.05	0.68
3.067	0.74	9.067	1.81	15.067	1.70	21.07	0.68
3.083	0.74	9.083	1.81	15.083	1.70	21.08	0.68
3.100	0.74	9.100	1.81	15.100	1.70	21.10	0.68
3.117	0.74	9.117	1.81	15.117	1.70	21.12	0.68
3.133	0.74	9.133	1.81	15.133	1.70	21.13	0.68
3.150	0.74	9.150	1.81	15.150	1.70	21.15	0.68
3.167	0.74	9.167	1.81	15.167	1.70	21.17	0.68
3.183	0.74	9.183	1.81	15.183	1.70	21.18	0.68
3.200	0.74	9.200	1.81	15.200	1.70	21.20	0.68
3.217	0.74	9.217	1.81	15.217	1.70	21.22	0.68
3.233	0.74	9.233	1.81	15.233	1.70	21.23	0.68
3.250	0.74	9.250	1.81	15.250	1.70	21.25	0.68
3.267	0.74	9.267	1.81	15.267	1.70	21.27	0.68
3.283	0.74	9.283	1.81	15.283	1.70	21.28	0.68
3.300	0.74	9.300	1.81	15.300	1.70	21.30	0.68
3.317	0.74	9.317	1.81	15.317	1.70	21.32	0.68
3.333	0.74	9.333	1.81	15.333	1.70	21.33	0.68
3.350	0.74	9.350	1.81	15.350	1.70	21.35	0.68
3.367	0.74	9.367	1.81	15.367	1.70	21.37	0.68
3.383	0.74	9.383	1.81	15.383	1.70	21.38	0.68
3.400	0.74	9.400	1.81	15.400	1.70	21.40	0.68
3.417	0.74	9.417	1.81	15.417	1.70	21.42	0.68

3.433	0.74	9.433	1.81	15.433	1.70	21.43	0.68
3.450	0.74	9.450	1.81	15.450	1.70	21.45	0.68
3.467	0.74	9.467	1.81	15.467	1.70	21.47	0.68
3.483	0.74	9.483	1.81	15.483	1.70	21.48	0.68
3.500	0.74	9.500	1.81	15.500	1.70	21.50	0.68
3.517	0.74	9.517	2.04	15.517	1.70	21.52	0.68
3.533	0.74	9.533	2.04	15.533	1.70	21.53	0.68
3.550	0.74	9.550	2.04	15.550	1.70	21.55	0.68
3.567	0.74	9.567	2.04	15.567	1.70	21.57	0.68
3.583	0.74	9.583	2.04	15.583	1.70	21.58	0.68
3.600	0.74	9.600	2.04	15.600	1.70	21.60	0.68
3.617	0.74	9.617	2.04	15.617	1.70	21.62	0.68
3.633	0.74	9.633	2.04	15.633	1.70	21.63	0.68
3.650	0.74	9.650	2.04	15.650	1.70	21.65	0.68
3.667	0.74	9.667	2.04	15.667	1.70	21.67	0.68
3.683	0.74	9.683	2.04	15.683	1.70	21.68	0.68
3.700	0.74	9.700	2.04	15.700	1.70	21.70	0.68
3.717	0.74	9.717	2.04	15.717	1.70	21.72	0.68
3.733	0.74	9.733	2.04	15.733	1.70	21.73	0.68
3.750	0.74	9.750	2.04	15.750	1.70	21.75	0.68
3.767	0.74	9.767	2.04	15.767	1.70	21.77	0.68
3.783	0.74	9.783	2.04	15.783	1.70	21.78	0.68
3.800	0.74	9.800	2.04	15.800	1.70	21.80	0.68
3.817	0.74	9.817	2.04	15.817	1.70	21.82	0.68
3.833	0.74	9.833	2.04	15.833	1.70	21.83	0.68
3.850	0.74	9.850	2.04	15.850	1.70	21.85	0.68
3.867	0.74	9.867	2.04	15.867	1.70	21.87	0.68
3.883	0.74	9.883	2.04	15.883	1.70	21.88	0.68
3.900	0.74	9.900	2.04	15.900	1.70	21.90	0.68
3.917	0.74	9.917	2.04	15.917	1.70	21.92	0.68
3.933	0.74	9.933	2.04	15.933	1.70	21.93	0.68
3.950	0.74	9.950	2.04	15.950	1.70	21.95	0.68
3.967	0.74	9.967	2.04	15.967	1.70	21.97	0.68
3.983	0.74	9.983	2.04	15.983	1.70	21.98	0.68
4.000	0.74	10.000	2.04	16.000	1.70	22.00	0.68
4.017	0.91	10.017	2.61	16.017	1.02	22.02	0.68
4.033	0.91	10.033	2.61	16.033	1.02	22.03	0.68
4.050	0.91	10.050	2.61	16.050	1.02	22.05	0.68
4.067	0.91	10.067	2.61	16.067	1.02	22.07	0.68
4.083	0.91	10.083	2.61	16.083	1.02	22.08	0.68
4.100	0.91	10.100	2.61	16.100	1.02	22.10	0.68
4.117	0.91	10.117	2.61	16.117	1.02	22.12	0.68
4.133	0.91	10.133	2.61	16.133	1.02	22.13	0.68
4.150	0.91	10.150	2.61	16.150	1.02	22.15	0.68
4.167	0.91	10.167	2.61	16.167	1.02	22.17	0.68
4.183	0.91	10.183	2.61	16.183	1.02	22.18	0.68
4.200	0.91	10.200	2.61	16.200	1.02	22.20	0.68
4.217	0.91	10.217	2.61	16.217	1.02	22.22	0.68
4.233	0.91	10.233	2.61	16.233	1.02	22.23	0.68
4.250	0.91	10.250	2.61	16.250	1.02	22.25	0.68
4.267	0.91	10.267	2.61	16.267	1.02	22.27	0.68
4.283	0.91	10.283	2.61	16.283	1.02	22.28	0.68
4.300	0.91	10.300	2.61	16.300	1.02	22.30	0.68
4.317	0.91	10.317	2.61	16.317	1.02	22.32	0.68
4.333	0.91	10.333	2.61	16.333	1.02	22.33	0.68
4.350	0.91	10.350	2.61	16.350	1.02	22.35	0.68
4.367	0.91	10.367	2.61	16.367	1.02	22.37	0.68
4.383	0.91	10.383	2.61	16.383	1.02	22.38	0.68
4.400	0.91	10.400	2.61	16.400	1.02	22.40	0.68
4.417	0.91	10.417	2.61	16.417	1.02	22.42	0.68
4.433	0.91	10.433	2.61	16.433	1.02	22.43	0.68
4.450	0.91	10.450	2.61	16.450	1.02	22.45	0.68
4.467	0.91	10.467	2.61	16.467	1.02	22.47	0.68
4.483	0.91	10.483	2.61	16.483	1.02	22.48	0.68
4.500	0.91	10.500	2.61	16.500	1.02	22.50	0.68
4.517	0.91	10.517	3.51	16.517	1.02	22.52	0.68
4.533	0.91	10.533	3.51	16.533	1.02	22.53	0.68
4.550	0.91	10.550	3.51	16.550	1.02	22.55	0.68
4.567	0.91	10.567	3.51	16.567	1.02	22.57	0.68
4.583	0.91	10.583	3.51	16.583	1.02	22.58	0.68
4.600	0.91	10.600	3.51	16.600	1.02	22.60	0.68
4.617	0.91	10.617	3.51	16.617	1.02	22.62	0.68
4.633	0.91	10.633	3.51	16.633	1.02	22.63	0.68
4.650	0.91	10.650	3.51	16.650	1.02	22.65	0.68
4.667	0.91	10.667	3.51	16.667	1.02	22.67	0.68
4.683	0.91	10.683	3.51	16.683	1.02	22.68	0.68
4.700	0.91	10.700	3.51	16.700	1.02	22.70	0.68
4.717	0.91	10.717	3.51	16.717	1.02	22.72	0.68
4.733	0.91	10.733	3.51	16.733	1.02	22.73	0.68
4.750	0.91	10.750	3.51	16.750	1.02	22.75	0.68
4.767	0.91	10.767	3.51	16.767	1.02	22.77	0.68
4.783	0.91	10.783	3.51	16.783	1.02	22.78	0.68
4.800	0.91	10.800	3.51	16.800	1.02	22.80	0.68
4.817	0.91	10.817	3.51	16.817	1.02	22.82	0.68

4.833	0.91	10.833	3.51	16.833	1.02	22.83	0.68
4.850	0.91	10.850	3.51	16.850	1.02	22.85	0.68
4.867	0.91	10.867	3.51	16.867	1.02	22.87	0.68
4.883	0.91	10.883	3.51	16.883	1.02	22.88	0.68
4.900	0.91	10.900	3.51	16.900	1.02	22.90	0.68
4.917	0.91	10.917	3.51	16.917	1.02	22.92	0.68
4.933	0.91	10.933	3.51	16.933	1.02	22.93	0.68
4.950	0.91	10.950	3.51	16.950	1.02	22.95	0.68
4.967	0.91	10.967	3.51	16.967	1.02	22.97	0.68
4.983	0.91	10.983	3.51	16.983	1.02	22.98	0.68
5.000	0.91	11.000	3.51	17.000	1.02	23.00	0.68
5.017	0.91	11.017	5.44	17.017	1.02	23.02	0.68
5.033	0.91	11.033	5.44	17.033	1.02	23.03	0.68
5.050	0.91	11.050	5.44	17.050	1.02	23.05	0.68
5.067	0.91	11.067	5.44	17.067	1.02	23.07	0.68
5.083	0.91	11.083	5.44	17.083	1.02	23.08	0.68
5.100	0.91	11.100	5.44	17.100	1.02	23.10	0.68
5.117	0.91	11.117	5.44	17.117	1.02	23.12	0.68
5.133	0.91	11.133	5.44	17.133	1.02	23.13	0.68
5.150	0.91	11.150	5.44	17.150	1.02	23.15	0.68
5.167	0.91	11.167	5.44	17.167	1.02	23.17	0.68
5.183	0.91	11.183	5.44	17.183	1.02	23.18	0.68
5.200	0.91	11.200	5.44	17.200	1.02	23.20	0.68
5.217	0.91	11.217	5.44	17.217	1.02	23.22	0.68
5.233	0.91	11.233	5.44	17.233	1.02	23.23	0.68
5.250	0.91	11.250	5.44	17.250	1.02	23.25	0.68
5.267	0.91	11.267	5.44	17.267	1.02	23.27	0.68
5.283	0.91	11.283	5.44	17.283	1.02	23.28	0.68
5.300	0.91	11.300	5.44	17.300	1.02	23.30	0.68
5.317	0.91	11.317	5.44	17.317	1.02	23.32	0.68
5.333	0.91	11.333	5.44	17.333	1.02	23.33	0.68
5.350	0.91	11.350	5.44	17.350	1.02	23.35	0.68
5.367	0.91	11.367	5.44	17.367	1.02	23.37	0.68
5.383	0.91	11.383	5.44	17.383	1.02	23.38	0.68
5.400	0.91	11.400	5.44	17.400	1.02	23.40	0.68
5.417	0.91	11.417	5.44	17.417	1.02	23.42	0.68
5.433	0.91	11.433	5.44	17.433	1.02	23.43	0.68
5.450	0.91	11.450	5.44	17.450	1.02	23.45	0.68
5.467	0.91	11.467	5.44	17.467	1.02	23.47	0.68
5.483	0.91	11.483	5.44	17.483	1.02	23.48	0.68
5.500	0.91	11.500	5.44	17.500	1.02	23.50	0.68
5.517	0.91	11.517	16.77	17.517	1.02	23.52	0.68
5.533	0.91	11.533	16.77	17.533	1.02	23.53	0.68
5.550	0.91	11.550	16.77	17.550	1.02	23.55	0.68
5.567	0.91	11.567	16.77	17.567	1.02	23.57	0.68
5.583	0.91	11.583	16.77	17.583	1.02	23.58	0.68
5.600	0.91	11.600	16.77	17.600	1.02	23.60	0.68
5.617	0.91	11.617	16.77	17.617	1.02	23.62	0.68
5.633	0.91	11.633	16.77	17.633	1.02	23.63	0.68
5.650	0.91	11.650	16.77	17.650	1.02	23.65	0.68
5.667	0.91	11.667	16.77	17.667	1.02	23.67	0.68
5.683	0.91	11.683	16.77	17.683	1.02	23.68	0.68
5.700	0.91	11.700	16.77	17.700	1.02	23.70	0.68
5.717	0.91	11.717	16.77	17.717	1.02	23.72	0.68
5.733	0.91	11.733	16.77	17.733	1.02	23.73	0.68
5.750	0.91	11.750	16.77	17.750	1.02	23.75	0.68
5.767	0.91	11.767	69.33	17.767	1.02	23.77	0.68
5.783	0.91	11.783	69.35	17.783	1.02	23.78	0.68
5.800	0.91	11.800	69.35	17.800	1.02	23.80	0.68
5.817	0.91	11.817	69.35	17.817	1.02	23.82	0.68
5.833	0.91	11.833	69.35	17.833	1.02	23.83	0.68
5.850	0.91	11.850	69.35	17.850	1.02	23.85	0.68
5.867	0.91	11.867	69.35	17.867	1.02	23.87	0.68
5.883	0.91	11.883	69.35	17.883	1.02	23.88	0.68
5.900	0.91	11.900	69.35	17.900	1.02	23.90	0.68
5.917	0.91	11.917	69.35	17.917	1.02	23.92	0.68
5.933	0.91	11.933	69.35	17.933	1.02	23.93	0.68
5.950	0.91	11.950	69.35	17.950	1.02	23.95	0.68
5.967	0.91	11.967	69.35	17.967	1.02	23.97	0.68
5.983	0.91	11.983	69.35	17.983	1.02	23.98	0.68
6.000	0.91	12.000	69.35	18.000	1.02	24.00	0.68

Max.Eff.Inten.(mm/hr)=	69.35	48.39		
over (min)	5.00	12.00		
Storage Coeff. (min)=	3.60 (ii)	11.15 (ii)		
Unit Hyd. Tpeak (min)=	5.00	12.00		
Unit Hyd. peak (cms)=	0.28	0.10		
			TOTALS	
PEAK FLOW (cms)=	0.21	0.08	0.276 (iii)	
TIME TO PEAK (hrs)=	12.00	12.10	12.00	
RUNOFF VOLUME (mm)=	54.66	17.43	31.95	
TOTAL RAINFALL (mm)=	56.66	56.66	56.66	
RUNOFF COEFFICIENT =	0.96	0.31	0.56	

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       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD  (  0097)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  2101):    17.31   1.522    12.00    32.08
     + ID2= 2 (  3100):     2.89   0.276    12.00    31.95
       ================================================
       ID = 3 (  0097):    20.20   1.798    12.00    32.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ADD HYD  (  0097)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0097):    20.20   1.798    12.00    32.06
     + ID2= 2 (  0096):     1.16   0.057    12.00    19.78
       ================================================
       ID = 1 (  0097):    21.36   1.855    12.00    31.40

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.0400      0.6360
                           0.0160      0.1070   |    0.0790      0.7870
                           0.0240      0.2260   |    0.2900      0.9450
                           0.0300      0.3550   |    0.4710      1.0430
                           0.0350      0.4920   |    0.0000      0.0000

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0097)     21.360      1.855     12.00      31.40
   OUTFLOW: ID= 1 (  0001)     21.360      0.036     20.12      13.20

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  1.92
                  TIME SHIFT OF PEAK FLOW         (min)=487.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5077

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| CALIB            |
| STANDHYD (  2102)|   Area    (ha)=   0.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.14         0.07
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      37.42        40.00
     Mannings n             =    0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    0.62 | 6.083    1.02 |12.083    8.17 | 18.08    1.02
              0.167    0.62 | 6.167    1.02 |12.167    8.16 | 18.17    1.02
              0.250    0.62 | 6.250    1.02 |12.250    8.16 | 18.25    1.02
              0.333    0.62 | 6.333    1.02 |12.333    8.16 | 18.33    1.02
              0.417    0.62 | 6.417    1.02 |12.417    8.16 | 18.42    1.02
              0.500    0.62 | 6.500    1.02 |12.500    8.16 | 18.50    1.02
              0.583    0.62 | 6.583    1.02 |12.583    4.19 | 18.58    1.02
              0.667    0.62 | 6.667    1.02 |12.667    4.19 | 18.67    1.02
              0.750    0.62 | 6.750    1.02 |12.750    4.19 | 18.75    1.02
              0.833    0.62 | 6.833    1.02 |12.833    4.19 | 18.83    1.02
              0.917    0.62 | 6.917    1.02 |12.917    4.19 | 18.92    1.02
              1.000    0.62 | 7.000    1.02 |13.000    4.19 | 19.00    1.02
              1.083    0.62 | 7.083    1.25 |13.083    3.06 | 19.08    1.02
```

1.167	0.62	7.167	1.25	13.167	3.06	19.17	1.02
1.250	0.62	7.250	1.25	13.250	3.06	19.25	1.02
1.333	0.62	7.333	1.25	13.333	3.06	19.33	1.02
1.417	0.62	7.417	1.25	13.417	3.06	19.42	1.02
1.500	0.62	7.500	1.25	13.500	3.06	19.50	1.02
1.583	0.62	7.583	1.25	13.583	2.38	19.58	1.02
1.667	0.62	7.667	1.25	13.667	2.38	19.67	1.02
1.750	0.62	7.750	1.25	13.750	2.38	19.75	1.02
1.833	0.62	7.833	1.25	13.833	2.38	19.83	1.02
1.917	0.62	7.917	1.25	13.917	2.38	19.92	1.02
2.000	0.62	8.000	1.25	14.000	2.38	20.00	1.02
2.083	0.74	8.083	1.47	14.083	1.70	20.08	0.68
2.167	0.74	8.167	1.47	14.167	1.70	20.17	0.68
2.250	0.74	8.250	1.47	14.250	1.70	20.25	0.68
2.333	0.74	8.333	1.47	14.333	1.70	20.33	0.68
2.417	0.74	8.417	1.47	14.417	1.70	20.42	0.68
2.500	0.74	8.500	1.47	14.500	1.70	20.50	0.68
2.583	0.74	8.583	1.59	14.583	1.70	20.58	0.68
2.667	0.74	8.667	1.59	14.667	1.70	20.67	0.68
2.750	0.74	8.750	1.59	14.750	1.70	20.75	0.68
2.833	0.74	8.833	1.59	14.833	1.70	20.83	0.68
2.917	0.74	8.917	1.59	14.917	1.70	20.92	0.68
3.000	0.74	9.000	1.59	15.000	1.70	21.00	0.68
3.083	0.74	9.083	1.81	15.083	1.70	21.08	0.68
3.167	0.74	9.167	1.81	15.167	1.70	21.17	0.68
3.250	0.74	9.250	1.81	15.250	1.70	21.25	0.68
3.333	0.74	9.333	1.81	15.333	1.70	21.33	0.68
3.417	0.74	9.417	1.81	15.417	1.70	21.42	0.68
3.500	0.74	9.500	1.81	15.500	1.70	21.50	0.68
3.583	0.74	9.583	2.04	15.583	1.70	21.58	0.68
3.667	0.74	9.667	2.04	15.667	1.70	21.67	0.68
3.750	0.74	9.750	2.04	15.750	1.70	21.75	0.68
3.833	0.74	9.833	2.04	15.833	1.70	21.83	0.68
3.917	0.74	9.917	2.04	15.917	1.70	21.92	0.68
4.000	0.74	10.000	2.04	16.000	1.70	22.00	0.68
4.083	0.91	10.083	2.61	16.083	1.02	22.08	0.68
4.167	0.91	10.167	2.61	16.167	1.02	22.17	0.68
4.250	0.91	10.250	2.61	16.250	1.02	22.25	0.68
4.333	0.91	10.333	2.61	16.333	1.02	22.33	0.68
4.417	0.91	10.417	2.61	16.417	1.02	22.42	0.68
4.500	0.91	10.500	2.61	16.500	1.02	22.50	0.68
4.583	0.91	10.583	3.51	16.583	1.02	22.58	0.68
4.667	0.91	10.667	3.51	16.667	1.02	22.67	0.68
4.750	0.91	10.750	3.51	16.750	1.02	22.75	0.68
4.833	0.91	10.833	3.51	16.833	1.02	22.83	0.68
4.917	0.91	10.917	3.51	16.917	1.02	22.92	0.68
5.000	0.91	11.000	3.51	17.000	1.02	23.00	0.68
5.083	0.91	11.083	5.44	17.083	1.02	23.08	0.68
5.167	0.91	11.167	5.44	17.167	1.02	23.17	0.68
5.250	0.91	11.250	5.44	17.250	1.02	23.25	0.68
5.333	0.91	11.333	5.44	17.333	1.02	23.33	0.68
5.417	0.91	11.417	5.44	17.417	1.02	23.42	0.68
5.500	0.91	11.500	5.44	17.500	1.02	23.50	0.68
5.583	0.91	11.583	16.77	17.583	1.02	23.58	0.68
5.667	0.91	11.667	16.77	17.667	1.02	23.67	0.68
5.750	0.91	11.750	16.77	17.750	1.02	23.75	0.68
5.833	0.91	11.833	69.35	17.833	1.02	23.83	0.68
5.917	0.91	11.917	69.35	17.917	1.02	23.92	0.68
6.000	0.91	12.000	69.35	18.000	1.02	24.00	0.68

Max.Eff.Inten.(mm/hr)=	69.35	10.29	
over (min)	5.00	20.00	
Storage Coeff. (min)=	1.64 (ii)	19.17 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.32	0.06	
			TOTALS
PEAK FLOW (cms)=	0.03	0.00	0.027 (iii)
TIME TO PEAK (hrs)=	12.00	12.17	12.00
RUNOFF VOLUME (mm)=	54.66	9.96	38.98
TOTAL RAINFALL (mm)=	56.66	56.66	56.66
RUNOFF COEFFICIENT =	0.96	0.18	0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (0015)|

1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0001):	21.36	0.036	20.12	13.20
	+ ID2= 2 (2102):	0.21	0.027	12.00	38.98
	ID = 3 (0015):	21.57	0.053	12.00	13.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:4.2 SCS II 24hr 5yr **
****

MASS STORM	Filename: C:\Users\rbrockie\AppData\Local\Temp\913e2f46-79e8-42d3-b20d-3fb65cefc10e\396bca77
Ptotal= 73.69 mm	Comments: SCS 24 HOUR TYPE II STORM DISTRIBUTION 1

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.81	6.00	1.33	12.00	10.61	18.00	1.33
0.25	0.81	6.25	1.33	12.25	10.61	18.25	1.33
0.50	0.81	6.50	1.33	12.50	5.45	18.50	1.33
0.75	0.81	6.75	1.33	12.75	5.45	18.75	1.33
1.00	0.81	7.00	1.62	13.00	3.98	19.00	1.33
1.25	0.81	7.25	1.62	13.25	3.98	19.25	1.33
1.50	0.81	7.50	1.62	13.50	3.09	19.50	1.33
1.75	0.81	7.75	1.62	13.75	3.09	19.75	1.33
2.00	0.96	8.00	1.92	14.00	2.21	20.00	0.88
2.25	0.96	8.25	1.92	14.25	2.21	20.25	0.88
2.50	0.96	8.50	2.06	14.50	2.21	20.50	0.88
2.75	0.96	8.75	2.06	14.75	2.21	20.75	0.88
3.00	0.96	9.00	2.36	15.00	2.21	21.00	0.88
3.25	0.96	9.25	2.36	15.25	2.21	21.25	0.88
3.50	0.96	9.50	2.65	15.50	2.21	21.50	0.88
3.75	0.96	9.75	2.65	15.75	2.21	21.75	0.88
4.00	1.18	10.00	3.39	16.00	1.33	22.00	0.88
4.25	1.18	10.25	3.39	16.25	1.33	22.25	0.88
4.50	1.18	10.50	4.57	16.50	1.33	22.50	0.88
4.75	1.18	10.75	4.57	16.75	1.33	22.75	0.88
5.00	1.18	11.00	7.07	17.00	1.33	23.00	0.88
5.25	1.18	11.25	7.07	17.25	1.33	23.25	0.88
5.50	1.18	11.50	21.81	17.50	1.33	23.50	0.88
5.75	1.18	11.75	90.20	17.75	1.33	23.75	0.88

CALIB STANDHYD (2101) ID= 1 DT= 5.0 min	Area (ha)= 17.31 Total Imp(%)= 64.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.08	6.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	339.71	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.81	6.083	1.33	12.083	10.62	18.08	1.33
0.167	0.81	6.167	1.33	12.167	10.61	18.17	1.33
0.250	0.81	6.250	1.33	12.250	10.61	18.25	1.33
0.333	0.81	6.333	1.33	12.333	10.61	18.33	1.33
0.417	0.81	6.417	1.33	12.417	10.61	18.42	1.33
0.500	0.81	6.500	1.33	12.500	10.61	18.50	1.33
0.583	0.81	6.583	1.33	12.583	5.45	18.58	1.33
0.667	0.81	6.667	1.33	12.667	5.45	18.67	1.33
0.750	0.81	6.750	1.33	12.750	5.45	18.75	1.33
0.833	0.81	6.833	1.33	12.833	5.45	18.83	1.33
0.917	0.81	6.917	1.33	12.917	5.45	18.92	1.33
1.000	0.81	7.000	1.33	13.000	5.45	19.00	1.33
1.083	0.81	7.083	1.62	13.083	3.98	19.08	1.33
1.167	0.81	7.167	1.62	13.167	3.98	19.17	1.33
1.250	0.81	7.250	1.62	13.250	3.98	19.25	1.33
1.333	0.81	7.333	1.62	13.333	3.98	19.33	1.33
1.417	0.81	7.417	1.62	13.417	3.98	19.42	1.33

1.500	0.81	7.500	1.62	13.500	3.98	19.50	1.33
1.583	0.81	7.583	1.62	13.583	3.10	19.58	1.33
1.667	0.81	7.667	1.62	13.667	3.09	19.67	1.33
1.750	0.81	7.750	1.62	13.750	3.09	19.75	1.33
1.833	0.81	7.833	1.62	13.833	3.09	19.83	1.33
1.917	0.81	7.917	1.62	13.917	3.09	19.92	1.33
2.000	0.81	8.000	1.62	14.000	3.09	20.00	1.33
2.083	0.96	8.083	1.92	14.083	2.21	20.08	0.88
2.167	0.96	8.167	1.92	14.167	2.21	20.17	0.88
2.250	0.96	8.250	1.92	14.250	2.21	20.25	0.88
2.333	0.96	8.333	1.92	14.333	2.21	20.33	0.88
2.417	0.96	8.417	1.92	14.417	2.21	20.42	0.88
2.500	0.96	8.500	1.92	14.500	2.21	20.50	0.88
2.583	0.96	8.583	2.06	14.583	2.21	20.58	0.88
2.667	0.96	8.667	2.06	14.667	2.21	20.67	0.88
2.750	0.96	8.750	2.06	14.750	2.21	20.75	0.88
2.833	0.96	8.833	2.06	14.833	2.21	20.83	0.88
2.917	0.96	8.917	2.06	14.917	2.21	20.92	0.88
3.000	0.96	9.000	2.06	15.000	2.21	21.00	0.88
3.083	0.96	9.083	2.36	15.083	2.21	21.08	0.88
3.167	0.96	9.167	2.36	15.167	2.21	21.17	0.88
3.250	0.96	9.250	2.36	15.250	2.21	21.25	0.88
3.333	0.96	9.333	2.36	15.333	2.21	21.33	0.88
3.417	0.96	9.417	2.36	15.417	2.21	21.42	0.88
3.500	0.96	9.500	2.36	15.500	2.21	21.50	0.88
3.583	0.96	9.583	2.65	15.583	2.21	21.58	0.88
3.667	0.96	9.667	2.65	15.667	2.21	21.67	0.88
3.750	0.96	9.750	2.65	15.750	2.21	21.75	0.88
3.833	0.96	9.833	2.65	15.833	2.21	21.83	0.88
3.917	0.96	9.917	2.65	15.917	2.21	21.92	0.88
4.000	0.96	10.000	2.65	16.000	2.21	22.00	0.88
4.083	1.18	10.083	3.39	16.083	1.33	22.08	0.88
4.167	1.18	10.167	3.39	16.167	1.33	22.17	0.88
4.250	1.18	10.250	3.39	16.250	1.33	22.25	0.88
4.333	1.18	10.333	3.39	16.333	1.33	22.33	0.88
4.417	1.18	10.417	3.39	16.417	1.33	22.42	0.88
4.500	1.18	10.500	3.39	16.500	1.33	22.50	0.88
4.583	1.18	10.583	4.57	16.583	1.33	22.58	0.88
4.667	1.18	10.667	4.57	16.667	1.33	22.67	0.88
4.750	1.18	10.750	4.57	16.750	1.33	22.75	0.88
4.833	1.18	10.833	4.57	16.833	1.33	22.83	0.88
4.917	1.18	10.917	4.57	16.917	1.33	22.92	0.88
5.000	1.18	11.000	4.57	17.000	1.33	23.00	0.88
5.083	1.18	11.083	7.07	17.083	1.33	23.08	0.88
5.167	1.18	11.167	7.07	17.167	1.33	23.17	0.88
5.250	1.18	11.250	7.07	17.250	1.33	23.25	0.88
5.333	1.18	11.333	7.07	17.333	1.33	23.33	0.88
5.417	1.18	11.417	7.07	17.417	1.33	23.42	0.88
5.500	1.18	11.500	7.07	17.500	1.33	23.50	0.88
5.583	1.18	11.583	21.81	17.583	1.33	23.58	0.88
5.667	1.18	11.667	21.81	17.667	1.33	23.67	0.88
5.750	1.18	11.750	21.81	17.750	1.33	23.75	0.88
5.833	1.18	11.833	90.19	17.833	1.33	23.83	0.88
5.917	1.18	11.917	90.20	17.917	1.33	23.92	0.88
6.000	1.18	12.000	90.20	18.000	1.33	24.00	0.88

Max.Eff.Inten.(mm/hr)=	90.20	55.40	
over (min)	5.00	15.00	
Storage Coeff. (min)=	5.55 (ii)	14.48 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.20	0.08	
			TOTALS
PEAK FLOW (cms)=	1.77	0.53	2.209 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	71.69	24.01	44.51
TOTAL RAINFALL (mm)=	73.69	73.69	73.69
RUNOFF COEFFICIENT =	0.97	0.33	0.60

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0096)	Area (ha)= 1.16
ID= 1 DT= 5.0 min	Total Imp(%)= 22.00 Dir. Conn.(%)= 22.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.26	0.90
Dep. Storage	(mm)=	2.00	5.00

Average Slope	(%)=	1.00	2.00
Length	(m)=	87.94	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.81	6.083	1.33	12.083	10.62	18.08	1.33
0.167	0.81	6.167	1.33	12.167	10.61	18.17	1.33
0.250	0.81	6.250	1.33	12.250	10.61	18.25	1.33
0.333	0.81	6.333	1.33	12.333	10.61	18.33	1.33
0.417	0.81	6.417	1.33	12.417	10.61	18.42	1.33
0.500	0.81	6.500	1.33	12.500	10.61	18.50	1.33
0.583	0.81	6.583	1.33	12.583	5.45	18.58	1.33
0.667	0.81	6.667	1.33	12.667	5.45	18.67	1.33
0.750	0.81	6.750	1.33	12.750	5.45	18.75	1.33
0.833	0.81	6.833	1.33	12.833	5.45	18.83	1.33
0.917	0.81	6.917	1.33	12.917	5.45	18.92	1.33
1.000	0.81	7.000	1.33	13.000	5.45	19.00	1.33
1.083	0.81	7.083	1.62	13.083	3.98	19.08	1.33
1.167	0.81	7.167	1.62	13.167	3.98	19.17	1.33
1.250	0.81	7.250	1.62	13.250	3.98	19.25	1.33
1.333	0.81	7.333	1.62	13.333	3.98	19.33	1.33
1.417	0.81	7.417	1.62	13.417	3.98	19.42	1.33
1.500	0.81	7.500	1.62	13.500	3.98	19.50	1.33
1.583	0.81	7.583	1.62	13.583	3.10	19.58	1.33
1.667	0.81	7.667	1.62	13.667	3.09	19.67	1.33
1.750	0.81	7.750	1.62	13.750	3.09	19.75	1.33
1.833	0.81	7.833	1.62	13.833	3.09	19.83	1.33
1.917	0.81	7.917	1.62	13.917	3.09	19.92	1.33
2.000	0.81	8.000	1.62	14.000	3.09	20.00	1.33
2.083	0.96	8.083	1.92	14.083	2.21	20.08	0.88
2.167	0.96	8.167	1.92	14.167	2.21	20.17	0.88
2.250	0.96	8.250	1.92	14.250	2.21	20.25	0.88
2.333	0.96	8.333	1.92	14.333	2.21	20.33	0.88
2.417	0.96	8.417	1.92	14.417	2.21	20.42	0.88
2.500	0.96	8.500	1.92	14.500	2.21	20.50	0.88
2.583	0.96	8.583	2.06	14.583	2.21	20.58	0.88
2.667	0.96	8.667	2.06	14.667	2.21	20.67	0.88
2.750	0.96	8.750	2.06	14.750	2.21	20.75	0.88
2.833	0.96	8.833	2.06	14.833	2.21	20.83	0.88
2.917	0.96	8.917	2.06	14.917	2.21	20.92	0.88
3.000	0.96	9.000	2.06	15.000	2.21	21.00	0.88
3.083	0.96	9.083	2.36	15.083	2.21	21.08	0.88
3.167	0.96	9.167	2.36	15.167	2.21	21.17	0.88
3.250	0.96	9.250	2.36	15.250	2.21	21.25	0.88
3.333	0.96	9.333	2.36	15.333	2.21	21.33	0.88
3.417	0.96	9.417	2.36	15.417	2.21	21.42	0.88
3.500	0.96	9.500	2.36	15.500	2.21	21.50	0.88
3.583	0.96	9.583	2.65	15.583	2.21	21.58	0.88
3.667	0.96	9.667	2.65	15.667	2.21	21.67	0.88
3.750	0.96	9.750	2.65	15.750	2.21	21.75	0.88
3.833	0.96	9.833	2.65	15.833	2.21	21.83	0.88
3.917	0.96	9.917	2.65	15.917	2.21	21.92	0.88
4.000	0.96	10.000	2.65	16.000	2.21	22.00	0.88
4.083	1.18	10.083	3.39	16.083	1.33	22.08	0.88
4.167	1.18	10.167	3.39	16.167	1.33	22.17	0.88
4.250	1.18	10.250	3.39	16.250	1.33	22.25	0.88
4.333	1.18	10.333	3.39	16.333	1.33	22.33	0.88
4.417	1.18	10.417	3.39	16.417	1.33	22.42	0.88
4.500	1.18	10.500	3.39	16.500	1.33	22.50	0.88
4.583	1.18	10.583	4.57	16.583	1.33	22.58	0.88
4.667	1.18	10.667	4.57	16.667	1.33	22.67	0.88
4.750	1.18	10.750	4.57	16.750	1.33	22.75	0.88
4.833	1.18	10.833	4.57	16.833	1.33	22.83	0.88
4.917	1.18	10.917	4.57	16.917	1.33	22.92	0.88
5.000	1.18	11.000	4.57	17.000	1.33	23.00	0.88
5.083	1.18	11.083	7.07	17.083	1.33	23.08	0.88
5.167	1.18	11.167	7.07	17.167	1.33	23.17	0.88
5.250	1.18	11.250	7.07	17.250	1.33	23.25	0.88
5.333	1.18	11.333	7.07	17.333	1.33	23.33	0.88
5.417	1.18	11.417	7.07	17.417	1.33	23.42	0.88
5.500	1.18	11.500	7.07	17.500	1.33	23.50	0.88
5.583	1.18	11.583	21.81	17.583	1.33	23.58	0.88
5.667	1.18	11.667	21.81	17.667	1.33	23.67	0.88
5.750	1.18	11.750	21.81	17.750	1.33	23.75	0.88
5.833	1.18	11.833	90.19	17.833	1.33	23.83	0.88
5.917	1.18	11.917	90.20	17.917	1.33	23.92	0.88
6.000	1.18	12.000	90.20	18.000	1.33	24.00	0.88

Max.Eff.Inten.(mm/hr)=	90.20	21.92

over (min)	5.00	20.00	
Storage Coeff. (min)=	2.46 (ii)	15.42 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.30	0.07	
			TOTALS
PEAK FLOW (cms)=	0.06	0.03	0.083 (iii)
TIME TO PEAK (hrs)=	12.00	12.17	12.00
RUNOFF VOLUME (mm)=	71.69	16.55	28.67
TOTAL RAINFALL (mm)=	73.69	73.69	73.69
RUNOFF COEFFICIENT =	0.97	0.22	0.39

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (3100)
ID= 1 DT= 1.0 min

Area (ha)= 2.89
Total Imp(%)= 68.00 Dir. Conn.(%)= 39.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	0.81	6.017	1.33	12.017	10.67	18.02	1.33
0.033	0.81	6.033	1.33	12.033	10.61	18.03	1.33
0.050	0.81	6.050	1.33	12.050	10.61	18.05	1.33
0.067	0.81	6.067	1.33	12.067	10.61	18.07	1.33
0.083	0.81	6.083	1.33	12.083	10.61	18.08	1.33
0.100	0.81	6.100	1.33	12.100	10.61	18.10	1.33
0.117	0.81	6.117	1.33	12.117	10.61	18.12	1.33
0.133	0.81	6.133	1.33	12.133	10.61	18.13	1.33
0.150	0.81	6.150	1.33	12.150	10.61	18.15	1.33
0.167	0.81	6.167	1.33	12.167	10.61	18.17	1.33
0.183	0.81	6.183	1.33	12.183	10.61	18.18	1.33
0.200	0.81	6.200	1.33	12.200	10.61	18.20	1.33
0.217	0.81	6.217	1.33	12.217	10.61	18.22	1.33
0.233	0.81	6.233	1.33	12.233	10.61	18.23	1.33
0.250	0.81	6.250	1.33	12.250	10.61	18.25	1.33
0.267	0.81	6.267	1.33	12.267	10.61	18.27	1.33
0.283	0.81	6.283	1.33	12.283	10.61	18.28	1.33
0.300	0.81	6.300	1.33	12.300	10.61	18.30	1.33
0.317	0.81	6.317	1.33	12.317	10.61	18.32	1.33
0.333	0.81	6.333	1.33	12.333	10.61	18.33	1.33
0.350	0.81	6.350	1.33	12.350	10.61	18.35	1.33
0.367	0.81	6.367	1.33	12.367	10.61	18.37	1.33
0.383	0.81	6.383	1.33	12.383	10.61	18.38	1.33
0.400	0.81	6.400	1.33	12.400	10.61	18.40	1.33
0.417	0.81	6.417	1.33	12.417	10.61	18.42	1.33
0.433	0.81	6.433	1.33	12.433	10.61	18.43	1.33
0.450	0.81	6.450	1.33	12.450	10.61	18.45	1.33
0.467	0.81	6.467	1.33	12.467	10.61	18.47	1.33
0.483	0.81	6.483	1.33	12.483	10.61	18.48	1.33
0.500	0.81	6.500	1.33	12.500	10.61	18.50	1.33
0.517	0.81	6.517	1.33	12.517	5.46	18.52	1.33
0.533	0.81	6.533	1.33	12.533	5.45	18.53	1.33
0.550	0.81	6.550	1.33	12.550	5.45	18.55	1.33
0.567	0.81	6.567	1.33	12.567	5.45	18.57	1.33
0.583	0.81	6.583	1.33	12.583	5.45	18.58	1.33
0.600	0.81	6.600	1.33	12.600	5.45	18.60	1.33
0.617	0.81	6.617	1.33	12.617	5.45	18.62	1.33
0.633	0.81	6.633	1.33	12.633	5.45	18.63	1.33
0.650	0.81	6.650	1.33	12.650	5.45	18.65	1.33
0.667	0.81	6.667	1.33	12.667	5.45	18.67	1.33
0.683	0.81	6.683	1.33	12.683	5.45	18.68	1.33
0.700	0.81	6.700	1.33	12.700	5.45	18.70	1.33
0.717	0.81	6.717	1.33	12.717	5.45	18.72	1.33
0.733	0.81	6.733	1.33	12.733	5.45	18.73	1.33
0.750	0.81	6.750	1.33	12.750	5.45	18.75	1.33
0.767	0.81	6.767	1.33	12.767	5.45	18.77	1.33

0.783	0.81	6.783	1.33	12.783	5.45	18.78	1.33
0.800	0.81	6.800	1.33	12.800	5.45	18.80	1.33
0.817	0.81	6.817	1.33	12.817	5.45	18.82	1.33
0.833	0.81	6.833	1.33	12.833	5.45	18.83	1.33
0.850	0.81	6.850	1.33	12.850	5.45	18.85	1.33
0.867	0.81	6.867	1.33	12.867	5.45	18.87	1.33
0.883	0.81	6.883	1.33	12.883	5.45	18.88	1.33
0.900	0.81	6.900	1.33	12.900	5.45	18.90	1.33
0.917	0.81	6.917	1.33	12.917	5.45	18.92	1.33
0.933	0.81	6.933	1.33	12.933	5.45	18.93	1.33
0.950	0.81	6.950	1.33	12.950	5.45	18.95	1.33
0.967	0.81	6.967	1.33	12.967	5.45	18.97	1.33
0.983	0.81	6.983	1.33	12.983	5.45	18.98	1.33
1.000	0.81	7.000	1.33	13.000	5.45	19.00	1.33
1.017	0.81	7.017	1.62	13.017	3.98	19.02	1.33
1.033	0.81	7.033	1.62	13.033	3.98	19.03	1.33
1.050	0.81	7.050	1.62	13.050	3.98	19.05	1.33
1.067	0.81	7.067	1.62	13.067	3.98	19.07	1.33
1.083	0.81	7.083	1.62	13.083	3.98	19.08	1.33
1.100	0.81	7.100	1.62	13.100	3.98	19.10	1.33
1.117	0.81	7.117	1.62	13.117	3.98	19.12	1.33
1.133	0.81	7.133	1.62	13.133	3.98	19.13	1.33
1.150	0.81	7.150	1.62	13.150	3.98	19.15	1.33
1.167	0.81	7.167	1.62	13.167	3.98	19.17	1.33
1.183	0.81	7.183	1.62	13.183	3.98	19.18	1.33
1.200	0.81	7.200	1.62	13.200	3.98	19.20	1.33
1.217	0.81	7.217	1.62	13.217	3.98	19.22	1.33
1.233	0.81	7.233	1.62	13.233	3.98	19.23	1.33
1.250	0.81	7.250	1.62	13.250	3.98	19.25	1.33
1.267	0.81	7.267	1.62	13.267	3.98	19.27	1.33
1.283	0.81	7.283	1.62	13.283	3.98	19.28	1.33
1.300	0.81	7.300	1.62	13.300	3.98	19.30	1.33
1.317	0.81	7.317	1.62	13.317	3.98	19.32	1.33
1.333	0.81	7.333	1.62	13.333	3.98	19.33	1.33
1.350	0.81	7.350	1.62	13.350	3.98	19.35	1.33
1.367	0.81	7.367	1.62	13.367	3.98	19.37	1.33
1.383	0.81	7.383	1.62	13.383	3.98	19.38	1.33
1.400	0.81	7.400	1.62	13.400	3.98	19.40	1.33
1.417	0.81	7.417	1.62	13.417	3.98	19.42	1.33
1.433	0.81	7.433	1.62	13.433	3.98	19.43	1.33
1.450	0.81	7.450	1.62	13.450	3.98	19.45	1.33
1.467	0.81	7.467	1.62	13.467	3.98	19.47	1.33
1.483	0.81	7.483	1.62	13.483	3.98	19.48	1.33
1.500	0.81	7.500	1.62	13.500	3.98	19.50	1.33
1.517	0.81	7.517	1.62	13.517	3.10	19.52	1.33
1.533	0.81	7.533	1.62	13.533	3.09	19.53	1.33
1.550	0.81	7.550	1.62	13.550	3.09	19.55	1.33
1.567	0.81	7.567	1.62	13.567	3.09	19.57	1.33
1.583	0.81	7.583	1.62	13.583	3.09	19.58	1.33
1.600	0.81	7.600	1.62	13.600	3.09	19.60	1.33
1.617	0.81	7.617	1.62	13.617	3.09	19.62	1.33
1.633	0.81	7.633	1.62	13.633	3.09	19.63	1.33
1.650	0.81	7.650	1.62	13.650	3.09	19.65	1.33
1.667	0.81	7.667	1.62	13.667	3.09	19.67	1.33
1.683	0.81	7.683	1.62	13.683	3.09	19.68	1.33
1.700	0.81	7.700	1.62	13.700	3.09	19.70	1.33
1.717	0.81	7.717	1.62	13.717	3.09	19.72	1.33
1.733	0.81	7.733	1.62	13.733	3.09	19.73	1.33
1.750	0.81	7.750	1.62	13.750	3.09	19.75	1.33
1.767	0.81	7.767	1.62	13.767	3.09	19.77	1.33
1.783	0.81	7.783	1.62	13.783	3.09	19.78	1.33
1.800	0.81	7.800	1.62	13.800	3.09	19.80	1.33
1.817	0.81	7.817	1.62	13.817	3.09	19.82	1.33
1.833	0.81	7.833	1.62	13.833	3.09	19.83	1.33
1.850	0.81	7.850	1.62	13.850	3.09	19.85	1.33
1.867	0.81	7.867	1.62	13.867	3.09	19.87	1.33
1.883	0.81	7.883	1.62	13.883	3.09	19.88	1.33
1.900	0.81	7.900	1.62	13.900	3.09	19.90	1.33
1.917	0.81	7.917	1.62	13.917	3.09	19.92	1.33
1.933	0.81	7.933	1.62	13.933	3.09	19.93	1.33
1.950	0.81	7.950	1.62	13.950	3.09	19.95	1.33
1.967	0.81	7.967	1.62	13.967	3.09	19.97	1.33
1.983	0.81	7.983	1.62	13.983	3.09	19.98	1.33
2.000	0.81	8.000	1.62	14.000	3.09	20.00	1.33
2.017	0.96	8.017	1.92	14.017	2.21	20.02	0.89
2.033	0.96	8.033	1.92	14.033	2.21	20.03	0.88
2.050	0.96	8.050	1.92	14.050	2.21	20.05	0.88
2.067	0.96	8.067	1.92	14.067	2.21	20.07	0.88
2.083	0.96	8.083	1.92	14.083	2.21	20.08	0.88
2.100	0.96	8.100	1.92	14.100	2.21	20.10	0.88
2.117	0.96	8.117	1.92	14.117	2.21	20.12	0.88
2.133	0.96	8.133	1.92	14.133	2.21	20.13	0.88
2.150	0.96	8.150	1.92	14.150	2.21	20.15	0.88
2.167	0.96	8.167	1.92	14.167	2.21	20.17	0.88

2.183	0.96	8.183	1.92	14.183	2.21	20.18	0.88
2.200	0.96	8.200	1.92	14.200	2.21	20.20	0.88
2.217	0.96	8.217	1.92	14.217	2.21	20.22	0.88
2.233	0.96	8.233	1.92	14.233	2.21	20.23	0.88
2.250	0.96	8.250	1.92	14.250	2.21	20.25	0.88
2.267	0.96	8.267	1.92	14.267	2.21	20.27	0.88
2.283	0.96	8.283	1.92	14.283	2.21	20.28	0.88
2.300	0.96	8.300	1.92	14.300	2.21	20.30	0.88
2.317	0.96	8.317	1.92	14.317	2.21	20.32	0.88
2.333	0.96	8.333	1.92	14.333	2.21	20.33	0.88
2.350	0.96	8.350	1.92	14.350	2.21	20.35	0.88
2.367	0.96	8.367	1.92	14.367	2.21	20.37	0.88
2.383	0.96	8.383	1.92	14.383	2.21	20.38	0.88
2.400	0.96	8.400	1.92	14.400	2.21	20.40	0.88
2.417	0.96	8.417	1.92	14.417	2.21	20.42	0.88
2.433	0.96	8.433	1.92	14.433	2.21	20.43	0.88
2.450	0.96	8.450	1.92	14.450	2.21	20.45	0.88
2.467	0.96	8.467	1.92	14.467	2.21	20.47	0.88
2.483	0.96	8.483	1.92	14.483	2.21	20.48	0.88
2.500	0.96	8.500	1.92	14.500	2.21	20.50	0.88
2.517	0.96	8.517	2.06	14.517	2.21	20.52	0.88
2.533	0.96	8.533	2.06	14.533	2.21	20.53	0.88
2.550	0.96	8.550	2.06	14.550	2.21	20.55	0.88
2.567	0.96	8.567	2.06	14.567	2.21	20.57	0.88
2.583	0.96	8.583	2.06	14.583	2.21	20.58	0.88
2.600	0.96	8.600	2.06	14.600	2.21	20.60	0.88
2.617	0.96	8.617	2.06	14.617	2.21	20.62	0.88
2.633	0.96	8.633	2.06	14.633	2.21	20.63	0.88
2.650	0.96	8.650	2.06	14.650	2.21	20.65	0.88
2.667	0.96	8.667	2.06	14.667	2.21	20.67	0.88
2.683	0.96	8.683	2.06	14.683	2.21	20.68	0.88
2.700	0.96	8.700	2.06	14.700	2.21	20.70	0.88
2.717	0.96	8.717	2.06	14.717	2.21	20.72	0.88
2.733	0.96	8.733	2.06	14.733	2.21	20.73	0.88
2.750	0.96	8.750	2.06	14.750	2.21	20.75	0.88
2.767	0.96	8.767	2.06	14.767	2.21	20.77	0.88
2.783	0.96	8.783	2.06	14.783	2.21	20.78	0.88
2.800	0.96	8.800	2.06	14.800	2.21	20.80	0.88
2.817	0.96	8.817	2.06	14.817	2.21	20.82	0.88
2.833	0.96	8.833	2.06	14.833	2.21	20.83	0.88
2.850	0.96	8.850	2.06	14.850	2.21	20.85	0.88
2.867	0.96	8.867	2.06	14.867	2.21	20.87	0.88
2.883	0.96	8.883	2.06	14.883	2.21	20.88	0.88
2.900	0.96	8.900	2.06	14.900	2.21	20.90	0.88
2.917	0.96	8.917	2.06	14.917	2.21	20.92	0.88
2.933	0.96	8.933	2.06	14.933	2.21	20.93	0.88
2.950	0.96	8.950	2.06	14.950	2.21	20.95	0.88
2.967	0.96	8.967	2.06	14.967	2.21	20.97	0.88
2.983	0.96	8.983	2.06	14.983	2.21	20.98	0.88
3.000	0.96	9.000	2.06	15.000	2.21	21.00	0.88
3.017	0.96	9.017	2.36	15.017	2.21	21.02	0.88
3.033	0.96	9.033	2.36	15.033	2.21	21.03	0.88
3.050	0.96	9.050	2.36	15.050	2.21	21.05	0.88
3.067	0.96	9.067	2.36	15.067	2.21	21.07	0.88
3.083	0.96	9.083	2.36	15.083	2.21	21.08	0.88
3.100	0.96	9.100	2.36	15.100	2.21	21.10	0.88
3.117	0.96	9.117	2.36	15.117	2.21	21.12	0.88
3.133	0.96	9.133	2.36	15.133	2.21	21.13	0.88
3.150	0.96	9.150	2.36	15.150	2.21	21.15	0.88
3.167	0.96	9.167	2.36	15.167	2.21	21.17	0.88
3.183	0.96	9.183	2.36	15.183	2.21	21.18	0.88
3.200	0.96	9.200	2.36	15.200	2.21	21.20	0.88
3.217	0.96	9.217	2.36	15.217	2.21	21.22	0.88
3.233	0.96	9.233	2.36	15.233	2.21	21.23	0.88
3.250	0.96	9.250	2.36	15.250	2.21	21.25	0.88
3.267	0.96	9.267	2.36	15.267	2.21	21.27	0.88
3.283	0.96	9.283	2.36	15.283	2.21	21.28	0.88
3.300	0.96	9.300	2.36	15.300	2.21	21.30	0.88
3.317	0.96	9.317	2.36	15.317	2.21	21.32	0.88
3.333	0.96	9.333	2.36	15.333	2.21	21.33	0.88
3.350	0.96	9.350	2.36	15.350	2.21	21.35	0.88
3.367	0.96	9.367	2.36	15.367	2.21	21.37	0.88
3.383	0.96	9.383	2.36	15.383	2.21	21.38	0.88
3.400	0.96	9.400	2.36	15.400	2.21	21.40	0.88
3.417	0.96	9.417	2.36	15.417	2.21	21.42	0.88
3.433	0.96	9.433	2.36	15.433	2.21	21.43	0.88
3.450	0.96	9.450	2.36	15.450	2.21	21.45	0.88
3.467	0.96	9.467	2.36	15.467	2.21	21.47	0.88
3.483	0.96	9.483	2.36	15.483	2.21	21.48	0.88
3.500	0.96	9.500	2.36	15.500	2.21	21.50	0.88
3.517	0.96	9.517	2.65	15.517	2.21	21.52	0.88
3.533	0.96	9.533	2.65	15.533	2.21	21.53	0.88
3.550	0.96	9.550	2.65	15.550	2.21	21.55	0.88
3.567	0.96	9.567	2.65	15.567	2.21	21.57	0.88

3.583	0.96	9.583	2.65	15.583	2.21	21.58	0.88
3.600	0.96	9.600	2.65	15.600	2.21	21.60	0.88
3.617	0.96	9.617	2.65	15.617	2.21	21.62	0.88
3.633	0.96	9.633	2.65	15.633	2.21	21.63	0.88
3.650	0.96	9.650	2.65	15.650	2.21	21.65	0.88
3.667	0.96	9.667	2.65	15.667	2.21	21.67	0.88
3.683	0.96	9.683	2.65	15.683	2.21	21.68	0.88
3.700	0.96	9.700	2.65	15.700	2.21	21.70	0.88
3.717	0.96	9.717	2.65	15.717	2.21	21.72	0.88
3.733	0.96	9.733	2.65	15.733	2.21	21.73	0.88
3.750	0.96	9.750	2.65	15.750	2.21	21.75	0.88
3.767	0.96	9.767	2.65	15.767	2.21	21.77	0.88
3.783	0.96	9.783	2.65	15.783	2.21	21.78	0.88
3.800	0.96	9.800	2.65	15.800	2.21	21.80	0.88
3.817	0.96	9.817	2.65	15.817	2.21	21.82	0.88
3.833	0.96	9.833	2.65	15.833	2.21	21.83	0.88
3.850	0.96	9.850	2.65	15.850	2.21	21.85	0.88
3.867	0.96	9.867	2.65	15.867	2.21	21.87	0.88
3.883	0.96	9.883	2.65	15.883	2.21	21.88	0.88
3.900	0.96	9.900	2.65	15.900	2.21	21.90	0.88
3.917	0.96	9.917	2.65	15.917	2.21	21.92	0.88
3.933	0.96	9.933	2.65	15.933	2.21	21.93	0.88
3.950	0.96	9.950	2.65	15.950	2.21	21.95	0.88
3.967	0.96	9.967	2.65	15.967	2.21	21.97	0.88
3.983	0.96	9.983	2.65	15.983	2.21	21.98	0.88
4.000	0.96	10.000	2.65	16.000	2.21	22.00	0.88
4.017	1.18	10.017	3.39	16.017	1.33	22.02	0.88
4.033	1.18	10.033	3.39	16.033	1.33	22.03	0.88
4.050	1.18	10.050	3.39	16.050	1.33	22.05	0.88
4.067	1.18	10.067	3.39	16.067	1.33	22.07	0.88
4.083	1.18	10.083	3.39	16.083	1.33	22.08	0.88
4.100	1.18	10.100	3.39	16.100	1.33	22.10	0.88
4.117	1.18	10.117	3.39	16.117	1.33	22.12	0.88
4.133	1.18	10.133	3.39	16.133	1.33	22.13	0.88
4.150	1.18	10.150	3.39	16.150	1.33	22.15	0.88
4.167	1.18	10.167	3.39	16.167	1.33	22.17	0.88
4.183	1.18	10.183	3.39	16.183	1.33	22.18	0.88
4.200	1.18	10.200	3.39	16.200	1.33	22.20	0.88
4.217	1.18	10.217	3.39	16.217	1.33	22.22	0.88
4.233	1.18	10.233	3.39	16.233	1.33	22.23	0.88
4.250	1.18	10.250	3.39	16.250	1.33	22.25	0.88
4.267	1.18	10.267	3.39	16.267	1.33	22.27	0.88
4.283	1.18	10.283	3.39	16.283	1.33	22.28	0.88
4.300	1.18	10.300	3.39	16.300	1.33	22.30	0.88
4.317	1.18	10.317	3.39	16.317	1.33	22.32	0.88
4.333	1.18	10.333	3.39	16.333	1.33	22.33	0.88
4.350	1.18	10.350	3.39	16.350	1.33	22.35	0.88
4.367	1.18	10.367	3.39	16.367	1.33	22.37	0.88
4.383	1.18	10.383	3.39	16.383	1.33	22.38	0.88
4.400	1.18	10.400	3.39	16.400	1.33	22.40	0.88
4.417	1.18	10.417	3.39	16.417	1.33	22.42	0.88
4.433	1.18	10.433	3.39	16.433	1.33	22.43	0.88
4.450	1.18	10.450	3.39	16.450	1.33	22.45	0.88
4.467	1.18	10.467	3.39	16.467	1.33	22.47	0.88
4.483	1.18	10.483	3.39	16.483	1.33	22.48	0.88
4.500	1.18	10.500	3.39	16.500	1.33	22.50	0.88
4.517	1.18	10.517	4.57	16.517	1.33	22.52	0.88
4.533	1.18	10.533	4.57	16.533	1.33	22.53	0.88
4.550	1.18	10.550	4.57	16.550	1.33	22.55	0.88
4.567	1.18	10.567	4.57	16.567	1.33	22.57	0.88
4.583	1.18	10.583	4.57	16.583	1.33	22.58	0.88
4.600	1.18	10.600	4.57	16.600	1.33	22.60	0.88
4.617	1.18	10.617	4.57	16.617	1.33	22.62	0.88
4.633	1.18	10.633	4.57	16.633	1.33	22.63	0.88
4.650	1.18	10.650	4.57	16.650	1.33	22.65	0.88
4.667	1.18	10.667	4.57	16.667	1.33	22.67	0.88
4.683	1.18	10.683	4.57	16.683	1.33	22.68	0.88
4.700	1.18	10.700	4.57	16.700	1.33	22.70	0.88
4.717	1.18	10.717	4.57	16.717	1.33	22.72	0.88
4.733	1.18	10.733	4.57	16.733	1.33	22.73	0.88
4.750	1.18	10.750	4.57	16.750	1.33	22.75	0.88
4.767	1.18	10.767	4.57	16.767	1.33	22.77	0.88
4.783	1.18	10.783	4.57	16.783	1.33	22.78	0.88
4.800	1.18	10.800	4.57	16.800	1.33	22.80	0.88
4.817	1.18	10.817	4.57	16.817	1.33	22.82	0.88
4.833	1.18	10.833	4.57	16.833	1.33	22.83	0.88
4.850	1.18	10.850	4.57	16.850	1.33	22.85	0.88
4.867	1.18	10.867	4.57	16.867	1.33	22.87	0.88
4.883	1.18	10.883	4.57	16.883	1.33	22.88	0.88
4.900	1.18	10.900	4.57	16.900	1.33	22.90	0.88
4.917	1.18	10.917	4.57	16.917	1.33	22.92	0.88
4.933	1.18	10.933	4.57	16.933	1.33	22.93	0.88
4.950	1.18	10.950	4.57	16.950	1.33	22.95	0.88
4.967	1.18	10.967	4.57	16.967	1.33	22.97	0.88

4.983	1.18	10.983	4.57	16.983	1.33	22.98	0.88
5.000	1.18	11.000	4.57	17.000	1.33	23.00	0.88
5.017	1.18	11.017	7.07	17.017	1.33	23.02	0.88
5.033	1.18	11.033	7.07	17.033	1.33	23.03	0.88
5.050	1.18	11.050	7.07	17.050	1.33	23.05	0.88
5.067	1.18	11.067	7.07	17.067	1.33	23.07	0.88
5.083	1.18	11.083	7.07	17.083	1.33	23.08	0.88
5.100	1.18	11.100	7.07	17.100	1.33	23.10	0.88
5.117	1.18	11.117	7.07	17.117	1.33	23.12	0.88
5.133	1.18	11.133	7.07	17.133	1.33	23.13	0.88
5.150	1.18	11.150	7.07	17.150	1.33	23.15	0.88
5.167	1.18	11.167	7.07	17.167	1.33	23.17	0.88
5.183	1.18	11.183	7.07	17.183	1.33	23.18	0.88
5.200	1.18	11.200	7.07	17.200	1.33	23.20	0.88
5.217	1.18	11.217	7.07	17.217	1.33	23.22	0.88
5.233	1.18	11.233	7.07	17.233	1.33	23.23	0.88
5.250	1.18	11.250	7.07	17.250	1.33	23.25	0.88
5.267	1.18	11.267	7.07	17.267	1.33	23.27	0.88
5.283	1.18	11.283	7.07	17.283	1.33	23.28	0.88
5.300	1.18	11.300	7.07	17.300	1.33	23.30	0.88
5.317	1.18	11.317	7.07	17.317	1.33	23.32	0.88
5.333	1.18	11.333	7.07	17.333	1.33	23.33	0.88
5.350	1.18	11.350	7.07	17.350	1.33	23.35	0.88
5.367	1.18	11.367	7.07	17.367	1.33	23.37	0.88
5.383	1.18	11.383	7.07	17.383	1.33	23.38	0.88
5.400	1.18	11.400	7.07	17.400	1.33	23.40	0.88
5.417	1.18	11.417	7.07	17.417	1.33	23.42	0.88
5.433	1.18	11.433	7.07	17.433	1.33	23.43	0.88
5.450	1.18	11.450	7.07	17.450	1.33	23.45	0.88
5.467	1.18	11.467	7.07	17.467	1.33	23.47	0.88
5.483	1.18	11.483	7.07	17.483	1.33	23.48	0.88
5.500	1.18	11.500	7.07	17.500	1.33	23.50	0.88
5.517	1.18	11.517	21.81	17.517	1.33	23.52	0.88
5.533	1.18	11.533	21.81	17.533	1.33	23.53	0.88
5.550	1.18	11.550	21.81	17.550	1.33	23.55	0.88
5.567	1.18	11.567	21.81	17.567	1.33	23.57	0.88
5.583	1.18	11.583	21.81	17.583	1.33	23.58	0.88
5.600	1.18	11.600	21.81	17.600	1.33	23.60	0.88
5.617	1.18	11.617	21.81	17.617	1.33	23.62	0.88
5.633	1.18	11.633	21.81	17.633	1.33	23.63	0.88
5.650	1.18	11.650	21.81	17.650	1.33	23.65	0.88
5.667	1.18	11.667	21.81	17.667	1.33	23.67	0.88
5.683	1.18	11.683	21.81	17.683	1.33	23.68	0.88
5.700	1.18	11.700	21.81	17.700	1.33	23.70	0.88
5.717	1.18	11.717	21.81	17.717	1.33	23.72	0.88
5.733	1.18	11.733	21.81	17.733	1.33	23.73	0.88
5.750	1.18	11.750	21.81	17.750	1.33	23.75	0.88
5.767	1.18	11.767	90.16	17.767	1.33	23.77	0.88
5.783	1.18	11.783	90.20	17.783	1.33	23.78	0.88
5.800	1.18	11.800	90.20	17.800	1.33	23.80	0.88
5.817	1.18	11.817	90.20	17.817	1.33	23.82	0.88
5.833	1.18	11.833	90.20	17.833	1.33	23.83	0.88
5.850	1.18	11.850	90.20	17.850	1.33	23.85	0.88
5.867	1.18	11.867	90.20	17.867	1.33	23.87	0.88
5.883	1.18	11.883	90.20	17.883	1.33	23.88	0.88
5.900	1.18	11.900	90.20	17.900	1.33	23.90	0.88
5.917	1.18	11.917	90.20	17.917	1.33	23.92	0.88
5.933	1.18	11.933	90.20	17.933	1.33	23.93	0.88
5.950	1.18	11.950	90.20	17.950	1.33	23.95	0.88
5.967	1.18	11.967	90.20	17.967	1.33	23.97	0.88
5.983	1.18	11.983	90.20	17.983	1.33	23.98	0.88
6.000	1.18	12.000	90.20	18.000	1.33	24.00	0.88

Max.Eff.Inten.(mm/hr)=	90.20	76.11	
over (min)	5.00	11.00	
Storage Coeff. (min)=	3.24 (ii)	10.04 (ii)	
Unit Hyd. Tpeak (min)=	5.00	11.00	
Unit Hyd. peak (cms)=	0.29	0.11	
			TOTALS
PEAK FLOW (cms)=	0.28	0.13	0.391 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	71.69	27.36	44.65
TOTAL RAINFALL (mm)=	73.69	73.69	73.69
RUNOFF COEFFICIENT =	0.97	0.37	0.61

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0097)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  2101):    17.31   2.209    12.00    44.51
     + ID2= 2 (  3100):     2.89   0.391    12.00    44.65
       ================================================
       ID = 3 (  0097):    20.20   2.599    12.00    44.53

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0097)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0097):    20.20   2.599    12.00    44.53
     + ID2= 2 (  0096):     1.16   0.083    12.00    28.67
       ================================================
       ID = 1 (  0097):    21.36   2.682    12.00    43.67

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000      0.0000   |    0.0400      0.6360
                          0.0160      0.1070   |    0.0790      0.7870
                          0.0240      0.2260   |    0.2900      0.9450
                          0.0300      0.3550   |    0.4710      1.0430
                          0.0350      0.4920   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0097)    21.360     2.682     12.00      43.67
   OUTFLOW: ID= 1 (  0001)    21.360     0.056     20.02      18.13

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  2.10
                  TIME SHIFT OF PEAK FLOW         (min)=481.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.6990

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| CALIB            |
| STANDHYD (  2102)|   Area    (ha)=   0.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.14         0.07
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      37.42        40.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.81 | 6.083    1.33 |12.083   10.62 | 18.08    1.33
 0.167    0.81 | 6.167    1.33 |12.167   10.61 | 18.17    1.33
 0.250    0.81 | 6.250    1.33 |12.250   10.61 | 18.25    1.33
 0.333    0.81 | 6.333    1.33 |12.333   10.61 | 18.33    1.33
 0.417    0.81 | 6.417    1.33 |12.417   10.61 | 18.42    1.33
 0.500    0.81 | 6.500    1.33 |12.500   10.61 | 18.50    1.33
 0.583    0.81 | 6.583    1.33 |12.583    5.45 | 18.58    1.33
 0.667    0.81 | 6.667    1.33 |12.667    5.45 | 18.67    1.33
 0.750    0.81 | 6.750    1.33 |12.750    5.45 | 18.75    1.33
 0.833    0.81 | 6.833    1.33 |12.833    5.45 | 18.83    1.33
 0.917    0.81 | 6.917    1.33 |12.917    5.45 | 18.92    1.33
 1.000    0.81 | 7.000    1.33 |13.000    5.45 | 19.00    1.33
 1.083    0.81 | 7.083    1.62 |13.083    3.98 | 19.08    1.33
 1.167    0.81 | 7.167    1.62 |13.167    3.98 | 19.17    1.33
 1.250    0.81 | 7.250    1.62 |13.250    3.98 | 19.25    1.33
 1.333    0.81 | 7.333    1.62 |13.333    3.98 | 19.33    1.33
 1.417    0.81 | 7.417    1.62 |13.417    3.98 | 19.42    1.33
 1.500    0.81 | 7.500    1.62 |13.500    3.98 | 19.50    1.33
 1.583    0.81 | 7.583    1.62 |13.583    3.10 | 19.58    1.33
 1.667    0.81 | 7.667    1.62 |13.667    3.09 | 19.67    1.33
 1.750    0.81 | 7.750    1.62 |13.750    3.09 | 19.75    1.33
 1.833    0.81 | 7.833    1.62 |13.833    3.09 | 19.83    1.33
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1.917	0.81	7.917	1.62	13.917	3.09	19.92	1.33
2.000	0.81	8.000	1.62	14.000	3.09	20.00	1.33
2.083	0.96	8.083	1.92	14.083	2.21	20.08	0.88
2.167	0.96	8.167	1.92	14.167	2.21	20.17	0.88
2.250	0.96	8.250	1.92	14.250	2.21	20.25	0.88
2.333	0.96	8.333	1.92	14.333	2.21	20.33	0.88
2.417	0.96	8.417	1.92	14.417	2.21	20.42	0.88
2.500	0.96	8.500	1.92	14.500	2.21	20.50	0.88
2.583	0.96	8.583	2.06	14.583	2.21	20.58	0.88
2.667	0.96	8.667	2.06	14.667	2.21	20.67	0.88
2.750	0.96	8.750	2.06	14.750	2.21	20.75	0.88
2.833	0.96	8.833	2.06	14.833	2.21	20.83	0.88
2.917	0.96	8.917	2.06	14.917	2.21	20.92	0.88
3.000	0.96	9.000	2.06	15.000	2.21	21.00	0.88
3.083	0.96	9.083	2.36	15.083	2.21	21.08	0.88
3.167	0.96	9.167	2.36	15.167	2.21	21.17	0.88
3.250	0.96	9.250	2.36	15.250	2.21	21.25	0.88
3.333	0.96	9.333	2.36	15.333	2.21	21.33	0.88
3.417	0.96	9.417	2.36	15.417	2.21	21.42	0.88
3.500	0.96	9.500	2.36	15.500	2.21	21.50	0.88
3.583	0.96	9.583	2.65	15.583	2.21	21.58	0.88
3.667	0.96	9.667	2.65	15.667	2.21	21.67	0.88
3.750	0.96	9.750	2.65	15.750	2.21	21.75	0.88
3.833	0.96	9.833	2.65	15.833	2.21	21.83	0.88
3.917	0.96	9.917	2.65	15.917	2.21	21.92	0.88
4.000	0.96	10.000	2.65	16.000	2.21	22.00	0.88
4.083	1.18	10.083	3.39	16.083	1.33	22.08	0.88
4.167	1.18	10.167	3.39	16.167	1.33	22.17	0.88
4.250	1.18	10.250	3.39	16.250	1.33	22.25	0.88
4.333	1.18	10.333	3.39	16.333	1.33	22.33	0.88
4.417	1.18	10.417	3.39	16.417	1.33	22.42	0.88
4.500	1.18	10.500	3.39	16.500	1.33	22.50	0.88
4.583	1.18	10.583	4.57	16.583	1.33	22.58	0.88
4.667	1.18	10.667	4.57	16.667	1.33	22.67	0.88
4.750	1.18	10.750	4.57	16.750	1.33	22.75	0.88
4.833	1.18	10.833	4.57	16.833	1.33	22.83	0.88
4.917	1.18	10.917	4.57	16.917	1.33	22.92	0.88
5.000	1.18	11.000	4.57	17.000	1.33	23.00	0.88
5.083	1.18	11.083	7.07	17.083	1.33	23.08	0.88
5.167	1.18	11.167	7.07	17.167	1.33	23.17	0.88
5.250	1.18	11.250	7.07	17.250	1.33	23.25	0.88
5.333	1.18	11.333	7.07	17.333	1.33	23.33	0.88
5.417	1.18	11.417	7.07	17.417	1.33	23.42	0.88
5.500	1.18	11.500	7.07	17.500	1.33	23.50	0.88
5.583	1.18	11.583	21.81	17.583	1.33	23.58	0.88
5.667	1.18	11.667	21.81	17.667	1.33	23.67	0.88
5.750	1.18	11.750	21.81	17.750	1.33	23.75	0.88
5.833	1.18	11.833	90.19	17.833	1.33	23.83	0.88
5.917	1.18	11.917	90.20	17.917	1.33	23.92	0.88
6.000	1.18	12.000	90.20	18.000	1.33	24.00	0.88

Max.Eff.Inten.(mm/hr)=	90.20	21.92		
over (min)	5.00	15.00		
Storage Coeff. (min)=	1.48 (ii)	14.43 (ii)		
Unit Hyd. Tpeak (min)=	5.00	15.00		
Unit Hyd. peak (cms)=	0.33	0.08		
			TOTALS	
PEAK FLOW (cms)=	0.03	0.00	0.036 (iii)	
TIME TO PEAK (hrs)=	12.00	12.08	12.00	
RUNOFF VOLUME (mm)=	71.69	16.55	52.35	
TOTAL RAINFALL (mm)=	73.69	73.69	73.69	
RUNOFF COEFFICIENT =	0.97	0.22	0.71	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0015)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0001):		21.36	0.056	20.02	18.13
+ ID2= 2 (2102):		0.21	0.036	12.00	52.35
ID = 3 (0015):		21.57	0.067	12.00	18.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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************************************
** SIMULATION:4.3 SCS II 24hr 10yr **
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| MASS STORM       |    Filename: C:\Users\rbrockie\AppD
|                  |              ata\Local\Temp\
|                  |              913e2f46-79e8-42d3-b20d-3fb65cefc10e\d4139db4
| Ptotal= 84.59 mm |    Comments: SCS 24 HOUR TYPE II STORM DISTRIBUTION 1
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                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.93	6.00	1.52	12.00	12.18	18.00	1.52
0.25	0.93	6.25	1.52	12.25	12.18	18.25	1.52
0.50	0.93	6.50	1.52	12.50	6.26	18.50	1.52
0.75	0.93	6.75	1.52	12.75	6.26	18.75	1.52
1.00	0.93	7.00	1.86	13.00	4.57	19.00	1.52
1.25	0.93	7.25	1.86	13.25	4.57	19.25	1.52
1.50	0.93	7.50	1.86	13.50	3.55	19.50	1.52
1.75	0.93	7.75	1.86	13.75	3.55	19.75	1.52
2.00	1.10	8.00	2.20	14.00	2.54	20.00	1.02
2.25	1.10	8.25	2.20	14.25	2.54	20.25	1.02
2.50	1.10	8.50	2.37	14.50	2.54	20.50	1.02
2.75	1.10	8.75	2.37	14.75	2.54	20.75	1.02
3.00	1.10	9.00	2.71	15.00	2.54	21.00	1.02
3.25	1.10	9.25	2.71	15.25	2.54	21.25	1.02
3.50	1.10	9.50	3.05	15.50	2.54	21.50	1.02
3.75	1.10	9.75	3.05	15.75	2.54	21.75	1.02
4.00	1.35	10.00	3.89	16.00	1.52	22.00	1.02
4.25	1.35	10.25	3.89	16.25	1.52	22.25	1.02
4.50	1.35	10.50	5.24	16.50	1.52	22.50	1.02
4.75	1.35	10.75	5.24	16.75	1.52	22.75	1.02
5.00	1.35	11.00	8.12	17.00	1.52	23.00	1.02
5.25	1.35	11.25	8.12	17.25	1.52	23.25	1.02
5.50	1.35	11.50	25.04	17.50	1.52	23.50	1.02
5.75	1.35	11.75	103.54	17.75	1.52	23.75	1.02

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| CALIB            |
| STANDHYD (  2101)|   Area    (ha)=  17.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  43.00
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		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.08	6.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	339.71	40.00
Mannings n	=	0.013	0.250

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.93	6.083	1.52	12.083	12.19	18.08	1.52
0.167	0.93	6.167	1.52	12.167	12.18	18.17	1.52
0.250	0.93	6.250	1.52	12.250	12.18	18.25	1.52
0.333	0.93	6.333	1.52	12.333	12.18	18.33	1.52
0.417	0.93	6.417	1.52	12.417	12.18	18.42	1.52
0.500	0.93	6.500	1.52	12.500	12.18	18.50	1.52
0.583	0.93	6.583	1.52	12.583	6.26	18.58	1.52
0.667	0.93	6.667	1.52	12.667	6.26	18.67	1.52
0.750	0.93	6.750	1.52	12.750	6.26	18.75	1.52
0.833	0.93	6.833	1.52	12.833	6.26	18.83	1.52
0.917	0.93	6.917	1.52	12.917	6.26	18.92	1.52
1.000	0.93	7.000	1.52	13.000	6.26	19.00	1.52
1.083	0.93	7.083	1.86	13.083	4.57	19.08	1.52
1.167	0.93	7.167	1.86	13.167	4.57	19.17	1.52
1.250	0.93	7.250	1.86	13.250	4.57	19.25	1.52
1.333	0.93	7.333	1.86	13.333	4.57	19.33	1.52
1.417	0.93	7.417	1.86	13.417	4.57	19.42	1.52
1.500	0.93	7.500	1.86	13.500	4.57	19.50	1.52
1.583	0.93	7.583	1.86	13.583	3.55	19.58	1.52
1.667	0.93	7.667	1.86	13.667	3.55	19.67	1.52
1.750	0.93	7.750	1.86	13.750	3.55	19.75	1.52
1.833	0.93	7.833	1.86	13.833	3.55	19.83	1.52
1.917	0.93	7.917	1.86	13.917	3.55	19.92	1.52
2.000	0.93	8.000	1.86	14.000	3.55	20.00	1.52
2.083	1.10	8.083	2.20	14.083	2.54	20.08	1.02
2.167	1.10	8.167	2.20	14.167	2.54	20.17	1.02

2.250	1.10	8.250	2.20	14.250	2.54	20.25	1.02
2.333	1.10	8.333	2.20	14.333	2.54	20.33	1.02
2.417	1.10	8.417	2.20	14.417	2.54	20.42	1.02
2.500	1.10	8.500	2.20	14.500	2.54	20.50	1.02
2.583	1.10	8.583	2.37	14.583	2.54	20.58	1.02
2.667	1.10	8.667	2.37	14.667	2.54	20.67	1.02
2.750	1.10	8.750	2.37	14.750	2.54	20.75	1.02
2.833	1.10	8.833	2.37	14.833	2.54	20.83	1.02
2.917	1.10	8.917	2.37	14.917	2.54	20.92	1.02
3.000	1.10	9.000	2.37	15.000	2.54	21.00	1.02
3.083	1.10	9.083	2.71	15.083	2.54	21.08	1.02
3.167	1.10	9.167	2.71	15.167	2.54	21.17	1.02
3.250	1.10	9.250	2.71	15.250	2.54	21.25	1.02
3.333	1.10	9.333	2.71	15.333	2.54	21.33	1.02
3.417	1.10	9.417	2.71	15.417	2.54	21.42	1.02
3.500	1.10	9.500	2.71	15.500	2.54	21.50	1.02
3.583	1.10	9.583	3.05	15.583	2.54	21.58	1.02
3.667	1.10	9.667	3.05	15.667	2.54	21.67	1.02
3.750	1.10	9.750	3.05	15.750	2.54	21.75	1.02
3.833	1.10	9.833	3.05	15.833	2.54	21.83	1.02
3.917	1.10	9.917	3.05	15.917	2.54	21.92	1.02
4.000	1.10	10.000	3.05	16.000	2.54	22.00	1.02
4.083	1.35	10.083	3.89	16.083	1.52	22.08	1.02
4.167	1.35	10.167	3.89	16.167	1.52	22.17	1.02
4.250	1.35	10.250	3.89	16.250	1.52	22.25	1.02
4.333	1.35	10.333	3.89	16.333	1.52	22.33	1.02
4.417	1.35	10.417	3.89	16.417	1.52	22.42	1.02
4.500	1.35	10.500	3.89	16.500	1.52	22.50	1.02
4.583	1.35	10.583	5.24	16.583	1.52	22.58	1.02
4.667	1.35	10.667	5.24	16.667	1.52	22.67	1.02
4.750	1.35	10.750	5.24	16.750	1.52	22.75	1.02
4.833	1.35	10.833	5.24	16.833	1.52	22.83	1.02
4.917	1.35	10.917	5.24	16.917	1.52	22.92	1.02
5.000	1.35	11.000	5.24	17.000	1.52	23.00	1.02
5.083	1.35	11.083	8.12	17.083	1.52	23.08	1.02
5.167	1.35	11.167	8.12	17.167	1.52	23.17	1.02
5.250	1.35	11.250	8.12	17.250	1.52	23.25	1.02
5.333	1.35	11.333	8.12	17.333	1.52	23.33	1.02
5.417	1.35	11.417	8.12	17.417	1.52	23.42	1.02
5.500	1.35	11.500	8.12	17.500	1.52	23.50	1.02
5.583	1.35	11.583	25.04	17.583	1.52	23.58	1.02
5.667	1.35	11.667	25.04	17.667	1.52	23.67	1.02
5.750	1.35	11.750	25.04	17.750	1.52	23.75	1.02
5.833	1.35	11.833	103.53	17.833	1.52	23.83	1.02
5.917	1.35	11.917	103.54	17.917	1.52	23.92	1.02
6.000	1.35	12.000	103.54	18.000	1.52	24.00	1.01

Max.Eff.Inten.(mm/hr)=	103.54	70.22	
over (min)	5.00	15.00	
Storage Coeff. (min)=	5.25 (ii)	13.38 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.21	0.08	
			TOTALS
PEAK FLOW (cms)=	2.05	0.70	2.634 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	82.59	30.41	52.84
TOTAL RAINFALL (mm)=	84.59	84.59	84.59
RUNOFF COEFFICIENT =	0.98	0.36	0.62

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0096)	Area (ha)= 1.16
ID= 1 DT= 5.0 min	Total Imp(%)= 22.00 Dir. Conn.(%)= 22.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.26	0.90
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.94	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN

hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.93	6.083	1.52	12.083	12.19	18.08	1.52
0.167	0.93	6.167	1.52	12.167	12.18	18.17	1.52
0.250	0.93	6.250	1.52	12.250	12.18	18.25	1.52
0.333	0.93	6.333	1.52	12.333	12.18	18.33	1.52
0.417	0.93	6.417	1.52	12.417	12.18	18.42	1.52
0.500	0.93	6.500	1.52	12.500	12.18	18.50	1.52
0.583	0.93	6.583	1.52	12.583	6.26	18.58	1.52
0.667	0.93	6.667	1.52	12.667	6.26	18.67	1.52
0.750	0.93	6.750	1.52	12.750	6.26	18.75	1.52
0.833	0.93	6.833	1.52	12.833	6.26	18.83	1.52
0.917	0.93	6.917	1.52	12.917	6.26	18.92	1.52
1.000	0.93	7.000	1.52	13.000	6.26	19.00	1.52
1.083	0.93	7.083	1.86	13.083	4.57	19.08	1.52
1.167	0.93	7.167	1.86	13.167	4.57	19.17	1.52
1.250	0.93	7.250	1.86	13.250	4.57	19.25	1.52
1.333	0.93	7.333	1.86	13.333	4.57	19.33	1.52
1.417	0.93	7.417	1.86	13.417	4.57	19.42	1.52
1.500	0.93	7.500	1.86	13.500	4.57	19.50	1.52
1.583	0.93	7.583	1.86	13.583	3.55	19.58	1.52
1.667	0.93	7.667	1.86	13.667	3.55	19.67	1.52
1.750	0.93	7.750	1.86	13.750	3.55	19.75	1.52
1.833	0.93	7.833	1.86	13.833	3.55	19.83	1.52
1.917	0.93	7.917	1.86	13.917	3.55	19.92	1.52
2.000	0.93	8.000	1.86	14.000	3.55	20.00	1.52
2.083	1.10	8.083	2.20	14.083	2.54	20.08	1.02
2.167	1.10	8.167	2.20	14.167	2.54	20.17	1.02
2.250	1.10	8.250	2.20	14.250	2.54	20.25	1.02
2.333	1.10	8.333	2.20	14.333	2.54	20.33	1.02
2.417	1.10	8.417	2.20	14.417	2.54	20.42	1.02
2.500	1.10	8.500	2.20	14.500	2.54	20.50	1.02
2.583	1.10	8.583	2.37	14.583	2.54	20.58	1.02
2.667	1.10	8.667	2.37	14.667	2.54	20.67	1.02
2.750	1.10	8.750	2.37	14.750	2.54	20.75	1.02
2.833	1.10	8.833	2.37	14.833	2.54	20.83	1.02
2.917	1.10	8.917	2.37	14.917	2.54	20.92	1.02
3.000	1.10	9.000	2.37	15.000	2.54	21.00	1.02
3.083	1.10	9.083	2.71	15.083	2.54	21.08	1.02
3.167	1.10	9.167	2.71	15.167	2.54	21.17	1.02
3.250	1.10	9.250	2.71	15.250	2.54	21.25	1.02
3.333	1.10	9.333	2.71	15.333	2.54	21.33	1.02
3.417	1.10	9.417	2.71	15.417	2.54	21.42	1.02
3.500	1.10	9.500	2.71	15.500	2.54	21.50	1.02
3.583	1.10	9.583	3.05	15.583	2.54	21.58	1.02
3.667	1.10	9.667	3.05	15.667	2.54	21.67	1.02
3.750	1.10	9.750	3.05	15.750	2.54	21.75	1.02
3.833	1.10	9.833	3.05	15.833	2.54	21.83	1.02
3.917	1.10	9.917	3.05	15.917	2.54	21.92	1.02
4.000	1.10	10.000	3.05	16.000	2.54	22.00	1.02
4.083	1.35	10.083	3.89	16.083	1.52	22.08	1.02
4.167	1.35	10.167	3.89	16.167	1.52	22.17	1.02
4.250	1.35	10.250	3.89	16.250	1.52	22.25	1.02
4.333	1.35	10.333	3.89	16.333	1.52	22.33	1.02
4.417	1.35	10.417	3.89	16.417	1.52	22.42	1.02
4.500	1.35	10.500	3.89	16.500	1.52	22.50	1.02
4.583	1.35	10.583	5.24	16.583	1.52	22.58	1.02
4.667	1.35	10.667	5.24	16.667	1.52	22.67	1.02
4.750	1.35	10.750	5.24	16.750	1.52	22.75	1.02
4.833	1.35	10.833	5.24	16.833	1.52	22.83	1.02
4.917	1.35	10.917	5.24	16.917	1.52	22.92	1.02
5.000	1.35	11.000	5.24	17.000	1.52	23.00	1.02
5.083	1.35	11.083	8.12	17.083	1.52	23.08	1.02
5.167	1.35	11.167	8.12	17.167	1.52	23.17	1.02
5.250	1.35	11.250	8.12	17.250	1.52	23.25	1.02
5.333	1.35	11.333	8.12	17.333	1.52	23.33	1.02
5.417	1.35	11.417	8.12	17.417	1.52	23.42	1.02
5.500	1.35	11.500	8.12	17.500	1.52	23.50	1.02
5.583	1.35	11.583	25.04	17.583	1.52	23.58	1.02
5.667	1.35	11.667	25.04	17.667	1.52	23.67	1.02
5.750	1.35	11.750	25.04	17.750	1.52	23.75	1.02
5.833	1.35	11.833	103.53	17.833	1.52	23.83	1.02
5.917	1.35	11.917	103.54	17.917	1.52	23.92	1.02
6.000	1.35	12.000	103.54	18.000	1.52	24.00	1.01

Max.Eff.Inten.(mm/hr)=	103.54	28.51	
over (min)	5.00	15.00	
Storage Coeff. (min)=	2.33 (ii)	13.99 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.30	0.08	
			TOTALS
PEAK FLOW (cms)=	0.07	0.04	0.109 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	82.59	21.40	34.86
TOTAL RAINFALL (mm)=	84.59	84.59	84.59

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     RUNOFF COEFFICIENT   =       0.98         0.25           0.41

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD (  3100)|   Area    (ha)=   2.89
|ID= 1 DT= 1.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=  39.00
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                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.97         0.92
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     138.80        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   1.0 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
 0.017     0.93 | 6.017     1.52 |12.017    12.24 | 18.02     1.52
 0.033     0.93 | 6.033     1.52 |12.033    12.18 | 18.03     1.52
 0.050     0.93 | 6.050     1.52 |12.050    12.18 | 18.05     1.52
 0.067     0.93 | 6.067     1.52 |12.067    12.18 | 18.07     1.52
 0.083     0.93 | 6.083     1.52 |12.083    12.18 | 18.08     1.52
 0.100     0.93 | 6.100     1.52 |12.100    12.18 | 18.10     1.52
 0.117     0.93 | 6.117     1.52 |12.117    12.18 | 18.12     1.52
 0.133     0.93 | 6.133     1.52 |12.133    12.18 | 18.13     1.52
 0.150     0.93 | 6.150     1.52 |12.150    12.18 | 18.15     1.52
 0.167     0.93 | 6.167     1.52 |12.167    12.18 | 18.17     1.52
 0.183     0.93 | 6.183     1.52 |12.183    12.18 | 18.18     1.52
 0.200     0.93 | 6.200     1.52 |12.200    12.18 | 18.20     1.52
 0.217     0.93 | 6.217     1.52 |12.217    12.18 | 18.22     1.52
 0.233     0.93 | 6.233     1.52 |12.233    12.18 | 18.23     1.52
 0.250     0.93 | 6.250     1.52 |12.250    12.18 | 18.25     1.52
 0.267     0.93 | 6.267     1.52 |12.267    12.18 | 18.27     1.52
 0.283     0.93 | 6.283     1.52 |12.283    12.18 | 18.28     1.52
 0.300     0.93 | 6.300     1.52 |12.300    12.18 | 18.30     1.52
 0.317     0.93 | 6.317     1.52 |12.317    12.18 | 18.32     1.52
 0.333     0.93 | 6.333     1.52 |12.333    12.18 | 18.33     1.52
 0.350     0.93 | 6.350     1.52 |12.350    12.18 | 18.35     1.52
 0.367     0.93 | 6.367     1.52 |12.367    12.18 | 18.37     1.52
 0.383     0.93 | 6.383     1.52 |12.383    12.18 | 18.38     1.52
 0.400     0.93 | 6.400     1.52 |12.400    12.18 | 18.40     1.52
 0.417     0.93 | 6.417     1.52 |12.417    12.18 | 18.42     1.52
 0.433     0.93 | 6.433     1.52 |12.433    12.18 | 18.43     1.52
 0.450     0.93 | 6.450     1.52 |12.450    12.18 | 18.45     1.52
 0.467     0.93 | 6.467     1.52 |12.467    12.18 | 18.47     1.52
 0.483     0.93 | 6.483     1.52 |12.483    12.18 | 18.48     1.52
 0.500     0.93 | 6.500     1.52 |12.500    12.18 | 18.50     1.52
 0.517     0.93 | 6.517     1.52 |12.517     6.27 | 18.52     1.52
 0.533     0.93 | 6.533     1.52 |12.533     6.26 | 18.53     1.52
 0.550     0.93 | 6.550     1.52 |12.550     6.26 | 18.55     1.52
 0.567     0.93 | 6.567     1.52 |12.567     6.26 | 18.57     1.52
 0.583     0.93 | 6.583     1.52 |12.583     6.26 | 18.58     1.52
 0.600     0.93 | 6.600     1.52 |12.600     6.26 | 18.60     1.52
 0.617     0.93 | 6.617     1.52 |12.617     6.26 | 18.62     1.52
 0.633     0.93 | 6.633     1.52 |12.633     6.26 | 18.63     1.52
 0.650     0.93 | 6.650     1.52 |12.650     6.26 | 18.65     1.52
 0.667     0.93 | 6.667     1.52 |12.667     6.26 | 18.67     1.52
 0.683     0.93 | 6.683     1.52 |12.683     6.26 | 18.68     1.52
 0.700     0.93 | 6.700     1.52 |12.700     6.26 | 18.70     1.52
 0.717     0.93 | 6.717     1.52 |12.717     6.26 | 18.72     1.52
 0.733     0.93 | 6.733     1.52 |12.733     6.26 | 18.73     1.52
 0.750     0.93 | 6.750     1.52 |12.750     6.26 | 18.75     1.52
 0.767     0.93 | 6.767     1.52 |12.767     6.26 | 18.77     1.52
 0.783     0.93 | 6.783     1.52 |12.783     6.26 | 18.78     1.52
 0.800     0.93 | 6.800     1.52 |12.800     6.26 | 18.80     1.52
 0.817     0.93 | 6.817     1.52 |12.817     6.26 | 18.82     1.52
 0.833     0.93 | 6.833     1.52 |12.833     6.26 | 18.83     1.52
 0.850     0.93 | 6.850     1.52 |12.850     6.26 | 18.85     1.52
 0.867     0.93 | 6.867     1.52 |12.867     6.26 | 18.87     1.52
 0.883     0.93 | 6.883     1.52 |12.883     6.26 | 18.88     1.52
 0.900     0.93 | 6.900     1.52 |12.900     6.26 | 18.90     1.52
 0.917     0.93 | 6.917     1.52 |12.917     6.26 | 18.92     1.52
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0.933	0.93	6.933	1.52	12.933	6.26	18.93	1.52
0.950	0.93	6.950	1.52	12.950	6.26	18.95	1.52
0.967	0.93	6.967	1.52	12.967	6.26	18.97	1.52
0.983	0.93	6.983	1.52	12.983	6.26	18.98	1.52
1.000	0.93	7.000	1.52	13.000	6.26	19.00	1.52
1.017	0.93	7.017	1.86	13.017	4.57	19.02	1.52
1.033	0.93	7.033	1.86	13.033	4.57	19.03	1.52
1.050	0.93	7.050	1.86	13.050	4.57	19.05	1.52
1.067	0.93	7.067	1.86	13.067	4.57	19.07	1.52
1.083	0.93	7.083	1.86	13.083	4.57	19.08	1.52
1.100	0.93	7.100	1.86	13.100	4.57	19.10	1.52
1.117	0.93	7.117	1.86	13.117	4.57	19.12	1.52
1.133	0.93	7.133	1.86	13.133	4.57	19.13	1.52
1.150	0.93	7.150	1.86	13.150	4.57	19.15	1.52
1.167	0.93	7.167	1.86	13.167	4.57	19.17	1.52
1.183	0.93	7.183	1.86	13.183	4.57	19.18	1.52
1.200	0.93	7.200	1.86	13.200	4.57	19.20	1.52
1.217	0.93	7.217	1.86	13.217	4.57	19.22	1.52
1.233	0.93	7.233	1.86	13.233	4.57	19.23	1.52
1.250	0.93	7.250	1.86	13.250	4.57	19.25	1.52
1.267	0.93	7.267	1.86	13.267	4.57	19.27	1.52
1.283	0.93	7.283	1.86	13.283	4.57	19.28	1.52
1.300	0.93	7.300	1.86	13.300	4.57	19.30	1.52
1.317	0.93	7.317	1.86	13.317	4.57	19.32	1.52
1.333	0.93	7.333	1.86	13.333	4.57	19.33	1.52
1.350	0.93	7.350	1.86	13.350	4.57	19.35	1.52
1.367	0.93	7.367	1.86	13.367	4.57	19.37	1.52
1.383	0.93	7.383	1.86	13.383	4.57	19.38	1.52
1.400	0.93	7.400	1.86	13.400	4.57	19.40	1.52
1.417	0.93	7.417	1.86	13.417	4.57	19.42	1.52
1.433	0.93	7.433	1.86	13.433	4.57	19.43	1.52
1.450	0.93	7.450	1.86	13.450	4.57	19.45	1.52
1.467	0.93	7.467	1.86	13.467	4.57	19.47	1.52
1.483	0.93	7.483	1.86	13.483	4.57	19.48	1.52
1.500	0.93	7.500	1.86	13.500	4.57	19.50	1.52
1.517	0.93	7.517	1.86	13.517	3.55	19.52	1.52
1.533	0.93	7.533	1.86	13.533	3.55	19.53	1.52
1.550	0.93	7.550	1.86	13.550	3.55	19.55	1.52
1.567	0.93	7.567	1.86	13.567	3.55	19.57	1.52
1.583	0.93	7.583	1.86	13.583	3.55	19.58	1.52
1.600	0.93	7.600	1.86	13.600	3.55	19.60	1.52
1.617	0.93	7.617	1.86	13.617	3.55	19.62	1.52
1.633	0.93	7.633	1.86	13.633	3.55	19.63	1.52
1.650	0.93	7.650	1.86	13.650	3.55	19.65	1.52
1.667	0.93	7.667	1.86	13.667	3.55	19.67	1.52
1.683	0.93	7.683	1.86	13.683	3.55	19.68	1.52
1.700	0.93	7.700	1.86	13.700	3.55	19.70	1.52
1.717	0.93	7.717	1.86	13.717	3.55	19.72	1.52
1.733	0.93	7.733	1.86	13.733	3.55	19.73	1.52
1.750	0.93	7.750	1.86	13.750	3.55	19.75	1.52
1.767	0.93	7.767	1.86	13.767	3.55	19.77	1.52
1.783	0.93	7.783	1.86	13.783	3.55	19.78	1.52
1.800	0.93	7.800	1.86	13.800	3.55	19.80	1.52
1.817	0.93	7.817	1.86	13.817	3.55	19.82	1.52
1.833	0.93	7.833	1.86	13.833	3.55	19.83	1.52
1.850	0.93	7.850	1.86	13.850	3.55	19.85	1.52
1.867	0.93	7.867	1.86	13.867	3.55	19.87	1.52
1.883	0.93	7.883	1.86	13.883	3.55	19.88	1.52
1.900	0.93	7.900	1.86	13.900	3.55	19.90	1.52
1.917	0.93	7.917	1.86	13.917	3.55	19.92	1.52
1.933	0.93	7.933	1.86	13.933	3.55	19.93	1.52
1.950	0.93	7.950	1.86	13.950	3.55	19.95	1.52
1.967	0.93	7.967	1.86	13.967	3.55	19.97	1.52
1.983	0.93	7.983	1.86	13.983	3.55	19.98	1.52
2.000	0.93	8.000	1.86	14.000	3.55	20.00	1.52
2.017	1.10	8.017	2.20	14.017	2.54	20.02	1.02
2.033	1.10	8.033	2.20	14.033	2.54	20.03	1.02
2.050	1.10	8.050	2.20	14.050	2.54	20.05	1.02
2.067	1.10	8.067	2.20	14.067	2.54	20.07	1.02
2.083	1.10	8.083	2.20	14.083	2.54	20.08	1.02
2.100	1.10	8.100	2.20	14.100	2.54	20.10	1.02
2.117	1.10	8.117	2.20	14.117	2.54	20.12	1.02
2.133	1.10	8.133	2.20	14.133	2.54	20.13	1.02
2.150	1.10	8.150	2.20	14.150	2.54	20.15	1.02
2.167	1.10	8.167	2.20	14.167	2.54	20.17	1.02
2.183	1.10	8.183	2.20	14.183	2.54	20.18	1.02
2.200	1.10	8.200	2.20	14.200	2.54	20.20	1.02
2.217	1.10	8.217	2.20	14.217	2.54	20.22	1.02
2.233	1.10	8.233	2.20	14.233	2.54	20.23	1.02
2.250	1.10	8.250	2.20	14.250	2.54	20.25	1.02
2.267	1.10	8.267	2.20	14.267	2.54	20.27	1.02
2.283	1.10	8.283	2.20	14.283	2.54	20.28	1.02
2.300	1.10	8.300	2.20	14.300	2.54	20.30	1.02
2.317	1.10	8.317	2.20	14.317	2.54	20.32	1.02

2.333	1.10	8.333	2.20	14.333	2.54	20.33	1.02
2.350	1.10	8.350	2.20	14.350	2.54	20.35	1.02
2.367	1.10	8.367	2.20	14.367	2.54	20.37	1.02
2.383	1.10	8.383	2.20	14.383	2.54	20.38	1.02
2.400	1.10	8.400	2.20	14.400	2.54	20.40	1.02
2.417	1.10	8.417	2.20	14.417	2.54	20.42	1.02
2.433	1.10	8.433	2.20	14.433	2.54	20.43	1.02
2.450	1.10	8.450	2.20	14.450	2.54	20.45	1.02
2.467	1.10	8.467	2.20	14.467	2.54	20.47	1.02
2.483	1.10	8.483	2.20	14.483	2.54	20.48	1.02
2.500	1.10	8.500	2.20	14.500	2.54	20.50	1.02
2.517	1.10	8.517	2.37	14.517	2.54	20.52	1.02
2.533	1.10	8.533	2.37	14.533	2.54	20.53	1.02
2.550	1.10	8.550	2.37	14.550	2.54	20.55	1.02
2.567	1.10	8.567	2.37	14.567	2.54	20.57	1.02
2.583	1.10	8.583	2.37	14.583	2.54	20.58	1.02
2.600	1.10	8.600	2.37	14.600	2.54	20.60	1.02
2.617	1.10	8.617	2.37	14.617	2.54	20.62	1.02
2.633	1.10	8.633	2.37	14.633	2.54	20.63	1.02
2.650	1.10	8.650	2.37	14.650	2.54	20.65	1.02
2.667	1.10	8.667	2.37	14.667	2.54	20.67	1.02
2.683	1.10	8.683	2.37	14.683	2.54	20.68	1.02
2.700	1.10	8.700	2.37	14.700	2.54	20.70	1.02
2.717	1.10	8.717	2.37	14.717	2.54	20.72	1.02
2.733	1.10	8.733	2.37	14.733	2.54	20.73	1.02
2.750	1.10	8.750	2.37	14.750	2.54	20.75	1.02
2.767	1.10	8.767	2.37	14.767	2.54	20.77	1.02
2.783	1.10	8.783	2.37	14.783	2.54	20.78	1.02
2.800	1.10	8.800	2.37	14.800	2.54	20.80	1.02
2.817	1.10	8.817	2.37	14.817	2.54	20.82	1.02
2.833	1.10	8.833	2.37	14.833	2.54	20.83	1.02
2.850	1.10	8.850	2.37	14.850	2.54	20.85	1.02
2.867	1.10	8.867	2.37	14.867	2.54	20.87	1.02
2.883	1.10	8.883	2.37	14.883	2.54	20.88	1.02
2.900	1.10	8.900	2.37	14.900	2.54	20.90	1.02
2.917	1.10	8.917	2.37	14.917	2.54	20.92	1.02
2.933	1.10	8.933	2.37	14.933	2.54	20.93	1.02
2.950	1.10	8.950	2.37	14.950	2.54	20.95	1.02
2.967	1.10	8.967	2.37	14.967	2.54	20.97	1.02
2.983	1.10	8.983	2.37	14.983	2.54	20.98	1.02
3.000	1.10	9.000	2.37	15.000	2.54	21.00	1.02
3.017	1.10	9.017	2.71	15.017	2.54	21.02	1.02
3.033	1.10	9.033	2.71	15.033	2.54	21.03	1.02
3.050	1.10	9.050	2.71	15.050	2.54	21.05	1.02
3.067	1.10	9.067	2.71	15.067	2.54	21.07	1.02
3.083	1.10	9.083	2.71	15.083	2.54	21.08	1.02
3.100	1.10	9.100	2.71	15.100	2.54	21.10	1.02
3.117	1.10	9.117	2.71	15.117	2.54	21.12	1.02
3.133	1.10	9.133	2.71	15.133	2.54	21.13	1.02
3.150	1.10	9.150	2.71	15.150	2.54	21.15	1.02
3.167	1.10	9.167	2.71	15.167	2.54	21.17	1.02
3.183	1.10	9.183	2.71	15.183	2.54	21.18	1.02
3.200	1.10	9.200	2.71	15.200	2.54	21.20	1.02
3.217	1.10	9.217	2.71	15.217	2.54	21.22	1.02
3.233	1.10	9.233	2.71	15.233	2.54	21.23	1.02
3.250	1.10	9.250	2.71	15.250	2.54	21.25	1.02
3.267	1.10	9.267	2.71	15.267	2.54	21.27	1.02
3.283	1.10	9.283	2.71	15.283	2.54	21.28	1.02
3.300	1.10	9.300	2.71	15.300	2.54	21.30	1.02
3.317	1.10	9.317	2.71	15.317	2.54	21.32	1.02
3.333	1.10	9.333	2.71	15.333	2.54	21.33	1.02
3.350	1.10	9.350	2.71	15.350	2.54	21.35	1.02
3.367	1.10	9.367	2.71	15.367	2.54	21.37	1.02
3.383	1.10	9.383	2.71	15.383	2.54	21.38	1.02
3.400	1.10	9.400	2.71	15.400	2.54	21.40	1.02
3.417	1.10	9.417	2.71	15.417	2.54	21.42	1.02
3.433	1.10	9.433	2.71	15.433	2.54	21.43	1.02
3.450	1.10	9.450	2.71	15.450	2.54	21.45	1.02
3.467	1.10	9.467	2.71	15.467	2.54	21.47	1.02
3.483	1.10	9.483	2.71	15.483	2.54	21.48	1.02
3.500	1.10	9.500	2.71	15.500	2.54	21.50	1.02
3.517	1.10	9.517	3.05	15.517	2.54	21.52	1.02
3.533	1.10	9.533	3.05	15.533	2.54	21.53	1.02
3.550	1.10	9.550	3.05	15.550	2.54	21.55	1.02
3.567	1.10	9.567	3.05	15.567	2.54	21.57	1.02
3.583	1.10	9.583	3.05	15.583	2.54	21.58	1.02
3.600	1.10	9.600	3.05	15.600	2.54	21.60	1.02
3.617	1.10	9.617	3.05	15.617	2.54	21.62	1.02
3.633	1.10	9.633	3.05	15.633	2.54	21.63	1.02
3.650	1.10	9.650	3.05	15.650	2.54	21.65	1.02
3.667	1.10	9.667	3.05	15.667	2.54	21.67	1.02
3.683	1.10	9.683	3.05	15.683	2.54	21.68	1.02
3.700	1.10	9.700	3.05	15.700	2.54	21.70	1.02
3.717	1.10	9.717	3.05	15.717	2.54	21.72	1.02

3.733	1.10	9.733	3.05	15.733	2.54	21.73	1.02
3.750	1.10	9.750	3.05	15.750	2.54	21.75	1.02
3.767	1.10	9.767	3.05	15.767	2.54	21.77	1.02
3.783	1.10	9.783	3.05	15.783	2.54	21.78	1.02
3.800	1.10	9.800	3.05	15.800	2.54	21.80	1.02
3.817	1.10	9.817	3.05	15.817	2.54	21.82	1.02
3.833	1.10	9.833	3.05	15.833	2.54	21.83	1.02
3.850	1.10	9.850	3.05	15.850	2.54	21.85	1.02
3.867	1.10	9.867	3.05	15.867	2.54	21.87	1.02
3.883	1.10	9.883	3.05	15.883	2.54	21.88	1.02
3.900	1.10	9.900	3.05	15.900	2.54	21.90	1.02
3.917	1.10	9.917	3.05	15.917	2.54	21.92	1.02
3.933	1.10	9.933	3.05	15.933	2.54	21.93	1.02
3.950	1.10	9.950	3.05	15.950	2.54	21.95	1.02
3.967	1.10	9.967	3.05	15.967	2.54	21.97	1.02
3.983	1.10	9.983	3.05	15.983	2.54	21.98	1.02
4.000	1.10	10.000	3.05	16.000	2.54	22.00	1.02
4.017	1.35	10.017	3.89	16.017	1.53	22.02	1.02
4.033	1.35	10.033	3.89	16.033	1.52	22.03	1.02
4.050	1.35	10.050	3.89	16.050	1.52	22.05	1.02
4.067	1.35	10.067	3.89	16.067	1.52	22.07	1.02
4.083	1.35	10.083	3.89	16.083	1.52	22.08	1.02
4.100	1.35	10.100	3.89	16.100	1.52	22.10	1.02
4.117	1.35	10.117	3.89	16.117	1.52	22.12	1.02
4.133	1.35	10.133	3.89	16.133	1.52	22.13	1.02
4.150	1.35	10.150	3.89	16.150	1.52	22.15	1.02
4.167	1.35	10.167	3.89	16.167	1.52	22.17	1.02
4.183	1.35	10.183	3.89	16.183	1.52	22.18	1.02
4.200	1.35	10.200	3.89	16.200	1.52	22.20	1.02
4.217	1.35	10.217	3.89	16.217	1.52	22.22	1.02
4.233	1.35	10.233	3.89	16.233	1.52	22.23	1.02
4.250	1.35	10.250	3.89	16.250	1.52	22.25	1.02
4.267	1.35	10.267	3.89	16.267	1.52	22.27	1.02
4.283	1.35	10.283	3.89	16.283	1.52	22.28	1.02
4.300	1.35	10.300	3.89	16.300	1.52	22.30	1.02
4.317	1.35	10.317	3.89	16.317	1.52	22.32	1.02
4.333	1.35	10.333	3.89	16.333	1.52	22.33	1.02
4.350	1.35	10.350	3.89	16.350	1.52	22.35	1.02
4.367	1.35	10.367	3.89	16.367	1.52	22.37	1.02
4.383	1.35	10.383	3.89	16.383	1.52	22.38	1.02
4.400	1.35	10.400	3.89	16.400	1.52	22.40	1.02
4.417	1.35	10.417	3.89	16.417	1.52	22.42	1.02
4.433	1.35	10.433	3.89	16.433	1.52	22.43	1.02
4.450	1.35	10.450	3.89	16.450	1.52	22.45	1.02
4.467	1.35	10.467	3.89	16.467	1.52	22.47	1.02
4.483	1.35	10.483	3.89	16.483	1.52	22.48	1.02
4.500	1.35	10.500	3.89	16.500	1.52	22.50	1.02
4.517	1.35	10.517	5.24	16.517	1.52	22.52	1.02
4.533	1.35	10.533	5.24	16.533	1.52	22.53	1.02
4.550	1.35	10.550	5.24	16.550	1.52	22.55	1.02
4.567	1.35	10.567	5.24	16.567	1.52	22.57	1.02
4.583	1.35	10.583	5.24	16.583	1.52	22.58	1.02
4.600	1.35	10.600	5.24	16.600	1.52	22.60	1.02
4.617	1.35	10.617	5.24	16.617	1.52	22.62	1.02
4.633	1.35	10.633	5.24	16.633	1.52	22.63	1.02
4.650	1.35	10.650	5.24	16.650	1.52	22.65	1.02
4.667	1.35	10.667	5.24	16.667	1.52	22.67	1.02
4.683	1.35	10.683	5.24	16.683	1.52	22.68	1.02
4.700	1.35	10.700	5.24	16.700	1.52	22.70	1.02
4.717	1.35	10.717	5.24	16.717	1.52	22.72	1.02
4.733	1.35	10.733	5.24	16.733	1.52	22.73	1.02
4.750	1.35	10.750	5.24	16.750	1.52	22.75	1.02
4.767	1.35	10.767	5.24	16.767	1.52	22.77	1.02
4.783	1.35	10.783	5.24	16.783	1.52	22.78	1.02
4.800	1.35	10.800	5.24	16.800	1.52	22.80	1.02
4.817	1.35	10.817	5.24	16.817	1.52	22.82	1.02
4.833	1.35	10.833	5.24	16.833	1.52	22.83	1.02
4.850	1.35	10.850	5.24	16.850	1.52	22.85	1.02
4.867	1.35	10.867	5.24	16.867	1.52	22.87	1.02
4.883	1.35	10.883	5.24	16.883	1.52	22.88	1.02
4.900	1.35	10.900	5.24	16.900	1.52	22.90	1.02
4.917	1.35	10.917	5.24	16.917	1.52	22.92	1.02
4.933	1.35	10.933	5.24	16.933	1.52	22.93	1.02
4.950	1.35	10.950	5.24	16.950	1.52	22.95	1.02
4.967	1.35	10.967	5.24	16.967	1.52	22.97	1.02
4.983	1.35	10.983	5.24	16.983	1.52	22.98	1.02
5.000	1.35	11.000	5.25	17.000	1.52	23.00	1.02
5.017	1.35	11.017	8.12	17.017	1.52	23.02	1.02
5.033	1.35	11.033	8.12	17.033	1.52	23.03	1.02
5.050	1.35	11.050	8.12	17.050	1.52	23.05	1.02
5.067	1.35	11.067	8.12	17.067	1.52	23.07	1.02
5.083	1.35	11.083	8.12	17.083	1.52	23.08	1.02
5.100	1.35	11.100	8.12	17.100	1.52	23.10	1.02
5.117	1.35	11.117	8.12	17.117	1.52	23.12	1.02

5.133	1.35	11.133	8.12	17.133	1.52	23.13	1.02
5.150	1.35	11.150	8.12	17.150	1.52	23.15	1.02
5.167	1.35	11.167	8.12	17.167	1.52	23.17	1.02
5.183	1.35	11.183	8.12	17.183	1.52	23.18	1.02
5.200	1.35	11.200	8.12	17.200	1.52	23.20	1.02
5.217	1.35	11.217	8.12	17.217	1.52	23.22	1.02
5.233	1.35	11.233	8.12	17.233	1.52	23.23	1.02
5.250	1.35	11.250	8.12	17.250	1.52	23.25	1.02
5.267	1.35	11.267	8.12	17.267	1.52	23.27	1.02
5.283	1.35	11.283	8.12	17.283	1.52	23.28	1.02
5.300	1.35	11.300	8.12	17.300	1.52	23.30	1.02
5.317	1.35	11.317	8.12	17.317	1.52	23.32	1.02
5.333	1.35	11.333	8.12	17.333	1.52	23.33	1.02
5.350	1.35	11.350	8.12	17.350	1.52	23.35	1.02
5.367	1.35	11.367	8.12	17.367	1.52	23.37	1.02
5.383	1.35	11.383	8.12	17.383	1.52	23.38	1.02
5.400	1.35	11.400	8.12	17.400	1.52	23.40	1.02
5.417	1.35	11.417	8.12	17.417	1.52	23.42	1.02
5.433	1.35	11.433	8.12	17.433	1.52	23.43	1.02
5.450	1.35	11.450	8.12	17.450	1.52	23.45	1.02
5.467	1.35	11.467	8.12	17.467	1.52	23.47	1.02
5.483	1.35	11.483	8.12	17.483	1.52	23.48	1.02
5.500	1.35	11.500	8.12	17.500	1.52	23.50	1.02
5.517	1.35	11.517	25.03	17.517	1.52	23.52	1.02
5.533	1.35	11.533	25.04	17.533	1.52	23.53	1.02
5.550	1.35	11.550	25.04	17.550	1.52	23.55	1.02
5.567	1.35	11.567	25.04	17.567	1.52	23.57	1.02
5.583	1.35	11.583	25.04	17.583	1.52	23.58	1.02
5.600	1.35	11.600	25.04	17.600	1.52	23.60	1.02
5.617	1.35	11.617	25.04	17.617	1.52	23.62	1.02
5.633	1.35	11.633	25.04	17.633	1.52	23.63	1.02
5.650	1.35	11.650	25.04	17.650	1.52	23.65	1.02
5.667	1.35	11.667	25.04	17.667	1.52	23.67	1.02
5.683	1.35	11.683	25.04	17.683	1.52	23.68	1.02
5.700	1.35	11.700	25.04	17.700	1.52	23.70	1.02
5.717	1.35	11.717	25.04	17.717	1.52	23.72	1.02
5.733	1.35	11.733	25.04	17.733	1.52	23.73	1.02
5.750	1.35	11.750	25.04	17.750	1.52	23.75	1.02
5.767	1.35	11.767	103.50	17.767	1.52	23.77	1.02
5.783	1.35	11.783	103.54	17.783	1.52	23.78	1.02
5.800	1.35	11.800	103.54	17.800	1.52	23.80	1.02
5.817	1.35	11.817	103.54	17.817	1.52	23.82	1.02
5.833	1.35	11.833	103.54	17.833	1.52	23.83	1.02
5.850	1.35	11.850	103.54	17.850	1.52	23.85	1.02
5.867	1.35	11.867	103.54	17.867	1.52	23.87	1.02
5.883	1.35	11.883	103.54	17.883	1.52	23.88	1.02
5.900	1.35	11.900	103.54	17.900	1.52	23.90	1.02
5.917	1.35	11.917	103.54	17.917	1.52	23.92	1.02
5.933	1.35	11.933	103.54	17.933	1.52	23.93	1.02
5.950	1.35	11.950	103.54	17.950	1.52	23.95	1.02
5.967	1.35	11.967	103.54	17.967	1.52	23.97	1.02
5.983	1.35	11.983	103.54	17.983	1.52	23.98	1.02
6.000	1.35	12.000	103.54	18.000	1.52	24.00	1.02

Max.Eff.Inten.(mm/hr)=	103.54	95.64		
over (min)	5.00	10.00		
Storage Coeff. (min)=	3.07 (ii)	9.50 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.30	0.12		
			TOTALS	
PEAK FLOW (cms)=	0.32	0.17	0.473 (iii)	
TIME TO PEAK (hrs)=	12.00	12.07	12.00	
RUNOFF VOLUME (mm)=	82.58	34.37	53.18	
TOTAL RAINFALL (mm)=	84.59	84.59	84.59	
RUNOFF COEFFICIENT =	0.98	0.41	0.63	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0097) | 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (2101):	17.31	2.634	12.00	52.84
+ ID2= 2 (3100):	2.89	0.473	12.00	53.18
ID = 3 (0097):	20.20	3.107	12.00	52.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0097):	20.20	3.107	12.00	52.89
	+ ID2= 2 (0096):	1.16	0.109	12.00	34.86
	ID = 1 (0097):	21.36	3.216	12.00	51.91

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001) | OVERFLOW IS OFF
IN= 2---> OUT= 1
DT= 1.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0400	0.6360
0.0160	0.1070	0.0790	0.7870
0.0240	0.2260	0.2900	0.9450
0.0300	0.3550	0.4710	1.0430
0.0350	0.4920	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0097)	21.360	3.216	12.00	51.91
OUTFLOW: ID= 1 (0001)	21.360	0.096	16.08	24.45

PEAK FLOW REDUCTION [Qout/Qin](%)= 2.98
TIME SHIFT OF PEAK FLOW (min)=245.00
MAXIMUM STORAGE USED (ha.m.)= 0.7997

CALIB
STANDHYD (2102) | Area (ha)= 0.21
ID= 1 DT= 5.0 min | Total Imp(%)= 65.00 Dir. Conn.(%)= 65.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.14	0.07
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	37.42	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.93	6.083	1.52	12.083	12.19	18.08	1.52
0.167	0.93	6.167	1.52	12.167	12.18	18.17	1.52
0.250	0.93	6.250	1.52	12.250	12.18	18.25	1.52
0.333	0.93	6.333	1.52	12.333	12.18	18.33	1.52
0.417	0.93	6.417	1.52	12.417	12.18	18.42	1.52
0.500	0.93	6.500	1.52	12.500	12.18	18.50	1.52
0.583	0.93	6.583	1.52	12.583	6.26	18.58	1.52
0.667	0.93	6.667	1.52	12.667	6.26	18.67	1.52
0.750	0.93	6.750	1.52	12.750	6.26	18.75	1.52
0.833	0.93	6.833	1.52	12.833	6.26	18.83	1.52
0.917	0.93	6.917	1.52	12.917	6.26	18.92	1.52
1.000	0.93	7.000	1.52	13.000	6.26	19.00	1.52
1.083	0.93	7.083	1.86	13.083	4.57	19.08	1.52
1.167	0.93	7.167	1.86	13.167	4.57	19.17	1.52
1.250	0.93	7.250	1.86	13.250	4.57	19.25	1.52
1.333	0.93	7.333	1.86	13.333	4.57	19.33	1.52
1.417	0.93	7.417	1.86	13.417	4.57	19.42	1.52
1.500	0.93	7.500	1.86	13.500	4.57	19.50	1.52
1.583	0.93	7.583	1.86	13.583	3.55	19.58	1.52
1.667	0.93	7.667	1.86	13.667	3.55	19.67	1.52
1.750	0.93	7.750	1.86	13.750	3.55	19.75	1.52
1.833	0.93	7.833	1.86	13.833	3.55	19.83	1.52
1.917	0.93	7.917	1.86	13.917	3.55	19.92	1.52
2.000	0.93	8.000	1.86	14.000	3.55	20.00	1.52
2.083	1.10	8.083	2.20	14.083	2.54	20.08	1.02
2.167	1.10	8.167	2.20	14.167	2.54	20.17	1.02
2.250	1.10	8.250	2.20	14.250	2.54	20.25	1.02
2.333	1.10	8.333	2.20	14.333	2.54	20.33	1.02
2.417	1.10	8.417	2.20	14.417	2.54	20.42	1.02
2.500	1.10	8.500	2.20	14.500	2.54	20.50	1.02
2.583	1.10	8.583	2.37	14.583	2.54	20.58	1.02

2.667	1.10	8.667	2.37	14.667	2.54	20.67	1.02
2.750	1.10	8.750	2.37	14.750	2.54	20.75	1.02
2.833	1.10	8.833	2.37	14.833	2.54	20.83	1.02
2.917	1.10	8.917	2.37	14.917	2.54	20.92	1.02
3.000	1.10	9.000	2.37	15.000	2.54	21.00	1.02
3.083	1.10	9.083	2.71	15.083	2.54	21.08	1.02
3.167	1.10	9.167	2.71	15.167	2.54	21.17	1.02
3.250	1.10	9.250	2.71	15.250	2.54	21.25	1.02
3.333	1.10	9.333	2.71	15.333	2.54	21.33	1.02
3.417	1.10	9.417	2.71	15.417	2.54	21.42	1.02
3.500	1.10	9.500	2.71	15.500	2.54	21.50	1.02
3.583	1.10	9.583	3.05	15.583	2.54	21.58	1.02
3.667	1.10	9.667	3.05	15.667	2.54	21.67	1.02
3.750	1.10	9.750	3.05	15.750	2.54	21.75	1.02
3.833	1.10	9.833	3.05	15.833	2.54	21.83	1.02
3.917	1.10	9.917	3.05	15.917	2.54	21.92	1.02
4.000	1.10	10.000	3.05	16.000	2.54	22.00	1.02
4.083	1.35	10.083	3.89	16.083	1.52	22.08	1.02
4.167	1.35	10.167	3.89	16.167	1.52	22.17	1.02
4.250	1.35	10.250	3.89	16.250	1.52	22.25	1.02
4.333	1.35	10.333	3.89	16.333	1.52	22.33	1.02
4.417	1.35	10.417	3.89	16.417	1.52	22.42	1.02
4.500	1.35	10.500	3.89	16.500	1.52	22.50	1.02
4.583	1.35	10.583	5.24	16.583	1.52	22.58	1.02
4.667	1.35	10.667	5.24	16.667	1.52	22.67	1.02
4.750	1.35	10.750	5.24	16.750	1.52	22.75	1.02
4.833	1.35	10.833	5.24	16.833	1.52	22.83	1.02
4.917	1.35	10.917	5.24	16.917	1.52	22.92	1.02
5.000	1.35	11.000	5.24	17.000	1.52	23.00	1.02
5.083	1.35	11.083	8.12	17.083	1.52	23.08	1.02
5.167	1.35	11.167	8.12	17.167	1.52	23.17	1.02
5.250	1.35	11.250	8.12	17.250	1.52	23.25	1.02
5.333	1.35	11.333	8.12	17.333	1.52	23.33	1.02
5.417	1.35	11.417	8.12	17.417	1.52	23.42	1.02
5.500	1.35	11.500	8.12	17.500	1.52	23.50	1.02
5.583	1.35	11.583	25.04	17.583	1.52	23.58	1.02
5.667	1.35	11.667	25.04	17.667	1.52	23.67	1.02
5.750	1.35	11.750	25.04	17.750	1.52	23.75	1.02
5.833	1.35	11.833	103.53	17.833	1.52	23.83	1.02
5.917	1.35	11.917	103.54	17.917	1.52	23.92	1.02
6.000	1.35	12.000	103.54	18.000	1.52	24.00	1.01

Max.Eff.Inten.(mm/hr)=	103.54	28.51	
over (min)	5.00	15.00	
Storage Coeff. (min)=	1.40 (ii)	13.06 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.33	0.08	
			TOTALS
PEAK FLOW (cms)=	0.04	0.00	0.042 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	82.59	21.40	61.13
TOTAL RAINFALL (mm)=	84.59	84.59	84.59
RUNOFF COEFFICIENT =	0.98	0.25	0.72

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0015)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0001):	21.36	0.096	16.08	24.45
	+ ID2= 2 (2102):	0.21	0.042	12.00	61.13
	ID = 3 (0015):	21.57	0.097	16.03	24.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:4.4 SCS II 24hr 25yr **
****

MASS STORM	Filename: C:\Users\rbrockie\AppData\Local\Temp\913e2f46-79e8-42d3-b20d-3fb65cefc10e\bcfe1e71
Ptotal= 98.78 mm	Comments: SCS 24 HOUR TYPE II STORM DISTRIBUTION 1

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	1.09	6.00	1.78	12.00	14.22	18.00	1.78
0.25	1.09	6.25	1.78	12.25	14.22	18.25	1.78
0.50	1.09	6.50	1.78	12.50	7.31	18.50	1.78
0.75	1.09	6.75	1.78	12.75	7.31	18.75	1.78
1.00	1.09	7.00	2.17	13.00	5.33	19.00	1.78
1.25	1.09	7.25	2.17	13.25	5.33	19.25	1.78
1.50	1.09	7.50	2.17	13.50	4.15	19.50	1.78
1.75	1.09	7.75	2.17	13.75	4.15	19.75	1.78
2.00	1.28	8.00	2.57	14.00	2.96	20.00	1.19
2.25	1.28	8.25	2.57	14.25	2.96	20.25	1.19
2.50	1.28	8.50	2.77	14.50	2.96	20.50	1.19
2.75	1.28	8.75	2.77	14.75	2.96	20.75	1.19
3.00	1.28	9.00	3.16	15.00	2.96	21.00	1.19
3.25	1.28	9.25	3.16	15.25	2.96	21.25	1.19
3.50	1.28	9.50	3.56	15.50	2.96	21.50	1.19
3.75	1.28	9.75	3.56	15.75	2.96	21.75	1.19
4.00	1.58	10.00	4.54	16.00	1.78	22.00	1.19
4.25	1.58	10.25	4.54	16.25	1.78	22.25	1.19
4.50	1.58	10.50	6.12	16.50	1.78	22.50	1.19
4.75	1.58	10.75	6.12	16.75	1.78	22.75	1.19
5.00	1.58	11.00	9.48	17.00	1.78	23.00	1.19
5.25	1.58	11.25	9.48	17.25	1.78	23.25	1.19
5.50	1.58	11.50	29.24	17.50	1.78	23.50	1.19
5.75	1.58	11.75	120.91	17.75	1.78	23.75	1.19

CALIB STANDHYD (2101) ID= 1 DT= 5.0 min	Area (ha)= 17.31 Total Imp(%)= 64.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.08	6.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	339.71	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.09	6.083	1.78	12.083	14.24	18.08	1.78
0.167	1.09	6.167	1.78	12.167	14.22	18.17	1.78
0.250	1.09	6.250	1.78	12.250	14.22	18.25	1.78
0.333	1.09	6.333	1.78	12.333	14.22	18.33	1.78
0.417	1.09	6.417	1.78	12.417	14.22	18.42	1.78
0.500	1.09	6.500	1.78	12.500	14.22	18.50	1.78
0.583	1.09	6.583	1.78	12.583	7.31	18.58	1.78
0.667	1.09	6.667	1.78	12.667	7.31	18.67	1.78
0.750	1.09	6.750	1.78	12.750	7.31	18.75	1.78
0.833	1.09	6.833	1.78	12.833	7.31	18.83	1.78
0.917	1.09	6.917	1.78	12.917	7.31	18.92	1.78
1.000	1.09	7.000	1.78	13.000	7.31	19.00	1.78
1.083	1.09	7.083	2.17	13.083	5.33	19.08	1.78
1.167	1.09	7.167	2.17	13.167	5.33	19.17	1.78
1.250	1.09	7.250	2.17	13.250	5.33	19.25	1.78
1.333	1.09	7.333	2.17	13.333	5.33	19.33	1.78
1.417	1.09	7.417	2.17	13.417	5.33	19.42	1.78
1.500	1.09	7.500	2.17	13.500	5.33	19.50	1.78
1.583	1.09	7.583	2.17	13.583	4.15	19.58	1.78
1.667	1.09	7.667	2.17	13.667	4.15	19.67	1.78
1.750	1.09	7.750	2.17	13.750	4.15	19.75	1.78
1.833	1.09	7.833	2.17	13.833	4.15	19.83	1.78
1.917	1.09	7.917	2.17	13.917	4.15	19.92	1.78
2.000	1.09	8.000	2.17	14.000	4.15	20.00	1.78
2.083	1.28	8.083	2.57	14.083	2.96	20.08	1.19
2.167	1.28	8.167	2.57	14.167	2.96	20.17	1.19
2.250	1.28	8.250	2.57	14.250	2.96	20.25	1.19
2.333	1.28	8.333	2.57	14.333	2.96	20.33	1.19
2.417	1.28	8.417	2.57	14.417	2.96	20.42	1.19
2.500	1.28	8.500	2.57	14.500	2.96	20.50	1.19
2.583	1.28	8.583	2.77	14.583	2.96	20.58	1.19
2.667	1.28	8.667	2.77	14.667	2.96	20.67	1.19
2.750	1.28	8.750	2.77	14.750	2.96	20.75	1.19
2.833	1.28	8.833	2.77	14.833	2.96	20.83	1.19
2.917	1.28	8.917	2.77	14.917	2.96	20.92	1.19

3.000	1.28	9.000	2.77	15.000	2.96	21.00	1.19
3.083	1.28	9.083	3.16	15.083	2.96	21.08	1.19
3.167	1.28	9.167	3.16	15.167	2.96	21.17	1.19
3.250	1.28	9.250	3.16	15.250	2.96	21.25	1.19
3.333	1.28	9.333	3.16	15.333	2.96	21.33	1.19
3.417	1.28	9.417	3.16	15.417	2.96	21.42	1.19
3.500	1.28	9.500	3.16	15.500	2.96	21.50	1.19
3.583	1.28	9.583	3.56	15.583	2.96	21.58	1.19
3.667	1.28	9.667	3.56	15.667	2.96	21.67	1.19
3.750	1.28	9.750	3.56	15.750	2.96	21.75	1.19
3.833	1.28	9.833	3.56	15.833	2.96	21.83	1.19
3.917	1.28	9.917	3.56	15.917	2.96	21.92	1.19
4.000	1.28	10.000	3.56	16.000	2.96	22.00	1.19
4.083	1.58	10.083	4.54	16.083	1.78	22.08	1.19
4.167	1.58	10.167	4.54	16.167	1.78	22.17	1.19
4.250	1.58	10.250	4.54	16.250	1.78	22.25	1.19
4.333	1.58	10.333	4.54	16.333	1.78	22.33	1.19
4.417	1.58	10.417	4.54	16.417	1.78	22.42	1.19
4.500	1.58	10.500	4.54	16.500	1.78	22.50	1.19
4.583	1.58	10.583	6.12	16.583	1.78	22.58	1.19
4.667	1.58	10.667	6.12	16.667	1.78	22.67	1.19
4.750	1.58	10.750	6.12	16.750	1.78	22.75	1.19
4.833	1.58	10.833	6.12	16.833	1.78	22.83	1.19
4.917	1.58	10.917	6.12	16.917	1.78	22.92	1.19
5.000	1.58	11.000	6.12	17.000	1.78	23.00	1.19
5.083	1.58	11.083	9.48	17.083	1.78	23.08	1.19
5.167	1.58	11.167	9.48	17.167	1.78	23.17	1.19
5.250	1.58	11.250	9.48	17.250	1.78	23.25	1.19
5.333	1.58	11.333	9.48	17.333	1.78	23.33	1.19
5.417	1.58	11.417	9.48	17.417	1.78	23.42	1.19
5.500	1.58	11.500	9.48	17.500	1.78	23.50	1.19
5.583	1.58	11.583	29.24	17.583	1.78	23.58	1.19
5.667	1.58	11.667	29.24	17.667	1.78	23.67	1.19
5.750	1.58	11.750	29.24	17.750	1.78	23.75	1.19
5.833	1.58	11.833	120.90	17.833	1.78	23.83	1.19
5.917	1.58	11.917	120.91	17.917	1.78	23.92	1.19
6.000	1.58	12.000	120.91	18.000	1.78	24.00	1.18

Max.Eff.Inten.(mm/hr)=	120.91	90.98	
over (min)	5.00	15.00	
Storage Coeff. (min)=	4.93 (ii)	12.26 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.22	0.09	
			TOTALS
PEAK FLOW (cms)=	2.41	0.95	3.213 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	96.78	39.36	64.05
TOTAL RAINFALL (mm)=	98.78	98.78	98.78
RUNOFF COEFFICIENT =	0.98	0.40	0.65

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0096)| Area (ha)= 1.16
ID= 1 DT= 5.0 min | Total Imp(%)= 22.00 Dir. Conn.(%)= 22.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.26	0.90
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.94	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.09	6.083	1.78	12.083	14.24	18.08	1.78
0.167	1.09	6.167	1.78	12.167	14.22	18.17	1.78
0.250	1.09	6.250	1.78	12.250	14.22	18.25	1.78
0.333	1.09	6.333	1.78	12.333	14.22	18.33	1.78
0.417	1.09	6.417	1.78	12.417	14.22	18.42	1.78
0.500	1.09	6.500	1.78	12.500	14.22	18.50	1.78
0.583	1.09	6.583	1.78	12.583	7.31	18.58	1.78

0.667	1.09	6.667	1.78	12.667	7.31	18.67	1.78
0.750	1.09	6.750	1.78	12.750	7.31	18.75	1.78
0.833	1.09	6.833	1.78	12.833	7.31	18.83	1.78
0.917	1.09	6.917	1.78	12.917	7.31	18.92	1.78
1.000	1.09	7.000	1.78	13.000	7.31	19.00	1.78
1.083	1.09	7.083	2.17	13.083	5.33	19.08	1.78
1.167	1.09	7.167	2.17	13.167	5.33	19.17	1.78
1.250	1.09	7.250	2.17	13.250	5.33	19.25	1.78
1.333	1.09	7.333	2.17	13.333	5.33	19.33	1.78
1.417	1.09	7.417	2.17	13.417	5.33	19.42	1.78
1.500	1.09	7.500	2.17	13.500	5.33	19.50	1.78
1.583	1.09	7.583	2.17	13.583	4.15	19.58	1.78
1.667	1.09	7.667	2.17	13.667	4.15	19.67	1.78
1.750	1.09	7.750	2.17	13.750	4.15	19.75	1.78
1.833	1.09	7.833	2.17	13.833	4.15	19.83	1.78
1.917	1.09	7.917	2.17	13.917	4.15	19.92	1.78
2.000	1.09	8.000	2.17	14.000	4.15	20.00	1.78
2.083	1.28	8.083	2.57	14.083	2.96	20.08	1.19
2.167	1.28	8.167	2.57	14.167	2.96	20.17	1.19
2.250	1.28	8.250	2.57	14.250	2.96	20.25	1.19
2.333	1.28	8.333	2.57	14.333	2.96	20.33	1.19
2.417	1.28	8.417	2.57	14.417	2.96	20.42	1.19
2.500	1.28	8.500	2.57	14.500	2.96	20.50	1.19
2.583	1.28	8.583	2.77	14.583	2.96	20.58	1.19
2.667	1.28	8.667	2.77	14.667	2.96	20.67	1.19
2.750	1.28	8.750	2.77	14.750	2.96	20.75	1.19
2.833	1.28	8.833	2.77	14.833	2.96	20.83	1.19
2.917	1.28	8.917	2.77	14.917	2.96	20.92	1.19
3.000	1.28	9.000	2.77	15.000	2.96	21.00	1.19
3.083	1.28	9.083	3.16	15.083	2.96	21.08	1.19
3.167	1.28	9.167	3.16	15.167	2.96	21.17	1.19
3.250	1.28	9.250	3.16	15.250	2.96	21.25	1.19
3.333	1.28	9.333	3.16	15.333	2.96	21.33	1.19
3.417	1.28	9.417	3.16	15.417	2.96	21.42	1.19
3.500	1.28	9.500	3.16	15.500	2.96	21.50	1.19
3.583	1.28	9.583	3.56	15.583	2.96	21.58	1.19
3.667	1.28	9.667	3.56	15.667	2.96	21.67	1.19
3.750	1.28	9.750	3.56	15.750	2.96	21.75	1.19
3.833	1.28	9.833	3.56	15.833	2.96	21.83	1.19
3.917	1.28	9.917	3.56	15.917	2.96	21.92	1.19
4.000	1.28	10.000	3.56	16.000	2.96	22.00	1.19
4.083	1.58	10.083	4.54	16.083	1.78	22.08	1.19
4.167	1.58	10.167	4.54	16.167	1.78	22.17	1.19
4.250	1.58	10.250	4.54	16.250	1.78	22.25	1.19
4.333	1.58	10.333	4.54	16.333	1.78	22.33	1.19
4.417	1.58	10.417	4.54	16.417	1.78	22.42	1.19
4.500	1.58	10.500	4.54	16.500	1.78	22.50	1.19
4.583	1.58	10.583	6.12	16.583	1.78	22.58	1.19
4.667	1.58	10.667	6.12	16.667	1.78	22.67	1.19
4.750	1.58	10.750	6.12	16.750	1.78	22.75	1.19
4.833	1.58	10.833	6.12	16.833	1.78	22.83	1.19
4.917	1.58	10.917	6.12	16.917	1.78	22.92	1.19
5.000	1.58	11.000	6.12	17.000	1.78	23.00	1.19
5.083	1.58	11.083	9.48	17.083	1.78	23.08	1.19
5.167	1.58	11.167	9.48	17.167	1.78	23.17	1.19
5.250	1.58	11.250	9.48	17.250	1.78	23.25	1.19
5.333	1.58	11.333	9.48	17.333	1.78	23.33	1.19
5.417	1.58	11.417	9.48	17.417	1.78	23.42	1.19
5.500	1.58	11.500	9.48	17.500	1.78	23.50	1.19
5.583	1.58	11.583	29.24	17.583	1.78	23.58	1.19
5.667	1.58	11.667	29.24	17.667	1.78	23.67	1.19
5.750	1.58	11.750	29.24	17.750	1.78	23.75	1.19
5.833	1.58	11.833	120.90	17.833	1.78	23.83	1.19
5.917	1.58	11.917	120.91	17.917	1.78	23.92	1.19
6.000	1.58	12.000	120.91	18.000	1.78	24.00	1.18

Max.Eff.Inten.(mm/hr)=	120.91	38.01		
over (min)	5.00	15.00		
Storage Coeff. (min)=	2.19 (ii)	12.58 (ii)		
Unit Hyd. Tpeak (min)=	5.00	15.00		
Unit Hyd. peak (cms)=	0.31	0.08		
			TOTALS	
PEAK FLOW (cms)=	0.09	0.06	0.136 (iii)	
TIME TO PEAK (hrs)=	12.00	12.08	12.00	
RUNOFF VOLUME (mm)=	96.78	28.36	43.40	
TOTAL RAINFALL (mm)=	98.78	98.78	98.78	
RUNOFF COEFFICIENT =	0.98	0.29	0.44	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.

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

CALIB		
STANDHYD (3100)	Area (ha)= 2.89	
ID= 1 DT= 1.0 min	Total Imp(%)= 68.00	Dir. Conn.(%)= 39.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	1.09	6.017	1.78	12.017	14.30	18.02	1.78
0.033	1.09	6.033	1.78	12.033	14.22	18.03	1.78
0.050	1.09	6.050	1.78	12.050	14.22	18.05	1.78
0.067	1.09	6.067	1.78	12.067	14.22	18.07	1.78
0.083	1.09	6.083	1.78	12.083	14.22	18.08	1.78
0.100	1.09	6.100	1.78	12.100	14.22	18.10	1.78
0.117	1.09	6.117	1.78	12.117	14.22	18.12	1.78
0.133	1.09	6.133	1.78	12.133	14.22	18.13	1.78
0.150	1.09	6.150	1.78	12.150	14.22	18.15	1.78
0.167	1.09	6.167	1.78	12.167	14.22	18.17	1.78
0.183	1.09	6.183	1.78	12.183	14.22	18.18	1.78
0.200	1.09	6.200	1.78	12.200	14.22	18.20	1.78
0.217	1.09	6.217	1.78	12.217	14.22	18.22	1.78
0.233	1.09	6.233	1.78	12.233	14.22	18.23	1.78
0.250	1.09	6.250	1.78	12.250	14.22	18.25	1.78
0.267	1.09	6.267	1.78	12.267	14.22	18.27	1.78
0.283	1.09	6.283	1.78	12.283	14.22	18.28	1.78
0.300	1.09	6.300	1.78	12.300	14.22	18.30	1.78
0.317	1.09	6.317	1.78	12.317	14.22	18.32	1.78
0.333	1.09	6.333	1.78	12.333	14.22	18.33	1.78
0.350	1.09	6.350	1.78	12.350	14.22	18.35	1.78
0.367	1.09	6.367	1.78	12.367	14.22	18.37	1.78
0.383	1.09	6.383	1.78	12.383	14.22	18.38	1.78
0.400	1.09	6.400	1.78	12.400	14.22	18.40	1.78
0.417	1.09	6.417	1.78	12.417	14.22	18.42	1.78
0.433	1.09	6.433	1.78	12.433	14.22	18.43	1.78
0.450	1.09	6.450	1.78	12.450	14.22	18.45	1.78
0.467	1.09	6.467	1.78	12.467	14.22	18.47	1.78
0.483	1.09	6.483	1.78	12.483	14.22	18.48	1.78
0.500	1.09	6.500	1.78	12.500	14.22	18.50	1.78
0.517	1.09	6.517	1.78	12.517	7.32	18.52	1.78
0.533	1.09	6.533	1.78	12.533	7.31	18.53	1.78
0.550	1.09	6.550	1.78	12.550	7.31	18.55	1.78
0.567	1.09	6.567	1.78	12.567	7.31	18.57	1.78
0.583	1.09	6.583	1.78	12.583	7.31	18.58	1.78
0.600	1.09	6.600	1.78	12.600	7.31	18.60	1.78
0.617	1.09	6.617	1.78	12.617	7.31	18.62	1.78
0.633	1.09	6.633	1.78	12.633	7.31	18.63	1.78
0.650	1.09	6.650	1.78	12.650	7.31	18.65	1.78
0.667	1.09	6.667	1.78	12.667	7.31	18.67	1.78
0.683	1.09	6.683	1.78	12.683	7.31	18.68	1.78
0.700	1.09	6.700	1.78	12.700	7.31	18.70	1.78
0.717	1.09	6.717	1.78	12.717	7.31	18.72	1.78
0.733	1.09	6.733	1.78	12.733	7.31	18.73	1.78
0.750	1.09	6.750	1.78	12.750	7.31	18.75	1.78
0.767	1.09	6.767	1.78	12.767	7.31	18.77	1.78
0.783	1.09	6.783	1.78	12.783	7.31	18.78	1.78
0.800	1.09	6.800	1.78	12.800	7.31	18.80	1.78
0.817	1.09	6.817	1.78	12.817	7.31	18.82	1.78
0.833	1.09	6.833	1.78	12.833	7.31	18.83	1.78
0.850	1.09	6.850	1.78	12.850	7.31	18.85	1.78
0.867	1.09	6.867	1.78	12.867	7.31	18.87	1.78
0.883	1.09	6.883	1.78	12.883	7.31	18.88	1.78
0.900	1.09	6.900	1.78	12.900	7.31	18.90	1.78
0.917	1.09	6.917	1.78	12.917	7.31	18.92	1.78
0.933	1.09	6.933	1.78	12.933	7.31	18.93	1.78
0.950	1.09	6.950	1.78	12.950	7.31	18.95	1.78
0.967	1.09	6.967	1.78	12.967	7.31	18.97	1.78
0.983	1.09	6.983	1.78	12.983	7.31	18.98	1.78
1.000	1.09	7.000	1.78	13.000	7.31	19.00	1.78
1.017	1.09	7.017	2.17	13.017	5.34	19.02	1.78
1.033	1.09	7.033	2.17	13.033	5.33	19.03	1.78
1.050	1.09	7.050	2.17	13.050	5.33	19.05	1.78

1.067	1.09	7.067	2.17	13.067	5.33	19.07	1.78
1.083	1.09	7.083	2.17	13.083	5.33	19.08	1.78
1.100	1.09	7.100	2.17	13.100	5.33	19.10	1.78
1.117	1.09	7.117	2.17	13.117	5.33	19.12	1.78
1.133	1.09	7.133	2.17	13.133	5.33	19.13	1.78
1.150	1.09	7.150	2.17	13.150	5.33	19.15	1.78
1.167	1.09	7.167	2.17	13.167	5.33	19.17	1.78
1.183	1.09	7.183	2.17	13.183	5.33	19.18	1.78
1.200	1.09	7.200	2.17	13.200	5.33	19.20	1.78
1.217	1.09	7.217	2.17	13.217	5.33	19.22	1.78
1.233	1.09	7.233	2.17	13.233	5.33	19.23	1.78
1.250	1.09	7.250	2.17	13.250	5.33	19.25	1.78
1.267	1.09	7.267	2.17	13.267	5.33	19.27	1.78
1.283	1.09	7.283	2.17	13.283	5.33	19.28	1.78
1.300	1.09	7.300	2.17	13.300	5.33	19.30	1.78
1.317	1.09	7.317	2.17	13.317	5.33	19.32	1.78
1.333	1.09	7.333	2.17	13.333	5.33	19.33	1.78
1.350	1.09	7.350	2.17	13.350	5.33	19.35	1.78
1.367	1.09	7.367	2.17	13.367	5.33	19.37	1.78
1.383	1.09	7.383	2.17	13.383	5.33	19.38	1.78
1.400	1.09	7.400	2.17	13.400	5.33	19.40	1.78
1.417	1.09	7.417	2.17	13.417	5.33	19.42	1.78
1.433	1.09	7.433	2.17	13.433	5.33	19.43	1.78
1.450	1.09	7.450	2.17	13.450	5.33	19.45	1.78
1.467	1.09	7.467	2.17	13.467	5.33	19.47	1.78
1.483	1.09	7.483	2.17	13.483	5.33	19.48	1.78
1.500	1.09	7.500	2.17	13.500	5.33	19.50	1.78
1.517	1.09	7.517	2.17	13.517	4.15	19.52	1.78
1.533	1.09	7.533	2.17	13.533	4.15	19.53	1.78
1.550	1.09	7.550	2.17	13.550	4.15	19.55	1.78
1.567	1.09	7.567	2.17	13.567	4.15	19.57	1.78
1.583	1.09	7.583	2.17	13.583	4.15	19.58	1.78
1.600	1.09	7.600	2.17	13.600	4.15	19.60	1.78
1.617	1.09	7.617	2.17	13.617	4.15	19.62	1.78
1.633	1.09	7.633	2.17	13.633	4.15	19.63	1.78
1.650	1.09	7.650	2.17	13.650	4.15	19.65	1.78
1.667	1.09	7.667	2.17	13.667	4.15	19.67	1.78
1.683	1.09	7.683	2.17	13.683	4.15	19.68	1.78
1.700	1.09	7.700	2.17	13.700	4.15	19.70	1.78
1.717	1.09	7.717	2.17	13.717	4.15	19.72	1.78
1.733	1.09	7.733	2.17	13.733	4.15	19.73	1.78
1.750	1.09	7.750	2.17	13.750	4.15	19.75	1.78
1.767	1.09	7.767	2.17	13.767	4.15	19.77	1.78
1.783	1.09	7.783	2.17	13.783	4.15	19.78	1.78
1.800	1.09	7.800	2.17	13.800	4.15	19.80	1.78
1.817	1.09	7.817	2.17	13.817	4.15	19.82	1.78
1.833	1.09	7.833	2.17	13.833	4.15	19.83	1.78
1.850	1.09	7.850	2.17	13.850	4.15	19.85	1.78
1.867	1.09	7.867	2.17	13.867	4.15	19.87	1.78
1.883	1.09	7.883	2.17	13.883	4.15	19.88	1.78
1.900	1.09	7.900	2.17	13.900	4.15	19.90	1.78
1.917	1.09	7.917	2.17	13.917	4.15	19.92	1.78
1.933	1.09	7.933	2.17	13.933	4.15	19.93	1.78
1.950	1.09	7.950	2.17	13.950	4.15	19.95	1.78
1.967	1.09	7.967	2.17	13.967	4.15	19.97	1.78
1.983	1.09	7.983	2.17	13.983	4.15	19.98	1.78
2.000	1.09	8.000	2.17	14.000	4.15	20.00	1.78
2.017	1.28	8.017	2.57	14.017	2.97	20.02	1.19
2.033	1.28	8.033	2.57	14.033	2.96	20.03	1.19
2.050	1.28	8.050	2.57	14.050	2.96	20.05	1.19
2.067	1.28	8.067	2.57	14.067	2.96	20.07	1.19
2.083	1.28	8.083	2.57	14.083	2.96	20.08	1.19
2.100	1.28	8.100	2.57	14.100	2.96	20.10	1.19
2.117	1.28	8.117	2.57	14.117	2.96	20.12	1.19
2.133	1.28	8.133	2.57	14.133	2.96	20.13	1.19
2.150	1.28	8.150	2.57	14.150	2.96	20.15	1.19
2.167	1.28	8.167	2.57	14.167	2.96	20.17	1.19
2.183	1.28	8.183	2.57	14.183	2.96	20.18	1.19
2.200	1.28	8.200	2.57	14.200	2.96	20.20	1.19
2.217	1.28	8.217	2.57	14.217	2.96	20.22	1.19
2.233	1.28	8.233	2.57	14.233	2.96	20.23	1.19
2.250	1.28	8.250	2.57	14.250	2.96	20.25	1.19
2.267	1.28	8.267	2.57	14.267	2.96	20.27	1.19
2.283	1.28	8.283	2.57	14.283	2.96	20.28	1.19
2.300	1.28	8.300	2.57	14.300	2.96	20.30	1.19
2.317	1.28	8.317	2.57	14.317	2.96	20.32	1.19
2.333	1.28	8.333	2.57	14.333	2.96	20.33	1.19
2.350	1.28	8.350	2.57	14.350	2.96	20.35	1.19
2.367	1.28	8.367	2.57	14.367	2.96	20.37	1.19
2.383	1.28	8.383	2.57	14.383	2.96	20.38	1.19
2.400	1.28	8.400	2.57	14.400	2.96	20.40	1.19
2.417	1.28	8.417	2.57	14.417	2.96	20.42	1.19
2.433	1.28	8.433	2.57	14.433	2.96	20.43	1.19
2.450	1.28	8.450	2.57	14.450	2.96	20.45	1.19

2.467	1.28	8.467	2.57	14.467	2.96	20.47	1.19
2.483	1.28	8.483	2.57	14.483	2.96	20.48	1.19
2.500	1.28	8.500	2.57	14.500	2.96	20.50	1.19
2.517	1.28	8.517	2.77	14.517	2.96	20.52	1.19
2.533	1.28	8.533	2.77	14.533	2.96	20.53	1.19
2.550	1.28	8.550	2.77	14.550	2.96	20.55	1.19
2.567	1.28	8.567	2.77	14.567	2.96	20.57	1.19
2.583	1.28	8.583	2.77	14.583	2.96	20.58	1.19
2.600	1.28	8.600	2.77	14.600	2.96	20.60	1.19
2.617	1.28	8.617	2.77	14.617	2.96	20.62	1.19
2.633	1.28	8.633	2.77	14.633	2.96	20.63	1.19
2.650	1.28	8.650	2.77	14.650	2.96	20.65	1.19
2.667	1.28	8.667	2.77	14.667	2.96	20.67	1.19
2.683	1.28	8.683	2.77	14.683	2.96	20.68	1.19
2.700	1.28	8.700	2.77	14.700	2.96	20.70	1.19
2.717	1.28	8.717	2.77	14.717	2.96	20.72	1.19
2.733	1.28	8.733	2.77	14.733	2.96	20.73	1.19
2.750	1.28	8.750	2.77	14.750	2.96	20.75	1.19
2.767	1.28	8.767	2.77	14.767	2.96	20.77	1.19
2.783	1.28	8.783	2.77	14.783	2.96	20.78	1.19
2.800	1.28	8.800	2.77	14.800	2.96	20.80	1.19
2.817	1.28	8.817	2.77	14.817	2.96	20.82	1.19
2.833	1.28	8.833	2.77	14.833	2.96	20.83	1.19
2.850	1.28	8.850	2.77	14.850	2.96	20.85	1.19
2.867	1.28	8.867	2.77	14.867	2.96	20.87	1.19
2.883	1.28	8.883	2.77	14.883	2.96	20.88	1.19
2.900	1.28	8.900	2.77	14.900	2.96	20.90	1.19
2.917	1.28	8.917	2.77	14.917	2.96	20.92	1.19
2.933	1.28	8.933	2.77	14.933	2.96	20.93	1.19
2.950	1.28	8.950	2.77	14.950	2.96	20.95	1.19
2.967	1.28	8.967	2.77	14.967	2.96	20.97	1.19
2.983	1.28	8.983	2.77	14.983	2.96	20.98	1.19
3.000	1.28	9.000	2.77	15.000	2.96	21.00	1.19
3.017	1.28	9.017	3.16	15.017	2.96	21.02	1.19
3.033	1.28	9.033	3.16	15.033	2.96	21.03	1.19
3.050	1.28	9.050	3.16	15.050	2.96	21.05	1.19
3.067	1.28	9.067	3.16	15.067	2.96	21.07	1.19
3.083	1.28	9.083	3.16	15.083	2.96	21.08	1.19
3.100	1.28	9.100	3.16	15.100	2.96	21.10	1.19
3.117	1.28	9.117	3.16	15.117	2.96	21.12	1.19
3.133	1.28	9.133	3.16	15.133	2.96	21.13	1.19
3.150	1.28	9.150	3.16	15.150	2.96	21.15	1.19
3.167	1.28	9.167	3.16	15.167	2.96	21.17	1.19
3.183	1.28	9.183	3.16	15.183	2.96	21.18	1.19
3.200	1.28	9.200	3.16	15.200	2.96	21.20	1.19
3.217	1.28	9.217	3.16	15.217	2.96	21.22	1.19
3.233	1.28	9.233	3.16	15.233	2.96	21.23	1.19
3.250	1.28	9.250	3.16	15.250	2.96	21.25	1.19
3.267	1.28	9.267	3.16	15.267	2.96	21.27	1.19
3.283	1.28	9.283	3.16	15.283	2.96	21.28	1.19
3.300	1.28	9.300	3.16	15.300	2.96	21.30	1.19
3.317	1.28	9.317	3.16	15.317	2.96	21.32	1.19
3.333	1.28	9.333	3.16	15.333	2.96	21.33	1.19
3.350	1.28	9.350	3.16	15.350	2.96	21.35	1.19
3.367	1.28	9.367	3.16	15.367	2.96	21.37	1.19
3.383	1.28	9.383	3.16	15.383	2.96	21.38	1.19
3.400	1.28	9.400	3.16	15.400	2.96	21.40	1.19
3.417	1.28	9.417	3.16	15.417	2.96	21.42	1.19
3.433	1.28	9.433	3.16	15.433	2.96	21.43	1.19
3.450	1.28	9.450	3.16	15.450	2.96	21.45	1.19
3.467	1.28	9.467	3.16	15.467	2.96	21.47	1.19
3.483	1.28	9.483	3.16	15.483	2.96	21.48	1.19
3.500	1.28	9.500	3.16	15.500	2.96	21.50	1.19
3.517	1.28	9.517	3.56	15.517	2.96	21.52	1.19
3.533	1.28	9.533	3.56	15.533	2.96	21.53	1.19
3.550	1.28	9.550	3.56	15.550	2.96	21.55	1.19
3.567	1.28	9.567	3.56	15.567	2.96	21.57	1.19
3.583	1.28	9.583	3.56	15.583	2.96	21.58	1.19
3.600	1.28	9.600	3.56	15.600	2.96	21.60	1.19
3.617	1.28	9.617	3.56	15.617	2.96	21.62	1.19
3.633	1.28	9.633	3.56	15.633	2.96	21.63	1.19
3.650	1.28	9.650	3.56	15.650	2.96	21.65	1.19
3.667	1.28	9.667	3.56	15.667	2.96	21.67	1.19
3.683	1.28	9.683	3.56	15.683	2.96	21.68	1.19
3.700	1.28	9.700	3.56	15.700	2.96	21.70	1.19
3.717	1.28	9.717	3.56	15.717	2.96	21.72	1.19
3.733	1.28	9.733	3.56	15.733	2.96	21.73	1.19
3.750	1.28	9.750	3.56	15.750	2.96	21.75	1.19
3.767	1.28	9.767	3.56	15.767	2.96	21.77	1.19
3.783	1.28	9.783	3.56	15.783	2.96	21.78	1.19
3.800	1.28	9.800	3.56	15.800	2.96	21.80	1.19
3.817	1.28	9.817	3.56	15.817	2.96	21.82	1.19
3.833	1.28	9.833	3.56	15.833	2.96	21.83	1.19
3.850	1.28	9.850	3.56	15.850	2.96	21.85	1.19

3.867	1.28	9.867	3.56	15.867	2.96	21.87	1.19
3.883	1.28	9.883	3.56	15.883	2.96	21.88	1.19
3.900	1.28	9.900	3.56	15.900	2.96	21.90	1.19
3.917	1.28	9.917	3.56	15.917	2.96	21.92	1.19
3.933	1.28	9.933	3.56	15.933	2.96	21.93	1.19
3.950	1.28	9.950	3.56	15.950	2.96	21.95	1.19
3.967	1.28	9.967	3.56	15.967	2.96	21.97	1.19
3.983	1.28	9.983	3.56	15.983	2.96	21.98	1.19
4.000	1.28	10.000	3.56	16.000	2.96	22.00	1.19
4.017	1.58	10.017	4.54	16.017	1.78	22.02	1.19
4.033	1.58	10.033	4.54	16.033	1.78	22.03	1.19
4.050	1.58	10.050	4.54	16.050	1.78	22.05	1.19
4.067	1.58	10.067	4.54	16.067	1.78	22.07	1.19
4.083	1.58	10.083	4.54	16.083	1.78	22.08	1.19
4.100	1.58	10.100	4.54	16.100	1.78	22.10	1.19
4.117	1.58	10.117	4.54	16.117	1.78	22.12	1.19
4.133	1.58	10.133	4.54	16.133	1.78	22.13	1.19
4.150	1.58	10.150	4.54	16.150	1.78	22.15	1.19
4.167	1.58	10.167	4.54	16.167	1.78	22.17	1.19
4.183	1.58	10.183	4.54	16.183	1.78	22.18	1.19
4.200	1.58	10.200	4.54	16.200	1.78	22.20	1.19
4.217	1.58	10.217	4.54	16.217	1.78	22.22	1.19
4.233	1.58	10.233	4.54	16.233	1.78	22.23	1.19
4.250	1.58	10.250	4.54	16.250	1.78	22.25	1.19
4.267	1.58	10.267	4.54	16.267	1.78	22.27	1.19
4.283	1.58	10.283	4.54	16.283	1.78	22.28	1.19
4.300	1.58	10.300	4.54	16.300	1.78	22.30	1.19
4.317	1.58	10.317	4.54	16.317	1.78	22.32	1.19
4.333	1.58	10.333	4.54	16.333	1.78	22.33	1.19
4.350	1.58	10.350	4.54	16.350	1.78	22.35	1.19
4.367	1.58	10.367	4.54	16.367	1.78	22.37	1.19
4.383	1.58	10.383	4.54	16.383	1.78	22.38	1.19
4.400	1.58	10.400	4.54	16.400	1.78	22.40	1.19
4.417	1.58	10.417	4.54	16.417	1.78	22.42	1.19
4.433	1.58	10.433	4.54	16.433	1.78	22.43	1.19
4.450	1.58	10.450	4.54	16.450	1.78	22.45	1.19
4.467	1.58	10.467	4.54	16.467	1.78	22.47	1.19
4.483	1.58	10.483	4.54	16.483	1.78	22.48	1.19
4.500	1.58	10.500	4.54	16.500	1.78	22.50	1.19
4.517	1.58	10.517	6.12	16.517	1.78	22.52	1.19
4.533	1.58	10.533	6.12	16.533	1.78	22.53	1.19
4.550	1.58	10.550	6.12	16.550	1.78	22.55	1.19
4.567	1.58	10.567	6.12	16.567	1.78	22.57	1.19
4.583	1.58	10.583	6.12	16.583	1.78	22.58	1.19
4.600	1.58	10.600	6.12	16.600	1.78	22.60	1.19
4.617	1.58	10.617	6.12	16.617	1.78	22.62	1.19
4.633	1.58	10.633	6.12	16.633	1.78	22.63	1.19
4.650	1.58	10.650	6.12	16.650	1.78	22.65	1.19
4.667	1.58	10.667	6.12	16.667	1.78	22.67	1.19
4.683	1.58	10.683	6.12	16.683	1.78	22.68	1.19
4.700	1.58	10.700	6.12	16.700	1.78	22.70	1.19
4.717	1.58	10.717	6.12	16.717	1.78	22.72	1.19
4.733	1.58	10.733	6.12	16.733	1.78	22.73	1.19
4.750	1.58	10.750	6.12	16.750	1.78	22.75	1.19
4.767	1.58	10.767	6.12	16.767	1.78	22.77	1.19
4.783	1.58	10.783	6.12	16.783	1.78	22.78	1.19
4.800	1.58	10.800	6.12	16.800	1.78	22.80	1.19
4.817	1.58	10.817	6.12	16.817	1.78	22.82	1.19
4.833	1.58	10.833	6.12	16.833	1.78	22.83	1.19
4.850	1.58	10.850	6.12	16.850	1.78	22.85	1.19
4.867	1.58	10.867	6.12	16.867	1.78	22.87	1.19
4.883	1.58	10.883	6.12	16.883	1.78	22.88	1.19
4.900	1.58	10.900	6.12	16.900	1.78	22.90	1.19
4.917	1.58	10.917	6.12	16.917	1.78	22.92	1.19
4.933	1.58	10.933	6.12	16.933	1.78	22.93	1.19
4.950	1.58	10.950	6.12	16.950	1.78	22.95	1.19
4.967	1.58	10.967	6.12	16.967	1.78	22.97	1.19
4.983	1.58	10.983	6.12	16.983	1.78	22.98	1.19
5.000	1.58	11.000	6.13	17.000	1.78	23.00	1.19
5.017	1.58	11.017	9.48	17.017	1.78	23.02	1.19
5.033	1.58	11.033	9.48	17.033	1.78	23.03	1.19
5.050	1.58	11.050	9.48	17.050	1.78	23.05	1.19
5.067	1.58	11.067	9.48	17.067	1.78	23.07	1.19
5.083	1.58	11.083	9.48	17.083	1.78	23.08	1.19
5.100	1.58	11.100	9.48	17.100	1.78	23.10	1.19
5.117	1.58	11.117	9.48	17.117	1.78	23.12	1.19
5.133	1.58	11.133	9.48	17.133	1.78	23.13	1.19
5.150	1.58	11.150	9.48	17.150	1.78	23.15	1.19
5.167	1.58	11.167	9.48	17.167	1.78	23.17	1.19
5.183	1.58	11.183	9.48	17.183	1.78	23.18	1.19
5.200	1.58	11.200	9.48	17.200	1.78	23.20	1.19
5.217	1.58	11.217	9.48	17.217	1.78	23.22	1.19
5.233	1.58	11.233	9.48	17.233	1.78	23.23	1.19
5.250	1.58	11.250	9.48	17.250	1.78	23.25	1.19

5.267	1.58	11.267	9.48	17.267	1.78	23.27	1.19
5.283	1.58	11.283	9.48	17.283	1.78	23.28	1.19
5.300	1.58	11.300	9.48	17.300	1.78	23.30	1.19
5.317	1.58	11.317	9.48	17.317	1.78	23.32	1.19
5.333	1.58	11.333	9.48	17.333	1.78	23.33	1.19
5.350	1.58	11.350	9.48	17.350	1.78	23.35	1.19
5.367	1.58	11.367	9.48	17.367	1.78	23.37	1.19
5.383	1.58	11.383	9.48	17.383	1.78	23.38	1.19
5.400	1.58	11.400	9.48	17.400	1.78	23.40	1.19
5.417	1.58	11.417	9.48	17.417	1.78	23.42	1.19
5.433	1.58	11.433	9.48	17.433	1.78	23.43	1.19
5.450	1.58	11.450	9.48	17.450	1.78	23.45	1.19
5.467	1.58	11.467	9.48	17.467	1.78	23.47	1.19
5.483	1.58	11.483	9.48	17.483	1.78	23.48	1.19
5.500	1.58	11.500	9.48	17.500	1.78	23.50	1.19
5.517	1.58	11.517	29.23	17.517	1.78	23.52	1.19
5.533	1.58	11.533	29.24	17.533	1.78	23.53	1.19
5.550	1.58	11.550	29.24	17.550	1.78	23.55	1.19
5.567	1.58	11.567	29.24	17.567	1.78	23.57	1.19
5.583	1.58	11.583	29.24	17.583	1.78	23.58	1.19
5.600	1.58	11.600	29.24	17.600	1.78	23.60	1.19
5.617	1.58	11.617	29.24	17.617	1.78	23.62	1.19
5.633	1.58	11.633	29.24	17.633	1.78	23.63	1.19
5.650	1.58	11.650	29.24	17.650	1.78	23.65	1.19
5.667	1.58	11.667	29.24	17.667	1.78	23.67	1.19
5.683	1.58	11.683	29.24	17.683	1.78	23.68	1.19
5.700	1.58	11.700	29.24	17.700	1.78	23.70	1.19
5.717	1.58	11.717	29.24	17.717	1.78	23.72	1.19
5.733	1.58	11.733	29.24	17.733	1.78	23.73	1.19
5.750	1.58	11.750	29.24	17.750	1.78	23.75	1.19
5.767	1.58	11.767	120.86	17.767	1.78	23.77	1.19
5.783	1.58	11.783	120.91	17.783	1.78	23.78	1.19
5.800	1.58	11.800	120.91	17.800	1.78	23.80	1.19
5.817	1.58	11.817	120.91	17.817	1.78	23.82	1.19
5.833	1.58	11.833	120.91	17.833	1.78	23.83	1.19
5.850	1.58	11.850	120.91	17.850	1.78	23.85	1.19
5.867	1.58	11.867	120.91	17.867	1.78	23.87	1.19
5.883	1.58	11.883	120.91	17.883	1.78	23.88	1.19
5.900	1.58	11.900	120.91	17.900	1.78	23.90	1.19
5.917	1.58	11.917	120.91	17.917	1.78	23.92	1.19
5.933	1.58	11.933	120.91	17.933	1.78	23.93	1.19
5.950	1.58	11.950	120.91	17.950	1.78	23.95	1.19
5.967	1.58	11.967	120.91	17.967	1.78	23.97	1.19
5.983	1.58	11.983	120.91	17.983	1.78	23.98	1.19
6.000	1.58	12.000	120.91	18.000	1.78	24.00	1.19

Max.Eff.Inten.(mm/hr)=	120.91	122.71	
over (min)	5.00	9.00	
Storage Coeff. (min)=	2.88 (ii)	8.93 (ii)	
Unit Hyd. Tpeak (min)=	5.00	9.00	
Unit Hyd. peak (cms)=	0.31	0.13	
			TOTALS
PEAK FLOW (cms)=	0.37	0.23	0.586 (iii)
TIME TO PEAK (hrs)=	12.00	12.05	12.00
RUNOFF VOLUME (mm)=	96.77	44.09	64.64
TOTAL RAINFALL (mm)=	98.78	98.78	98.78
RUNOFF COEFFICIENT =	0.98	0.45	0.65

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0097) | 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (2101):	17.31	3.213	12.00	64.05
+ ID2= 2 (3100):	2.89	0.586	12.00	64.64
ID = 3 (0097):	20.20	3.799	12.00	64.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0097) | 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0097):	20.20	3.799	12.00	64.14

```
      + ID2= 2 (  0096):     1.16   0.136    12.00    43.40
        ================================================
        ID = 1 (  0097):    21.36   3.935    12.00    63.01

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.0400      0.6360
                           0.0160      0.1070   |    0.0790      0.7870
                           0.0240      0.2260   |    0.2900      0.9450
                           0.0300      0.3550   |    0.4710      1.0430
                           0.0350      0.4920   |    0.0000      0.0000

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0097)     21.360     3.935     12.00      63.01
   OUTFLOW: ID= 1 (  0001)     21.360     0.211     13.67      34.97

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.35
                  TIME SHIFT OF PEAK FLOW         (min)=100.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.8856

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2102)|   Area    (ha)=   0.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.14         0.07
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      37.42        40.00
     Mannings n           =      0.013        0.250

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


                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    1.09 | 6.083    1.78 |12.083   14.24 | 18.08    1.78
 0.167    1.09 | 6.167    1.78 |12.167   14.22 | 18.17    1.78
 0.250    1.09 | 6.250    1.78 |12.250   14.22 | 18.25    1.78
 0.333    1.09 | 6.333    1.78 |12.333   14.22 | 18.33    1.78
 0.417    1.09 | 6.417    1.78 |12.417   14.22 | 18.42    1.78
 0.500    1.09 | 6.500    1.78 |12.500   14.22 | 18.50    1.78
 0.583    1.09 | 6.583    1.78 |12.583    7.31 | 18.58    1.78
 0.667    1.09 | 6.667    1.78 |12.667    7.31 | 18.67    1.78
 0.750    1.09 | 6.750    1.78 |12.750    7.31 | 18.75    1.78
 0.833    1.09 | 6.833    1.78 |12.833    7.31 | 18.83    1.78
 0.917    1.09 | 6.917    1.78 |12.917    7.31 | 18.92    1.78
 1.000    1.09 | 7.000    1.78 |13.000    7.31 | 19.00    1.78
 1.083    1.09 | 7.083    2.17 |13.083    5.33 | 19.08    1.78
 1.167    1.09 | 7.167    2.17 |13.167    5.33 | 19.17    1.78
 1.250    1.09 | 7.250    2.17 |13.250    5.33 | 19.25    1.78
 1.333    1.09 | 7.333    2.17 |13.333    5.33 | 19.33    1.78
 1.417    1.09 | 7.417    2.17 |13.417    5.33 | 19.42    1.78
 1.500    1.09 | 7.500    2.17 |13.500    5.33 | 19.50    1.78
 1.583    1.09 | 7.583    2.17 |13.583    4.15 | 19.58    1.78
 1.667    1.09 | 7.667    2.17 |13.667    4.15 | 19.67    1.78
 1.750    1.09 | 7.750    2.17 |13.750    4.15 | 19.75    1.78
 1.833    1.09 | 7.833    2.17 |13.833    4.15 | 19.83    1.78
 1.917    1.09 | 7.917    2.17 |13.917    4.15 | 19.92    1.78
 2.000    1.09 | 8.000    2.17 |14.000    4.15 | 20.00    1.78
 2.083    1.28 | 8.083    2.57 |14.083    2.96 | 20.08    1.19
 2.167    1.28 | 8.167    2.57 |14.167    2.96 | 20.17    1.19
 2.250    1.28 | 8.250    2.57 |14.250    2.96 | 20.25    1.19
 2.333    1.28 | 8.333    2.57 |14.333    2.96 | 20.33    1.19
 2.417    1.28 | 8.417    2.57 |14.417    2.96 | 20.42    1.19
 2.500    1.28 | 8.500    2.57 |14.500    2.96 | 20.50    1.19
 2.583    1.28 | 8.583    2.77 |14.583    2.96 | 20.58    1.19
 2.667    1.28 | 8.667    2.77 |14.667    2.96 | 20.67    1.19
 2.750    1.28 | 8.750    2.77 |14.750    2.96 | 20.75    1.19
 2.833    1.28 | 8.833    2.77 |14.833    2.96 | 20.83    1.19
 2.917    1.28 | 8.917    2.77 |14.917    2.96 | 20.92    1.19
 3.000    1.28 | 9.000    2.77 |15.000    2.96 | 21.00    1.19
 3.083    1.28 | 9.083    3.16 |15.083    2.96 | 21.08    1.19
 3.167    1.28 | 9.167    3.16 |15.167    2.96 | 21.17    1.19
 3.250    1.28 | 9.250    3.16 |15.250    2.96 | 21.25    1.19
```

3.333	1.28	9.333	3.16	15.333	2.96	21.33	1.19
3.417	1.28	9.417	3.16	15.417	2.96	21.42	1.19
3.500	1.28	9.500	3.16	15.500	2.96	21.50	1.19
3.583	1.28	9.583	3.56	15.583	2.96	21.58	1.19
3.667	1.28	9.667	3.56	15.667	2.96	21.67	1.19
3.750	1.28	9.750	3.56	15.750	2.96	21.75	1.19
3.833	1.28	9.833	3.56	15.833	2.96	21.83	1.19
3.917	1.28	9.917	3.56	15.917	2.96	21.92	1.19
4.000	1.28	10.000	3.56	16.000	2.96	22.00	1.19
4.083	1.58	10.083	4.54	16.083	1.78	22.08	1.19
4.167	1.58	10.167	4.54	16.167	1.78	22.17	1.19
4.250	1.58	10.250	4.54	16.250	1.78	22.25	1.19
4.333	1.58	10.333	4.54	16.333	1.78	22.33	1.19
4.417	1.58	10.417	4.54	16.417	1.78	22.42	1.19
4.500	1.58	10.500	4.54	16.500	1.78	22.50	1.19
4.583	1.58	10.583	6.12	16.583	1.78	22.58	1.19
4.667	1.58	10.667	6.12	16.667	1.78	22.67	1.19
4.750	1.58	10.750	6.12	16.750	1.78	22.75	1.19
4.833	1.58	10.833	6.12	16.833	1.78	22.83	1.19
4.917	1.58	10.917	6.12	16.917	1.78	22.92	1.19
5.000	1.58	11.000	6.12	17.000	1.78	23.00	1.19
5.083	1.58	11.083	9.48	17.083	1.78	23.08	1.19
5.167	1.58	11.167	9.48	17.167	1.78	23.17	1.19
5.250	1.58	11.250	9.48	17.250	1.78	23.25	1.19
5.333	1.58	11.333	9.48	17.333	1.78	23.33	1.19
5.417	1.58	11.417	9.48	17.417	1.78	23.42	1.19
5.500	1.58	11.500	9.48	17.500	1.78	23.50	1.19
5.583	1.58	11.583	29.24	17.583	1.78	23.58	1.19
5.667	1.58	11.667	29.24	17.667	1.78	23.67	1.19
5.750	1.58	11.750	29.24	17.750	1.78	23.75	1.19
5.833	1.58	11.833	120.90	17.833	1.78	23.83	1.19
5.917	1.58	11.917	120.91	17.917	1.78	23.92	1.19
6.000	1.58	12.000	120.91	18.000	1.78	24.00	1.18

			TOTALS
Max.Eff.Inten.(mm/hr)=	120.91	38.01	
over (min)	5.00	15.00	
Storage Coeff. (min)=	1.31 (ii)	11.71 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.33	0.09	
PEAK FLOW (cms)=	0.05	0.01	0.050 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	96.78	28.36	72.79
TOTAL RAINFALL (mm)=	98.78	98.78	98.78
RUNOFF COEFFICIENT =	0.98	0.29	0.74

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0015)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0001):	21.36	0.211	13.67	34.97
	+ ID2= 2 (2102):	0.21	0.050	12.00	72.79
	ID = 3 (0015):	21.57	0.213	13.65	35.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:4.5 SCS II 24hr 50yr **
****

MASS STORM	Ptotal=109.35 mm

Filename: C:\Users\rbrockie\AppData\Local\Temp\913e2f46-79e8-42d3-b20d-3fb65cefc10e\8e78b838
Comments: SCS 24 HOUR TYPE II STORM DISTRIBUTION 1

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	1.20	6.00	1.97	12.00	15.75	18.00	1.97
0.25	1.20	6.25	1.97	12.25	15.75	18.25	1.97
0.50	1.20	6.50	1.97	12.50	8.09	18.50	1.97

0.75	1.20	6.75	1.97	12.75	8.09	18.75	1.97
1.00	1.20	7.00	2.41	13.00	5.90	19.00	1.97
1.25	1.20	7.25	2.41	13.25	5.90	19.25	1.97
1.50	1.20	7.50	2.41	13.50	4.59	19.50	1.97
1.75	1.20	7.75	2.41	13.75	4.59	19.75	1.97
2.00	1.42	8.00	2.84	14.00	3.28	20.00	1.31
2.25	1.42	8.25	2.84	14.25	3.28	20.25	1.31
2.50	1.42	8.50	3.06	14.50	3.28	20.50	1.31
2.75	1.42	8.75	3.06	14.75	3.28	20.75	1.31
3.00	1.42	9.00	3.50	15.00	3.28	21.00	1.31
3.25	1.42	9.25	3.50	15.25	3.28	21.25	1.31
3.50	1.42	9.50	3.94	15.50	3.28	21.50	1.31
3.75	1.42	9.75	3.94	15.75	3.28	21.75	1.31
4.00	1.75	10.00	5.03	16.00	1.97	22.00	1.31
4.25	1.75	10.25	5.03	16.25	1.97	22.25	1.31
4.50	1.75	10.50	6.78	16.50	1.97	22.50	1.31
4.75	1.75	10.75	6.78	16.75	1.97	22.75	1.31
5.00	1.75	11.00	10.50	17.00	1.97	23.00	1.31
5.25	1.75	11.25	10.50	17.25	1.97	23.25	1.31
5.50	1.75	11.50	32.37	17.50	1.97	23.50	1.31
5.75	1.75	11.75	133.84	17.75	1.97	23.75	1.31

CALIB STANDHYD (2101) ID= 1 DT= 5.0 min	Area (ha)= 17.31 Total Imp(%)= 64.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.08	6.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	339.71	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.20	6.083	1.97	12.083	15.76	18.08	1.97
0.167	1.20	6.167	1.97	12.167	15.75	18.17	1.97
0.250	1.20	6.250	1.97	12.250	15.75	18.25	1.97
0.333	1.20	6.333	1.97	12.333	15.75	18.33	1.97
0.417	1.20	6.417	1.97	12.417	15.75	18.42	1.97
0.500	1.20	6.500	1.97	12.500	15.75	18.50	1.97
0.583	1.20	6.583	1.97	12.583	8.09	18.58	1.97
0.667	1.20	6.667	1.97	12.667	8.09	18.67	1.97
0.750	1.20	6.750	1.97	12.750	8.09	18.75	1.97
0.833	1.20	6.833	1.97	12.833	8.09	18.83	1.97
0.917	1.20	6.917	1.97	12.917	8.09	18.92	1.97
1.000	1.20	7.000	1.97	13.000	8.09	19.00	1.97
1.083	1.20	7.083	2.41	13.083	5.91	19.08	1.97
1.167	1.20	7.167	2.41	13.167	5.90	19.17	1.97
1.250	1.20	7.250	2.41	13.250	5.90	19.25	1.97
1.333	1.20	7.333	2.41	13.333	5.90	19.33	1.97
1.417	1.20	7.417	2.41	13.417	5.90	19.42	1.97
1.500	1.20	7.500	2.41	13.500	5.90	19.50	1.97
1.583	1.20	7.583	2.41	13.583	4.59	19.58	1.97
1.667	1.20	7.667	2.41	13.667	4.59	19.67	1.97
1.750	1.20	7.750	2.41	13.750	4.59	19.75	1.97
1.833	1.20	7.833	2.41	13.833	4.59	19.83	1.97
1.917	1.20	7.917	2.41	13.917	4.59	19.92	1.97
2.000	1.20	8.000	2.41	14.000	4.59	20.00	1.97
2.083	1.42	8.083	2.84	14.083	3.28	20.08	1.31
2.167	1.42	8.167	2.84	14.167	3.28	20.17	1.31
2.250	1.42	8.250	2.84	14.250	3.28	20.25	1.31
2.333	1.42	8.333	2.84	14.333	3.28	20.33	1.31
2.417	1.42	8.417	2.84	14.417	3.28	20.42	1.31
2.500	1.42	8.500	2.84	14.500	3.28	20.50	1.31
2.583	1.42	8.583	3.06	14.583	3.28	20.58	1.31
2.667	1.42	8.667	3.06	14.667	3.28	20.67	1.31
2.750	1.42	8.750	3.06	14.750	3.28	20.75	1.31
2.833	1.42	8.833	3.06	14.833	3.28	20.83	1.31
2.917	1.42	8.917	3.06	14.917	3.28	20.92	1.31
3.000	1.42	9.000	3.06	15.000	3.28	21.00	1.31
3.083	1.42	9.083	3.50	15.083	3.28	21.08	1.31
3.167	1.42	9.167	3.50	15.167	3.28	21.17	1.31
3.250	1.42	9.250	3.50	15.250	3.28	21.25	1.31
3.333	1.42	9.333	3.50	15.333	3.28	21.33	1.31
3.417	1.42	9.417	3.50	15.417	3.28	21.42	1.31
3.500	1.42	9.500	3.50	15.500	3.28	21.50	1.31
3.583	1.42	9.583	3.94	15.583	3.28	21.58	1.31

3.667	1.42	9.667	3.94	15.667	3.28	21.67	1.31
3.750	1.42	9.750	3.94	15.750	3.28	21.75	1.31
3.833	1.42	9.833	3.94	15.833	3.28	21.83	1.31
3.917	1.42	9.917	3.94	15.917	3.28	21.92	1.31
4.000	1.42	10.000	3.94	16.000	3.28	22.00	1.31
4.083	1.75	10.083	5.03	16.083	1.97	22.08	1.31
4.167	1.75	10.167	5.03	16.167	1.97	22.17	1.31
4.250	1.75	10.250	5.03	16.250	1.97	22.25	1.31
4.333	1.75	10.333	5.03	16.333	1.97	22.33	1.31
4.417	1.75	10.417	5.03	16.417	1.97	22.42	1.31
4.500	1.75	10.500	5.03	16.500	1.97	22.50	1.31
4.583	1.75	10.583	6.78	16.583	1.97	22.58	1.31
4.667	1.75	10.667	6.78	16.667	1.97	22.67	1.31
4.750	1.75	10.750	6.78	16.750	1.97	22.75	1.31
4.833	1.75	10.833	6.78	16.833	1.97	22.83	1.31
4.917	1.75	10.917	6.78	16.917	1.97	22.92	1.31
5.000	1.75	11.000	6.78	17.000	1.97	23.00	1.31
5.083	1.75	11.083	10.50	17.083	1.97	23.08	1.31
5.167	1.75	11.167	10.50	17.167	1.97	23.17	1.31
5.250	1.75	11.250	10.50	17.250	1.97	23.25	1.31
5.333	1.75	11.333	10.50	17.333	1.97	23.33	1.31
5.417	1.75	11.417	10.50	17.417	1.97	23.42	1.31
5.500	1.75	11.500	10.50	17.500	1.97	23.50	1.31
5.583	1.75	11.583	32.37	17.583	1.97	23.58	1.31
5.667	1.75	11.667	32.37	17.667	1.97	23.67	1.31
5.750	1.75	11.750	32.37	17.750	1.97	23.75	1.31
5.833	1.75	11.833	133.83	17.833	1.97	23.83	1.31
5.917	1.75	11.917	133.84	17.917	1.97	23.92	1.31
6.000	1.75	12.000	133.84	18.000	1.97	24.00	1.31

Max.Eff.Inten.(mm/hr)=	133.84	107.33	
over (min)	5.00	15.00	
Storage Coeff. (min)=	4.74 (ii)	11.60 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.22	0.09	
			TOTALS
PEAK FLOW (cms)=	2.68	1.15	3.661 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	107.35	46.44	72.63
TOTAL RAINFALL (mm)=	109.35	109.35	109.35
RUNOFF COEFFICIENT =	0.98	0.42	0.66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB		
STANDHYD (0096)	Area (ha)=	1.16
ID= 1 DT= 5.0 min	Total Imp(%)=	22.00 Dir. Conn.(%)= 22.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.26	0.90
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.94	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.20	6.083	1.97	12.083	15.76	18.08	1.97
0.167	1.20	6.167	1.97	12.167	15.75	18.17	1.97
0.250	1.20	6.250	1.97	12.250	15.75	18.25	1.97
0.333	1.20	6.333	1.97	12.333	15.75	18.33	1.97
0.417	1.20	6.417	1.97	12.417	15.75	18.42	1.97
0.500	1.20	6.500	1.97	12.500	15.75	18.50	1.97
0.583	1.20	6.583	1.97	12.583	8.09	18.58	1.97
0.667	1.20	6.667	1.97	12.667	8.09	18.67	1.97
0.750	1.20	6.750	1.97	12.750	8.09	18.75	1.97
0.833	1.20	6.833	1.97	12.833	8.09	18.83	1.97
0.917	1.20	6.917	1.97	12.917	8.09	18.92	1.97
1.000	1.20	7.000	1.97	13.000	8.09	19.00	1.97
1.083	1.20	7.083	2.41	13.083	5.91	19.08	1.97
1.167	1.20	7.167	2.41	13.167	5.90	19.17	1.97
1.250	1.20	7.250	2.41	13.250	5.90	19.25	1.97

1.333	1.20	7.333	2.41	13.333	5.90	19.33	1.97
1.417	1.20	7.417	2.41	13.417	5.90	19.42	1.97
1.500	1.20	7.500	2.41	13.500	5.90	19.50	1.97
1.583	1.20	7.583	2.41	13.583	4.59	19.58	1.97
1.667	1.20	7.667	2.41	13.667	4.59	19.67	1.97
1.750	1.20	7.750	2.41	13.750	4.59	19.75	1.97
1.833	1.20	7.833	2.41	13.833	4.59	19.83	1.97
1.917	1.20	7.917	2.41	13.917	4.59	19.92	1.97
2.000	1.20	8.000	2.41	14.000	4.59	20.00	1.97
2.083	1.42	8.083	2.84	14.083	3.28	20.08	1.31
2.167	1.42	8.167	2.84	14.167	3.28	20.17	1.31
2.250	1.42	8.250	2.84	14.250	3.28	20.25	1.31
2.333	1.42	8.333	2.84	14.333	3.28	20.33	1.31
2.417	1.42	8.417	2.84	14.417	3.28	20.42	1.31
2.500	1.42	8.500	2.84	14.500	3.28	20.50	1.31
2.583	1.42	8.583	3.06	14.583	3.28	20.58	1.31
2.667	1.42	8.667	3.06	14.667	3.28	20.67	1.31
2.750	1.42	8.750	3.06	14.750	3.28	20.75	1.31
2.833	1.42	8.833	3.06	14.833	3.28	20.83	1.31
2.917	1.42	8.917	3.06	14.917	3.28	20.92	1.31
3.000	1.42	9.000	3.06	15.000	3.28	21.00	1.31
3.083	1.42	9.083	3.50	15.083	3.28	21.08	1.31
3.167	1.42	9.167	3.50	15.167	3.28	21.17	1.31
3.250	1.42	9.250	3.50	15.250	3.28	21.25	1.31
3.333	1.42	9.333	3.50	15.333	3.28	21.33	1.31
3.417	1.42	9.417	3.50	15.417	3.28	21.42	1.31
3.500	1.42	9.500	3.50	15.500	3.28	21.50	1.31
3.583	1.42	9.583	3.94	15.583	3.28	21.58	1.31
3.667	1.42	9.667	3.94	15.667	3.28	21.67	1.31
3.750	1.42	9.750	3.94	15.750	3.28	21.75	1.31
3.833	1.42	9.833	3.94	15.833	3.28	21.83	1.31
3.917	1.42	9.917	3.94	15.917	3.28	21.92	1.31
4.000	1.42	10.000	3.94	16.000	3.28	22.00	1.31
4.083	1.75	10.083	5.03	16.083	1.97	22.08	1.31
4.167	1.75	10.167	5.03	16.167	1.97	22.17	1.31
4.250	1.75	10.250	5.03	16.250	1.97	22.25	1.31
4.333	1.75	10.333	5.03	16.333	1.97	22.33	1.31
4.417	1.75	10.417	5.03	16.417	1.97	22.42	1.31
4.500	1.75	10.500	5.03	16.500	1.97	22.50	1.31
4.583	1.75	10.583	6.78	16.583	1.97	22.58	1.31
4.667	1.75	10.667	6.78	16.667	1.97	22.67	1.31
4.750	1.75	10.750	6.78	16.750	1.97	22.75	1.31
4.833	1.75	10.833	6.78	16.833	1.97	22.83	1.31
4.917	1.75	10.917	6.78	16.917	1.97	22.92	1.31
5.000	1.75	11.000	6.78	17.000	1.97	23.00	1.31
5.083	1.75	11.083	10.50	17.083	1.97	23.08	1.31
5.167	1.75	11.167	10.50	17.167	1.97	23.17	1.31
5.250	1.75	11.250	10.50	17.250	1.97	23.25	1.31
5.333	1.75	11.333	10.50	17.333	1.97	23.33	1.31
5.417	1.75	11.417	10.50	17.417	1.97	23.42	1.31
5.500	1.75	11.500	10.50	17.500	1.97	23.50	1.31
5.583	1.75	11.583	32.37	17.583	1.97	23.58	1.31
5.667	1.75	11.667	32.37	17.667	1.97	23.67	1.31
5.750	1.75	11.750	32.37	17.750	1.97	23.75	1.31
5.833	1.75	11.833	133.83	17.833	1.97	23.83	1.31
5.917	1.75	11.917	133.84	17.917	1.97	23.92	1.31
6.000	1.75	12.000	133.84	18.000	1.97	24.00	1.31

Max.Eff.Inten.(mm/hr)=	133.84	49.45	
over (min)	5.00	15.00	
Storage Coeff. (min)=	2.10 (ii)	11.46 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.31	0.09	
			TOTALS
PEAK FLOW (cms)=	0.09	0.08	0.159 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	107.35	33.95	50.09
TOTAL RAINFALL (mm)=	109.35	109.35	109.35
RUNOFF COEFFICIENT =	0.98	0.31	0.46

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (3100)	Area (ha)= 2.89
ID= 1 DT= 1.0 min	Total Imp(%)= 68.00 Dir. Conn.(%)= 39.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	1.20	6.017	1.97	12.017	15.83	18.02	1.97
0.033	1.20	6.033	1.97	12.033	15.75	18.03	1.97
0.050	1.20	6.050	1.97	12.050	15.75	18.05	1.97
0.067	1.20	6.067	1.97	12.067	15.75	18.07	1.97
0.083	1.20	6.083	1.97	12.083	15.75	18.08	1.97
0.100	1.20	6.100	1.97	12.100	15.75	18.10	1.97
0.117	1.20	6.117	1.97	12.117	15.75	18.12	1.97
0.133	1.20	6.133	1.97	12.133	15.75	18.13	1.97
0.150	1.20	6.150	1.97	12.150	15.75	18.15	1.97
0.167	1.20	6.167	1.97	12.167	15.75	18.17	1.97
0.183	1.20	6.183	1.97	12.183	15.75	18.18	1.97
0.200	1.20	6.200	1.97	12.200	15.75	18.20	1.97
0.217	1.20	6.217	1.97	12.217	15.75	18.22	1.97
0.233	1.20	6.233	1.97	12.233	15.75	18.23	1.97
0.250	1.20	6.250	1.97	12.250	15.75	18.25	1.97
0.267	1.20	6.267	1.97	12.267	15.75	18.27	1.97
0.283	1.20	6.283	1.97	12.283	15.75	18.28	1.97
0.300	1.20	6.300	1.97	12.300	15.75	18.30	1.97
0.317	1.20	6.317	1.97	12.317	15.75	18.32	1.97
0.333	1.20	6.333	1.97	12.333	15.75	18.33	1.97
0.350	1.20	6.350	1.97	12.350	15.75	18.35	1.97
0.367	1.20	6.367	1.97	12.367	15.75	18.37	1.97
0.383	1.20	6.383	1.97	12.383	15.75	18.38	1.97
0.400	1.20	6.400	1.97	12.400	15.75	18.40	1.97
0.417	1.20	6.417	1.97	12.417	15.75	18.42	1.97
0.433	1.20	6.433	1.97	12.433	15.75	18.43	1.97
0.450	1.20	6.450	1.97	12.450	15.75	18.45	1.97
0.467	1.20	6.467	1.97	12.467	15.75	18.47	1.97
0.483	1.20	6.483	1.97	12.483	15.75	18.48	1.97
0.500	1.20	6.500	1.97	12.500	15.75	18.50	1.97
0.517	1.20	6.517	1.97	12.517	8.10	18.52	1.97
0.533	1.20	6.533	1.97	12.533	8.09	18.53	1.97
0.550	1.20	6.550	1.97	12.550	8.09	18.55	1.97
0.567	1.20	6.567	1.97	12.567	8.09	18.57	1.97
0.583	1.20	6.583	1.97	12.583	8.09	18.58	1.97
0.600	1.20	6.600	1.97	12.600	8.09	18.60	1.97
0.617	1.20	6.617	1.97	12.617	8.09	18.62	1.97
0.633	1.20	6.633	1.97	12.633	8.09	18.63	1.97
0.650	1.20	6.650	1.97	12.650	8.09	18.65	1.97
0.667	1.20	6.667	1.97	12.667	8.09	18.67	1.97
0.683	1.20	6.683	1.97	12.683	8.09	18.68	1.97
0.700	1.20	6.700	1.97	12.700	8.09	18.70	1.97
0.717	1.20	6.717	1.97	12.717	8.09	18.72	1.97
0.733	1.20	6.733	1.97	12.733	8.09	18.73	1.97
0.750	1.20	6.750	1.97	12.750	8.09	18.75	1.97
0.767	1.20	6.767	1.97	12.767	8.09	18.77	1.97
0.783	1.20	6.783	1.97	12.783	8.09	18.78	1.97
0.800	1.20	6.800	1.97	12.800	8.09	18.80	1.97
0.817	1.20	6.817	1.97	12.817	8.09	18.82	1.97
0.833	1.20	6.833	1.97	12.833	8.09	18.83	1.97
0.850	1.20	6.850	1.97	12.850	8.09	18.85	1.97
0.867	1.20	6.867	1.97	12.867	8.09	18.87	1.97
0.883	1.20	6.883	1.97	12.883	8.09	18.88	1.97
0.900	1.20	6.900	1.97	12.900	8.09	18.90	1.97
0.917	1.20	6.917	1.97	12.917	8.09	18.92	1.97
0.933	1.20	6.933	1.97	12.933	8.09	18.93	1.97
0.950	1.20	6.950	1.97	12.950	8.09	18.95	1.97
0.967	1.20	6.967	1.97	12.967	8.09	18.97	1.97
0.983	1.20	6.983	1.97	12.983	8.09	18.98	1.97
1.000	1.20	7.000	1.97	13.000	8.09	19.00	1.97
1.017	1.20	7.017	2.41	13.017	5.91	19.02	1.97
1.033	1.20	7.033	2.41	13.033	5.90	19.03	1.97
1.050	1.20	7.050	2.41	13.050	5.90	19.05	1.97
1.067	1.20	7.067	2.41	13.067	5.90	19.07	1.97
1.083	1.20	7.083	2.41	13.083	5.90	19.08	1.97
1.100	1.20	7.100	2.41	13.100	5.90	19.10	1.97
1.117	1.20	7.117	2.41	13.117	5.90	19.12	1.97
1.133	1.20	7.133	2.41	13.133	5.90	19.13	1.97
1.150	1.20	7.150	2.41	13.150	5.90	19.15	1.97
1.167	1.20	7.167	2.41	13.167	5.90	19.17	1.97
1.183	1.20	7.183	2.41	13.183	5.90	19.18	1.97

1.200	1.20	7.200	2.41	13.200	5.90	19.20	1.97
1.217	1.20	7.217	2.41	13.217	5.90	19.22	1.97
1.233	1.20	7.233	2.41	13.233	5.90	19.23	1.97
1.250	1.20	7.250	2.41	13.250	5.90	19.25	1.97
1.267	1.20	7.267	2.41	13.267	5.90	19.27	1.97
1.283	1.20	7.283	2.41	13.283	5.90	19.28	1.97
1.300	1.20	7.300	2.41	13.300	5.90	19.30	1.97
1.317	1.20	7.317	2.41	13.317	5.90	19.32	1.97
1.333	1.20	7.333	2.41	13.333	5.90	19.33	1.97
1.350	1.20	7.350	2.41	13.350	5.90	19.35	1.97
1.367	1.20	7.367	2.41	13.367	5.90	19.37	1.97
1.383	1.20	7.383	2.41	13.383	5.90	19.38	1.97
1.400	1.20	7.400	2.41	13.400	5.90	19.40	1.97
1.417	1.20	7.417	2.41	13.417	5.90	19.42	1.97
1.433	1.20	7.433	2.41	13.433	5.90	19.43	1.97
1.450	1.20	7.450	2.41	13.450	5.90	19.45	1.97
1.467	1.20	7.467	2.41	13.467	5.90	19.47	1.97
1.483	1.20	7.483	2.41	13.483	5.90	19.48	1.97
1.500	1.20	7.500	2.41	13.500	5.90	19.50	1.97
1.517	1.20	7.517	2.41	13.517	4.60	19.52	1.97
1.533	1.20	7.533	2.41	13.533	4.59	19.53	1.97
1.550	1.20	7.550	2.41	13.550	4.59	19.55	1.97
1.567	1.20	7.567	2.41	13.567	4.59	19.57	1.97
1.583	1.20	7.583	2.41	13.583	4.59	19.58	1.97
1.600	1.20	7.600	2.41	13.600	4.59	19.60	1.97
1.617	1.20	7.617	2.41	13.617	4.59	19.62	1.97
1.633	1.20	7.633	2.41	13.633	4.59	19.63	1.97
1.650	1.20	7.650	2.41	13.650	4.59	19.65	1.97
1.667	1.20	7.667	2.41	13.667	4.59	19.67	1.97
1.683	1.20	7.683	2.41	13.683	4.59	19.68	1.97
1.700	1.20	7.700	2.41	13.700	4.59	19.70	1.97
1.717	1.20	7.717	2.41	13.717	4.59	19.72	1.97
1.733	1.20	7.733	2.41	13.733	4.59	19.73	1.97
1.750	1.20	7.750	2.41	13.750	4.59	19.75	1.97
1.767	1.20	7.767	2.41	13.767	4.59	19.77	1.97
1.783	1.20	7.783	2.41	13.783	4.59	19.78	1.97
1.800	1.20	7.800	2.41	13.800	4.59	19.80	1.97
1.817	1.20	7.817	2.41	13.817	4.59	19.82	1.97
1.833	1.20	7.833	2.41	13.833	4.59	19.83	1.97
1.850	1.20	7.850	2.41	13.850	4.59	19.85	1.97
1.867	1.20	7.867	2.41	13.867	4.59	19.87	1.97
1.883	1.20	7.883	2.41	13.883	4.59	19.88	1.97
1.900	1.20	7.900	2.41	13.900	4.59	19.90	1.97
1.917	1.20	7.917	2.41	13.917	4.59	19.92	1.97
1.933	1.20	7.933	2.41	13.933	4.59	19.93	1.97
1.950	1.20	7.950	2.41	13.950	4.59	19.95	1.97
1.967	1.20	7.967	2.41	13.967	4.59	19.97	1.97
1.983	1.20	7.983	2.41	13.983	4.59	19.98	1.97
2.000	1.20	8.000	2.41	14.000	4.59	20.00	1.97
2.017	1.42	8.017	2.84	14.017	3.28	20.02	1.32
2.033	1.42	8.033	2.84	14.033	3.28	20.03	1.31
2.050	1.42	8.050	2.84	14.050	3.28	20.05	1.31
2.067	1.42	8.067	2.84	14.067	3.28	20.07	1.31
2.083	1.42	8.083	2.84	14.083	3.28	20.08	1.31
2.100	1.42	8.100	2.84	14.100	3.28	20.10	1.31
2.117	1.42	8.117	2.84	14.117	3.28	20.12	1.31
2.133	1.42	8.133	2.84	14.133	3.28	20.13	1.31
2.150	1.42	8.150	2.84	14.150	3.28	20.15	1.31
2.167	1.42	8.167	2.84	14.167	3.28	20.17	1.31
2.183	1.42	8.183	2.84	14.183	3.28	20.18	1.31
2.200	1.42	8.200	2.84	14.200	3.28	20.20	1.31
2.217	1.42	8.217	2.84	14.217	3.28	20.22	1.31
2.233	1.42	8.233	2.84	14.233	3.28	20.23	1.31
2.250	1.42	8.250	2.84	14.250	3.28	20.25	1.31
2.267	1.42	8.267	2.84	14.267	3.28	20.27	1.31
2.283	1.42	8.283	2.84	14.283	3.28	20.28	1.31
2.300	1.42	8.300	2.84	14.300	3.28	20.30	1.31
2.317	1.42	8.317	2.84	14.317	3.28	20.32	1.31
2.333	1.42	8.333	2.84	14.333	3.28	20.33	1.31
2.350	1.42	8.350	2.84	14.350	3.28	20.35	1.31
2.367	1.42	8.367	2.84	14.367	3.28	20.37	1.31
2.383	1.42	8.383	2.84	14.383	3.28	20.38	1.31
2.400	1.42	8.400	2.84	14.400	3.28	20.40	1.31
2.417	1.42	8.417	2.84	14.417	3.28	20.42	1.31
2.433	1.42	8.433	2.84	14.433	3.28	20.43	1.31
2.450	1.42	8.450	2.84	14.450	3.28	20.45	1.31
2.467	1.42	8.467	2.84	14.467	3.28	20.47	1.31
2.483	1.42	8.483	2.84	14.483	3.28	20.48	1.31
2.500	1.42	8.500	2.84	14.500	3.28	20.50	1.31
2.517	1.42	8.517	3.06	14.517	3.28	20.52	1.31
2.533	1.42	8.533	3.06	14.533	3.28	20.53	1.31
2.550	1.42	8.550	3.06	14.550	3.28	20.55	1.31
2.567	1.42	8.567	3.06	14.567	3.28	20.57	1.31
2.583	1.42	8.583	3.06	14.583	3.28	20.58	1.31

2.600	1.42	8.600	3.06	14.600	3.28	20.60	1.31
2.617	1.42	8.617	3.06	14.617	3.28	20.62	1.31
2.633	1.42	8.633	3.06	14.633	3.28	20.63	1.31
2.650	1.42	8.650	3.06	14.650	3.28	20.65	1.31
2.667	1.42	8.667	3.06	14.667	3.28	20.67	1.31
2.683	1.42	8.683	3.06	14.683	3.28	20.68	1.31
2.700	1.42	8.700	3.06	14.700	3.28	20.70	1.31
2.717	1.42	8.717	3.06	14.717	3.28	20.72	1.31
2.733	1.42	8.733	3.06	14.733	3.28	20.73	1.31
2.750	1.42	8.750	3.06	14.750	3.28	20.75	1.31
2.767	1.42	8.767	3.06	14.767	3.28	20.77	1.31
2.783	1.42	8.783	3.06	14.783	3.28	20.78	1.31
2.800	1.42	8.800	3.06	14.800	3.28	20.80	1.31
2.817	1.42	8.817	3.06	14.817	3.28	20.82	1.31
2.833	1.42	8.833	3.06	14.833	3.28	20.83	1.31
2.850	1.42	8.850	3.06	14.850	3.28	20.85	1.31
2.867	1.42	8.867	3.06	14.867	3.28	20.87	1.31
2.883	1.42	8.883	3.06	14.883	3.28	20.88	1.31
2.900	1.42	8.900	3.06	14.900	3.28	20.90	1.31
2.917	1.42	8.917	3.06	14.917	3.28	20.92	1.31
2.933	1.42	8.933	3.06	14.933	3.28	20.93	1.31
2.950	1.42	8.950	3.06	14.950	3.28	20.95	1.31
2.967	1.42	8.967	3.06	14.967	3.28	20.97	1.31
2.983	1.42	8.983	3.06	14.983	3.28	20.98	1.31
3.000	1.42	9.000	3.06	15.000	3.28	21.00	1.31
3.017	1.42	9.017	3.50	15.017	3.28	21.02	1.31
3.033	1.42	9.033	3.50	15.033	3.28	21.03	1.31
3.050	1.42	9.050	3.50	15.050	3.28	21.05	1.31
3.067	1.42	9.067	3.50	15.067	3.28	21.07	1.31
3.083	1.42	9.083	3.50	15.083	3.28	21.08	1.31
3.100	1.42	9.100	3.50	15.100	3.28	21.10	1.31
3.117	1.42	9.117	3.50	15.117	3.28	21.12	1.31
3.133	1.42	9.133	3.50	15.133	3.28	21.13	1.31
3.150	1.42	9.150	3.50	15.150	3.28	21.15	1.31
3.167	1.42	9.167	3.50	15.167	3.28	21.17	1.31
3.183	1.42	9.183	3.50	15.183	3.28	21.18	1.31
3.200	1.42	9.200	3.50	15.200	3.28	21.20	1.31
3.217	1.42	9.217	3.50	15.217	3.28	21.22	1.31
3.233	1.42	9.233	3.50	15.233	3.28	21.23	1.31
3.250	1.42	9.250	3.50	15.250	3.28	21.25	1.31
3.267	1.42	9.267	3.50	15.267	3.28	21.27	1.31
3.283	1.42	9.283	3.50	15.283	3.28	21.28	1.31
3.300	1.42	9.300	3.50	15.300	3.28	21.30	1.31
3.317	1.42	9.317	3.50	15.317	3.28	21.32	1.31
3.333	1.42	9.333	3.50	15.333	3.28	21.33	1.31
3.350	1.42	9.350	3.50	15.350	3.28	21.35	1.31
3.367	1.42	9.367	3.50	15.367	3.28	21.37	1.31
3.383	1.42	9.383	3.50	15.383	3.28	21.38	1.31
3.400	1.42	9.400	3.50	15.400	3.28	21.40	1.31
3.417	1.42	9.417	3.50	15.417	3.28	21.42	1.31
3.433	1.42	9.433	3.50	15.433	3.28	21.43	1.31
3.450	1.42	9.450	3.50	15.450	3.28	21.45	1.31
3.467	1.42	9.467	3.50	15.467	3.28	21.47	1.31
3.483	1.42	9.483	3.50	15.483	3.28	21.48	1.31
3.500	1.42	9.500	3.50	15.500	3.28	21.50	1.31
3.517	1.42	9.517	3.94	15.517	3.28	21.52	1.31
3.533	1.42	9.533	3.94	15.533	3.28	21.53	1.31
3.550	1.42	9.550	3.94	15.550	3.28	21.55	1.31
3.567	1.42	9.567	3.94	15.567	3.28	21.57	1.31
3.583	1.42	9.583	3.94	15.583	3.28	21.58	1.31
3.600	1.42	9.600	3.94	15.600	3.28	21.60	1.31
3.617	1.42	9.617	3.94	15.617	3.28	21.62	1.31
3.633	1.42	9.633	3.94	15.633	3.28	21.63	1.31
3.650	1.42	9.650	3.94	15.650	3.28	21.65	1.31
3.667	1.42	9.667	3.94	15.667	3.28	21.67	1.31
3.683	1.42	9.683	3.94	15.683	3.28	21.68	1.31
3.700	1.42	9.700	3.94	15.700	3.28	21.70	1.31
3.717	1.42	9.717	3.94	15.717	3.28	21.72	1.31
3.733	1.42	9.733	3.94	15.733	3.28	21.73	1.31
3.750	1.42	9.750	3.94	15.750	3.28	21.75	1.31
3.767	1.42	9.767	3.94	15.767	3.28	21.77	1.31
3.783	1.42	9.783	3.94	15.783	3.28	21.78	1.31
3.800	1.42	9.800	3.94	15.800	3.28	21.80	1.31
3.817	1.42	9.817	3.94	15.817	3.28	21.82	1.31
3.833	1.42	9.833	3.94	15.833	3.28	21.83	1.31
3.850	1.42	9.850	3.94	15.850	3.28	21.85	1.31
3.867	1.42	9.867	3.94	15.867	3.28	21.87	1.31
3.883	1.42	9.883	3.94	15.883	3.28	21.88	1.31
3.900	1.42	9.900	3.94	15.900	3.28	21.90	1.31
3.917	1.42	9.917	3.94	15.917	3.28	21.92	1.31
3.933	1.42	9.933	3.94	15.933	3.28	21.93	1.31
3.950	1.42	9.950	3.94	15.950	3.28	21.95	1.31
3.967	1.42	9.967	3.94	15.967	3.28	21.97	1.31
3.983	1.42	9.983	3.94	15.983	3.28	21.98	1.31

4.000	1.42	10.000	3.94	16.000	3.28	22.00	1.31
4.017	1.75	10.017	5.03	16.017	1.97	22.02	1.31
4.033	1.75	10.033	5.03	16.033	1.97	22.03	1.31
4.050	1.75	10.050	5.03	16.050	1.97	22.05	1.31
4.067	1.75	10.067	5.03	16.067	1.97	22.07	1.31
4.083	1.75	10.083	5.03	16.083	1.97	22.08	1.31
4.100	1.75	10.100	5.03	16.100	1.97	22.10	1.31
4.117	1.75	10.117	5.03	16.117	1.97	22.12	1.31
4.133	1.75	10.133	5.03	16.133	1.97	22.13	1.31
4.150	1.75	10.150	5.03	16.150	1.97	22.15	1.31
4.167	1.75	10.167	5.03	16.167	1.97	22.17	1.31
4.183	1.75	10.183	5.03	16.183	1.97	22.18	1.31
4.200	1.75	10.200	5.03	16.200	1.97	22.20	1.31
4.217	1.75	10.217	5.03	16.217	1.97	22.22	1.31
4.233	1.75	10.233	5.03	16.233	1.97	22.23	1.31
4.250	1.75	10.250	5.03	16.250	1.97	22.25	1.31
4.267	1.75	10.267	5.03	16.267	1.97	22.27	1.31
4.283	1.75	10.283	5.03	16.283	1.97	22.28	1.31
4.300	1.75	10.300	5.03	16.300	1.97	22.30	1.31
4.317	1.75	10.317	5.03	16.317	1.97	22.32	1.31
4.333	1.75	10.333	5.03	16.333	1.97	22.33	1.31
4.350	1.75	10.350	5.03	16.350	1.97	22.35	1.31
4.367	1.75	10.367	5.03	16.367	1.97	22.37	1.31
4.383	1.75	10.383	5.03	16.383	1.97	22.38	1.31
4.400	1.75	10.400	5.03	16.400	1.97	22.40	1.31
4.417	1.75	10.417	5.03	16.417	1.97	22.42	1.31
4.433	1.75	10.433	5.03	16.433	1.97	22.43	1.31
4.450	1.75	10.450	5.03	16.450	1.97	22.45	1.31
4.467	1.75	10.467	5.03	16.467	1.97	22.47	1.31
4.483	1.75	10.483	5.03	16.483	1.97	22.48	1.31
4.500	1.75	10.500	5.03	16.500	1.97	22.50	1.31
4.517	1.75	10.517	6.78	16.517	1.97	22.52	1.31
4.533	1.75	10.533	6.78	16.533	1.97	22.53	1.31
4.550	1.75	10.550	6.78	16.550	1.97	22.55	1.31
4.567	1.75	10.567	6.78	16.567	1.97	22.57	1.31
4.583	1.75	10.583	6.78	16.583	1.97	22.58	1.31
4.600	1.75	10.600	6.78	16.600	1.97	22.60	1.31
4.617	1.75	10.617	6.78	16.617	1.97	22.62	1.31
4.633	1.75	10.633	6.78	16.633	1.97	22.63	1.31
4.650	1.75	10.650	6.78	16.650	1.97	22.65	1.31
4.667	1.75	10.667	6.78	16.667	1.97	22.67	1.31
4.683	1.75	10.683	6.78	16.683	1.97	22.68	1.31
4.700	1.75	10.700	6.78	16.700	1.97	22.70	1.31
4.717	1.75	10.717	6.78	16.717	1.97	22.72	1.31
4.733	1.75	10.733	6.78	16.733	1.97	22.73	1.31
4.750	1.75	10.750	6.78	16.750	1.97	22.75	1.31
4.767	1.75	10.767	6.78	16.767	1.97	22.77	1.31
4.783	1.75	10.783	6.78	16.783	1.97	22.78	1.31
4.800	1.75	10.800	6.78	16.800	1.97	22.80	1.31
4.817	1.75	10.817	6.78	16.817	1.97	22.82	1.31
4.833	1.75	10.833	6.78	16.833	1.97	22.83	1.31
4.850	1.75	10.850	6.78	16.850	1.97	22.85	1.31
4.867	1.75	10.867	6.78	16.867	1.97	22.87	1.31
4.883	1.75	10.883	6.78	16.883	1.97	22.88	1.31
4.900	1.75	10.900	6.78	16.900	1.97	22.90	1.31
4.917	1.75	10.917	6.78	16.917	1.97	22.92	1.31
4.933	1.75	10.933	6.78	16.933	1.97	22.93	1.31
4.950	1.75	10.950	6.78	16.950	1.97	22.95	1.31
4.967	1.75	10.967	6.78	16.967	1.97	22.97	1.31
4.983	1.75	10.983	6.78	16.983	1.97	22.98	1.31
5.000	1.75	11.000	6.78	17.000	1.97	23.00	1.31
5.017	1.75	11.017	10.50	17.017	1.97	23.02	1.31
5.033	1.75	11.033	10.50	17.033	1.97	23.03	1.31
5.050	1.75	11.050	10.50	17.050	1.97	23.05	1.31
5.067	1.75	11.067	10.50	17.067	1.97	23.07	1.31
5.083	1.75	11.083	10.50	17.083	1.97	23.08	1.31
5.100	1.75	11.100	10.50	17.100	1.97	23.10	1.31
5.117	1.75	11.117	10.50	17.117	1.97	23.12	1.31
5.133	1.75	11.133	10.50	17.133	1.97	23.13	1.31
5.150	1.75	11.150	10.50	17.150	1.97	23.15	1.31
5.167	1.75	11.167	10.50	17.167	1.97	23.17	1.31
5.183	1.75	11.183	10.50	17.183	1.97	23.18	1.31
5.200	1.75	11.200	10.50	17.200	1.97	23.20	1.31
5.217	1.75	11.217	10.50	17.217	1.97	23.22	1.31
5.233	1.75	11.233	10.50	17.233	1.97	23.23	1.31
5.250	1.75	11.250	10.50	17.250	1.97	23.25	1.31
5.267	1.75	11.267	10.50	17.267	1.97	23.27	1.31
5.283	1.75	11.283	10.50	17.283	1.97	23.28	1.31
5.300	1.75	11.300	10.50	17.300	1.97	23.30	1.31
5.317	1.75	11.317	10.50	17.317	1.97	23.32	1.31
5.333	1.75	11.333	10.50	17.333	1.97	23.33	1.31
5.350	1.75	11.350	10.50	17.350	1.97	23.35	1.31
5.367	1.75	11.367	10.50	17.367	1.97	23.37	1.31
5.383	1.75	11.383	10.50	17.383	1.97	23.38	1.31

5.400	1.75	11.400	10.50	17.400	1.97	23.40	1.31
5.417	1.75	11.417	10.50	17.417	1.97	23.42	1.31
5.433	1.75	11.433	10.50	17.433	1.97	23.43	1.31
5.450	1.75	11.450	10.50	17.450	1.97	23.45	1.31
5.467	1.75	11.467	10.50	17.467	1.97	23.47	1.31
5.483	1.75	11.483	10.50	17.483	1.97	23.48	1.31
5.500	1.75	11.500	10.50	17.500	1.97	23.50	1.31
5.517	1.75	11.517	32.36	17.517	1.97	23.52	1.31
5.533	1.75	11.533	32.37	17.533	1.97	23.53	1.31
5.550	1.75	11.550	32.37	17.550	1.97	23.55	1.31
5.567	1.75	11.567	32.37	17.567	1.97	23.57	1.31
5.583	1.75	11.583	32.37	17.583	1.97	23.58	1.31
5.600	1.75	11.600	32.37	17.600	1.97	23.60	1.31
5.617	1.75	11.617	32.37	17.617	1.97	23.62	1.31
5.633	1.75	11.633	32.37	17.633	1.97	23.63	1.31
5.650	1.75	11.650	32.37	17.650	1.97	23.65	1.31
5.667	1.75	11.667	32.37	17.667	1.97	23.67	1.31
5.683	1.75	11.683	32.37	17.683	1.97	23.68	1.31
5.700	1.75	11.700	32.37	17.700	1.97	23.70	1.31
5.717	1.75	11.717	32.37	17.717	1.97	23.72	1.31
5.733	1.75	11.733	32.37	17.733	1.97	23.73	1.31
5.750	1.75	11.750	32.37	17.750	1.97	23.75	1.31
5.767	1.75	11.767	133.80	17.767	1.97	23.77	1.31
5.783	1.75	11.783	133.84	17.783	1.97	23.78	1.31
5.800	1.75	11.800	133.84	17.800	1.97	23.80	1.31
5.817	1.75	11.817	133.84	17.817	1.97	23.82	1.31
5.833	1.75	11.833	133.84	17.833	1.97	23.83	1.31
5.850	1.75	11.850	133.84	17.850	1.97	23.85	1.31
5.867	1.75	11.867	133.84	17.867	1.97	23.87	1.31
5.883	1.75	11.883	133.84	17.883	1.97	23.88	1.31
5.900	1.75	11.900	133.84	17.900	1.97	23.90	1.31
5.917	1.75	11.917	133.84	17.917	1.97	23.92	1.31
5.933	1.75	11.933	133.84	17.933	1.97	23.93	1.31
5.950	1.75	11.950	133.84	17.950	1.97	23.95	1.31
5.967	1.75	11.967	133.84	17.967	1.97	23.97	1.31
5.983	1.75	11.983	133.84	17.983	1.97	23.98	1.31
6.000	1.75	12.000	133.84	18.000	1.97	24.00	1.31

Max.Eff.Inten.(mm/hr)=	133.84	143.86	
over (min)	5.00	9.00	
Storage Coeff. (min)=	2.77 (ii)	8.57 (ii)	
Unit Hyd. Tpeak (min)=	5.00	9.00	
Unit Hyd. peak (cms)=	0.32	0.13	
			TOTALS
PEAK FLOW (cms)=	0.42	0.27	0.669 (iii)
TIME TO PEAK (hrs)=	12.00	12.05	12.00
RUNOFF VOLUME (mm)=	107.34	51.71	73.41
TOTAL RAINFALL (mm)=	109.35	109.35	109.35
RUNOFF COEFFICIENT =	0.98	0.47	0.67

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0097)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (2101):	17.31	3.661	12.00	72.63
+ ID2= 2 (3100):	2.89	0.669	12.00	73.41
ID = 3 (0097):	20.20	4.330	12.00	72.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0097)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0097):	20.20	4.330	12.00	72.74
+ ID2= 2 (0096):	1.16	0.159	12.00	50.09
ID = 1 (0097):	21.36	4.489	12.00	71.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001) OVERFLOW IS OFF

IN= 2---> OUT= 1
DT= 1.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0400	0.6360
0.0160	0.1070	0.0790	0.7870
0.0240	0.2260	0.2900	0.9450
0.0300	0.3550	0.4710	1.0430
0.0350	0.4920	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0097)	21.360	4.489	12.00	71.51
OUTFLOW: ID= 1 (0001)	21.360	0.321	13.17	43.17

PEAK FLOW REDUCTION [Qout/Qin](%)= 7.16
TIME SHIFT OF PEAK FLOW (min)= 70.00
MAXIMUM STORAGE USED (ha.m.)= 0.9620

CALIB
STANDHYD (2102)
ID= 1 DT= 5.0 min

Area (ha)= 0.21
Total Imp(%)= 65.00 Dir. Conn.(%)= 65.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.14	0.07
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	37.42	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.20	6.083	1.97	12.083	15.76	18.08	1.97
0.167	1.20	6.167	1.97	12.167	15.75	18.17	1.97
0.250	1.20	6.250	1.97	12.250	15.75	18.25	1.97
0.333	1.20	6.333	1.97	12.333	15.75	18.33	1.97
0.417	1.20	6.417	1.97	12.417	15.75	18.42	1.97
0.500	1.20	6.500	1.97	12.500	15.75	18.50	1.97
0.583	1.20	6.583	1.97	12.583	8.09	18.58	1.97
0.667	1.20	6.667	1.97	12.667	8.09	18.67	1.97
0.750	1.20	6.750	1.97	12.750	8.09	18.75	1.97
0.833	1.20	6.833	1.97	12.833	8.09	18.83	1.97
0.917	1.20	6.917	1.97	12.917	8.09	18.92	1.97
1.000	1.20	7.000	1.97	13.000	8.09	19.00	1.97
1.083	1.20	7.083	2.41	13.083	5.91	19.08	1.97
1.167	1.20	7.167	2.41	13.167	5.90	19.17	1.97
1.250	1.20	7.250	2.41	13.250	5.90	19.25	1.97
1.333	1.20	7.333	2.41	13.333	5.90	19.33	1.97
1.417	1.20	7.417	2.41	13.417	5.90	19.42	1.97
1.500	1.20	7.500	2.41	13.500	5.90	19.50	1.97
1.583	1.20	7.583	2.41	13.583	4.59	19.58	1.97
1.667	1.20	7.667	2.41	13.667	4.59	19.67	1.97
1.750	1.20	7.750	2.41	13.750	4.59	19.75	1.97
1.833	1.20	7.833	2.41	13.833	4.59	19.83	1.97
1.917	1.20	7.917	2.41	13.917	4.59	19.92	1.97
2.000	1.20	8.000	2.41	14.000	4.59	20.00	1.97
2.083	1.42	8.083	2.84	14.083	3.28	20.08	1.31
2.167	1.42	8.167	2.84	14.167	3.28	20.17	1.31
2.250	1.42	8.250	2.84	14.250	3.28	20.25	1.31
2.333	1.42	8.333	2.84	14.333	3.28	20.33	1.31
2.417	1.42	8.417	2.84	14.417	3.28	20.42	1.31
2.500	1.42	8.500	2.84	14.500	3.28	20.50	1.31
2.583	1.42	8.583	3.06	14.583	3.28	20.58	1.31
2.667	1.42	8.667	3.06	14.667	3.28	20.67	1.31
2.750	1.42	8.750	3.06	14.750	3.28	20.75	1.31
2.833	1.42	8.833	3.06	14.833	3.28	20.83	1.31
2.917	1.42	8.917	3.06	14.917	3.28	20.92	1.31
3.000	1.42	9.000	3.06	15.000	3.28	21.00	1.31
3.083	1.42	9.083	3.50	15.083	3.28	21.08	1.31
3.167	1.42	9.167	3.50	15.167	3.28	21.17	1.31
3.250	1.42	9.250	3.50	15.250	3.28	21.25	1.31
3.333	1.42	9.333	3.50	15.333	3.28	21.33	1.31
3.417	1.42	9.417	3.50	15.417	3.28	21.42	1.31
3.500	1.42	9.500	3.50	15.500	3.28	21.50	1.31
3.583	1.42	9.583	3.94	15.583	3.28	21.58	1.31
3.667	1.42	9.667	3.94	15.667	3.28	21.67	1.31
3.750	1.42	9.750	3.94	15.750	3.28	21.75	1.31
3.833	1.42	9.833	3.94	15.833	3.28	21.83	1.31
3.917	1.42	9.917	3.94	15.917	3.28	21.92	1.31

4.000	1.42	10.000	3.94	16.000	3.28	22.00	1.31
4.083	1.75	10.083	5.03	16.083	1.97	22.08	1.31
4.167	1.75	10.167	5.03	16.167	1.97	22.17	1.31
4.250	1.75	10.250	5.03	16.250	1.97	22.25	1.31
4.333	1.75	10.333	5.03	16.333	1.97	22.33	1.31
4.417	1.75	10.417	5.03	16.417	1.97	22.42	1.31
4.500	1.75	10.500	5.03	16.500	1.97	22.50	1.31
4.583	1.75	10.583	6.78	16.583	1.97	22.58	1.31
4.667	1.75	10.667	6.78	16.667	1.97	22.67	1.31
4.750	1.75	10.750	6.78	16.750	1.97	22.75	1.31
4.833	1.75	10.833	6.78	16.833	1.97	22.83	1.31
4.917	1.75	10.917	6.78	16.917	1.97	22.92	1.31
5.000	1.75	11.000	6.78	17.000	1.97	23.00	1.31
5.083	1.75	11.083	10.50	17.083	1.97	23.08	1.31
5.167	1.75	11.167	10.50	17.167	1.97	23.17	1.31
5.250	1.75	11.250	10.50	17.250	1.97	23.25	1.31
5.333	1.75	11.333	10.50	17.333	1.97	23.33	1.31
5.417	1.75	11.417	10.50	17.417	1.97	23.42	1.31
5.500	1.75	11.500	10.50	17.500	1.97	23.50	1.31
5.583	1.75	11.583	32.37	17.583	1.97	23.58	1.31
5.667	1.75	11.667	32.37	17.667	1.97	23.67	1.31
5.750	1.75	11.750	32.37	17.750	1.97	23.75	1.31
5.833	1.75	11.833	133.83	17.833	1.97	23.83	1.31
5.917	1.75	11.917	133.84	17.917	1.97	23.92	1.31
6.000	1.75	12.000	133.84	18.000	1.97	24.00	1.31

Max.Eff.Inten.(mm/hr)=	133.84	49.45		
over (min)	5.00	10.00		
Storage Coeff. (min)=	1.26 (ii)	6.16 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.33	0.15		
			TOTALS	
PEAK FLOW (cms)=	0.05	0.01	0.059 (iii)	
TIME TO PEAK (hrs)=	12.00	12.00	12.00	
RUNOFF VOLUME (mm)=	107.35	33.95	81.65	
TOTAL RAINFALL (mm)=	109.35	109.35	109.35	
RUNOFF COEFFICIENT =	0.98	0.31	0.75	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0015)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0001):		21.36	0.321	13.17	43.17
+ ID2= 2 (2102):		0.21	0.059	12.00	81.65
ID = 3 (0015):		21.57	0.324	13.15	43.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:4.6 SCS II 24hr 100yr **
****

MASS STORM	Filename: C:\Users\rbrockie\AppData\Local\Temp\913e2f46-79e8-42d3-b20d-3fb65cefc10e\8d35ac67
Ptotal=119.65 mm	Comments: SCS 24 HOUR TYPE II STORM DISTRIBUTION 1

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	1.32	6.00	2.15	12.00	17.23	18.00	2.15
0.25	1.32	6.25	2.15	12.25	17.23	18.25	2.15
0.50	1.32	6.50	2.15	12.50	8.85	18.50	2.15
0.75	1.32	6.75	2.15	12.75	8.85	18.75	2.15
1.00	1.32	7.00	2.63	13.00	6.46	19.00	2.15
1.25	1.32	7.25	2.63	13.25	6.46	19.25	2.15
1.50	1.32	7.50	2.63	13.50	5.03	19.50	2.15
1.75	1.32	7.75	2.63	13.75	5.03	19.75	2.15
2.00	1.56	8.00	3.11	14.00	3.59	20.00	1.44
2.25	1.56	8.25	3.11	14.25	3.59	20.25	1.44
2.50	1.56	8.50	3.35	14.50	3.59	20.50	1.44

2.75	1.56	8.75	3.35	14.75	3.59	20.75	1.44
3.00	1.56	9.00	3.83	15.00	3.59	21.00	1.44
3.25	1.56	9.25	3.83	15.25	3.59	21.25	1.44
3.50	1.56	9.50	4.31	15.50	3.59	21.50	1.44
3.75	1.56	9.75	4.31	15.75	3.59	21.75	1.44
4.00	1.91	10.00	5.50	16.00	2.15	22.00	1.44
4.25	1.91	10.25	5.50	16.25	2.15	22.25	1.44
4.50	1.91	10.50	7.42	16.50	2.15	22.50	1.44
4.75	1.91	10.75	7.42	16.75	2.15	22.75	1.44
5.00	1.91	11.00	11.49	17.00	2.15	23.00	1.44
5.25	1.91	11.25	11.49	17.25	2.15	23.25	1.44
5.50	1.91	11.50	35.42	17.50	2.15	23.50	1.44
5.75	1.91	11.75	146.45	17.75	2.15	23.75	1.44

CALIB STANDHYD (2101) ID= 1 DT= 5.0 min	Area (ha)= 17.31 Total Imp(%)= 64.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.08	6.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	339.71	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.32	6.083	2.15	12.083	17.24	18.08	2.15
0.167	1.32	6.167	2.15	12.167	17.23	18.17	2.15
0.250	1.32	6.250	2.15	12.250	17.23	18.25	2.15
0.333	1.32	6.333	2.15	12.333	17.23	18.33	2.15
0.417	1.32	6.417	2.15	12.417	17.23	18.42	2.15
0.500	1.32	6.500	2.15	12.500	17.23	18.50	2.15
0.583	1.32	6.583	2.15	12.583	8.86	18.58	2.15
0.667	1.32	6.667	2.15	12.667	8.85	18.67	2.15
0.750	1.32	6.750	2.15	12.750	8.85	18.75	2.15
0.833	1.32	6.833	2.15	12.833	8.85	18.83	2.15
0.917	1.32	6.917	2.15	12.917	8.85	18.92	2.15
1.000	1.32	7.000	2.15	13.000	8.85	19.00	2.15
1.083	1.32	7.083	2.63	13.083	6.46	19.08	2.15
1.167	1.32	7.167	2.63	13.167	6.46	19.17	2.15
1.250	1.32	7.250	2.63	13.250	6.46	19.25	2.15
1.333	1.32	7.333	2.63	13.333	6.46	19.33	2.15
1.417	1.32	7.417	2.63	13.417	6.46	19.42	2.15
1.500	1.32	7.500	2.63	13.500	6.46	19.50	2.15
1.583	1.32	7.583	2.63	13.583	5.03	19.58	2.15
1.667	1.32	7.667	2.63	13.667	5.03	19.67	2.15
1.750	1.32	7.750	2.63	13.750	5.03	19.75	2.15
1.833	1.32	7.833	2.63	13.833	5.03	19.83	2.15
1.917	1.32	7.917	2.63	13.917	5.03	19.92	2.15
2.000	1.32	8.000	2.63	14.000	5.03	20.00	2.15
2.083	1.56	8.083	3.11	14.083	3.59	20.08	1.44
2.167	1.56	8.167	3.11	14.167	3.59	20.17	1.44
2.250	1.56	8.250	3.11	14.250	3.59	20.25	1.44
2.333	1.56	8.333	3.11	14.333	3.59	20.33	1.44
2.417	1.56	8.417	3.11	14.417	3.59	20.42	1.44
2.500	1.56	8.500	3.11	14.500	3.59	20.50	1.44
2.583	1.56	8.583	3.35	14.583	3.59	20.58	1.44
2.667	1.56	8.667	3.35	14.667	3.59	20.67	1.44
2.750	1.56	8.750	3.35	14.750	3.59	20.75	1.44
2.833	1.56	8.833	3.35	14.833	3.59	20.83	1.44
2.917	1.56	8.917	3.35	14.917	3.59	20.92	1.44
3.000	1.56	9.000	3.35	15.000	3.59	21.00	1.44
3.083	1.56	9.083	3.83	15.083	3.59	21.08	1.44
3.167	1.56	9.167	3.83	15.167	3.59	21.17	1.44
3.250	1.56	9.250	3.83	15.250	3.59	21.25	1.44
3.333	1.56	9.333	3.83	15.333	3.59	21.33	1.44
3.417	1.56	9.417	3.83	15.417	3.59	21.42	1.44
3.500	1.56	9.500	3.83	15.500	3.59	21.50	1.44
3.583	1.56	9.583	4.31	15.583	3.59	21.58	1.44
3.667	1.56	9.667	4.31	15.667	3.59	21.67	1.44
3.750	1.56	9.750	4.31	15.750	3.59	21.75	1.44
3.833	1.56	9.833	4.31	15.833	3.59	21.83	1.44
3.917	1.56	9.917	4.31	15.917	3.59	21.92	1.44
4.000	1.56	10.000	4.31	16.000	3.59	22.00	1.44
4.083	1.91	10.083	5.50	16.083	2.15	22.08	1.44
4.167	1.91	10.167	5.50	16.167	2.15	22.17	1.44
4.250	1.91	10.250	5.50	16.250	2.15	22.25	1.44

4.333	1.91	10.333	5.50	16.333	2.15	22.33	1.44
4.417	1.91	10.417	5.50	16.417	2.15	22.42	1.44
4.500	1.91	10.500	5.50	16.500	2.15	22.50	1.44
4.583	1.91	10.583	7.42	16.583	2.15	22.58	1.44
4.667	1.91	10.667	7.42	16.667	2.15	22.67	1.44
4.750	1.91	10.750	7.42	16.750	2.15	22.75	1.44
4.833	1.91	10.833	7.42	16.833	2.15	22.83	1.44
4.917	1.91	10.917	7.42	16.917	2.15	22.92	1.44
5.000	1.91	11.000	7.42	17.000	2.15	23.00	1.44
5.083	1.91	11.083	11.49	17.083	2.15	23.08	1.44
5.167	1.91	11.167	11.49	17.167	2.15	23.17	1.44
5.250	1.91	11.250	11.49	17.250	2.15	23.25	1.44
5.333	1.91	11.333	11.49	17.333	2.15	23.33	1.44
5.417	1.91	11.417	11.49	17.417	2.15	23.42	1.44
5.500	1.91	11.500	11.49	17.500	2.15	23.50	1.44
5.583	1.91	11.583	35.41	17.583	2.15	23.58	1.44
5.667	1.91	11.667	35.42	17.667	2.15	23.67	1.44
5.750	1.91	11.750	35.42	17.750	2.15	23.75	1.44
5.833	1.91	11.833	146.44	17.833	2.15	23.83	1.44
5.917	1.91	11.917	146.45	17.917	2.15	23.92	1.44
6.000	1.91	12.000	146.45	18.000	2.15	24.00	1.44

Max.Eff.Inten.(mm/hr)=	146.45	123.89	
over (min)	5.00	15.00	
Storage Coeff. (min)=	4.57 (ii)	11.05 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.23	0.09	
			TOTALS
PEAK FLOW (cms)=	2.94	1.35	4.109 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	117.65	53.61	81.15
TOTAL RAINFALL (mm)=	119.65	119.65	119.65
RUNOFF COEFFICIENT =	0.98	0.45	0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB		
STANDHYD (0096)	Area (ha)=	1.16
ID= 1 DT= 5.0 min	Total Imp(%)=	22.00 Dir. Conn.(%)= 22.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.26	0.90
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.94	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.32	6.083	2.15	12.083	17.24	18.08	2.15
0.167	1.32	6.167	2.15	12.167	17.23	18.17	2.15
0.250	1.32	6.250	2.15	12.250	17.23	18.25	2.15
0.333	1.32	6.333	2.15	12.333	17.23	18.33	2.15
0.417	1.32	6.417	2.15	12.417	17.23	18.42	2.15
0.500	1.32	6.500	2.15	12.500	17.23	18.50	2.15
0.583	1.32	6.583	2.15	12.583	8.86	18.58	2.15
0.667	1.32	6.667	2.15	12.667	8.85	18.67	2.15
0.750	1.32	6.750	2.15	12.750	8.85	18.75	2.15
0.833	1.32	6.833	2.15	12.833	8.85	18.83	2.15
0.917	1.32	6.917	2.15	12.917	8.85	18.92	2.15
1.000	1.32	7.000	2.15	13.000	8.85	19.00	2.15
1.083	1.32	7.083	2.63	13.083	6.46	19.08	2.15
1.167	1.32	7.167	2.63	13.167	6.46	19.17	2.15
1.250	1.32	7.250	2.63	13.250	6.46	19.25	2.15
1.333	1.32	7.333	2.63	13.333	6.46	19.33	2.15
1.417	1.32	7.417	2.63	13.417	6.46	19.42	2.15
1.500	1.32	7.500	2.63	13.500	6.46	19.50	2.15
1.583	1.32	7.583	2.63	13.583	5.03	19.58	2.15
1.667	1.32	7.667	2.63	13.667	5.03	19.67	2.15
1.750	1.32	7.750	2.63	13.750	5.03	19.75	2.15
1.833	1.32	7.833	2.63	13.833	5.03	19.83	2.15
1.917	1.32	7.917	2.63	13.917	5.03	19.92	2.15

2.000	1.32	8.000	2.63	14.000	5.03	20.00	2.15
2.083	1.56	8.083	3.11	14.083	3.59	20.08	1.44
2.167	1.56	8.167	3.11	14.167	3.59	20.17	1.44
2.250	1.56	8.250	3.11	14.250	3.59	20.25	1.44
2.333	1.56	8.333	3.11	14.333	3.59	20.33	1.44
2.417	1.56	8.417	3.11	14.417	3.59	20.42	1.44
2.500	1.56	8.500	3.11	14.500	3.59	20.50	1.44
2.583	1.56	8.583	3.35	14.583	3.59	20.58	1.44
2.667	1.56	8.667	3.35	14.667	3.59	20.67	1.44
2.750	1.56	8.750	3.35	14.750	3.59	20.75	1.44
2.833	1.56	8.833	3.35	14.833	3.59	20.83	1.44
2.917	1.56	8.917	3.35	14.917	3.59	20.92	1.44
3.000	1.56	9.000	3.35	15.000	3.59	21.00	1.44
3.083	1.56	9.083	3.83	15.083	3.59	21.08	1.44
3.167	1.56	9.167	3.83	15.167	3.59	21.17	1.44
3.250	1.56	9.250	3.83	15.250	3.59	21.25	1.44
3.333	1.56	9.333	3.83	15.333	3.59	21.33	1.44
3.417	1.56	9.417	3.83	15.417	3.59	21.42	1.44
3.500	1.56	9.500	3.83	15.500	3.59	21.50	1.44
3.583	1.56	9.583	4.31	15.583	3.59	21.58	1.44
3.667	1.56	9.667	4.31	15.667	3.59	21.67	1.44
3.750	1.56	9.750	4.31	15.750	3.59	21.75	1.44
3.833	1.56	9.833	4.31	15.833	3.59	21.83	1.44
3.917	1.56	9.917	4.31	15.917	3.59	21.92	1.44
4.000	1.56	10.000	4.31	16.000	3.59	22.00	1.44
4.083	1.91	10.083	5.50	16.083	2.15	22.08	1.44
4.167	1.91	10.167	5.50	16.167	2.15	22.17	1.44
4.250	1.91	10.250	5.50	16.250	2.15	22.25	1.44
4.333	1.91	10.333	5.50	16.333	2.15	22.33	1.44
4.417	1.91	10.417	5.50	16.417	2.15	22.42	1.44
4.500	1.91	10.500	5.50	16.500	2.15	22.50	1.44
4.583	1.91	10.583	7.42	16.583	2.15	22.58	1.44
4.667	1.91	10.667	7.42	16.667	2.15	22.67	1.44
4.750	1.91	10.750	7.42	16.750	2.15	22.75	1.44
4.833	1.91	10.833	7.42	16.833	2.15	22.83	1.44
4.917	1.91	10.917	7.42	16.917	2.15	22.92	1.44
5.000	1.91	11.000	7.42	17.000	2.15	23.00	1.44
5.083	1.91	11.083	11.49	17.083	2.15	23.08	1.44
5.167	1.91	11.167	11.49	17.167	2.15	23.17	1.44
5.250	1.91	11.250	11.49	17.250	2.15	23.25	1.44
5.333	1.91	11.333	11.49	17.333	2.15	23.33	1.44
5.417	1.91	11.417	11.49	17.417	2.15	23.42	1.44
5.500	1.91	11.500	11.49	17.500	2.15	23.50	1.44
5.583	1.91	11.583	35.41	17.583	2.15	23.58	1.44
5.667	1.91	11.667	35.42	17.667	2.15	23.67	1.44
5.750	1.91	11.750	35.42	17.750	2.15	23.75	1.44
5.833	1.91	11.833	146.44	17.833	2.15	23.83	1.44
5.917	1.91	11.917	146.45	17.917	2.15	23.92	1.44
6.000	1.91	12.000	146.45	18.000	2.15	24.00	1.44

Max.Eff.Inten.(mm/hr)=	146.45	57.88		
over (min)	5.00	15.00		
Storage Coeff. (min)=	2.03 (ii)	10.81 (ii)		
Unit Hyd. Tpeak (min)=	5.00	15.00		
Unit Hyd. peak (cms)=	0.31	0.09		
			TOTALS	
PEAK FLOW (cms)=	0.10	0.09	0.181 (iii)	
TIME TO PEAK (hrs)=	12.00	12.08	12.00	
RUNOFF VOLUME (mm)=	117.65	39.71	56.85	
TOTAL RAINFALL (mm)=	119.65	119.65	119.65	
RUNOFF COEFFICIENT =	0.98	0.33	0.48	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (3100)	Area (ha)=	2.89	
ID= 1 DT= 1.0 min	Total Imp(%)=	68.00	Dir. Conn.(%)= 39.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	1.32	6.017	2.15	12.017	17.32	18.02	2.15
0.033	1.32	6.033	2.15	12.033	17.23	18.03	2.15
0.050	1.32	6.050	2.15	12.050	17.23	18.05	2.15
0.067	1.32	6.067	2.15	12.067	17.23	18.07	2.15
0.083	1.32	6.083	2.15	12.083	17.23	18.08	2.15
0.100	1.32	6.100	2.15	12.100	17.23	18.10	2.15
0.117	1.32	6.117	2.15	12.117	17.23	18.12	2.15
0.133	1.32	6.133	2.15	12.133	17.23	18.13	2.15
0.150	1.32	6.150	2.15	12.150	17.23	18.15	2.15
0.167	1.32	6.167	2.15	12.167	17.23	18.17	2.15
0.183	1.32	6.183	2.15	12.183	17.23	18.18	2.15
0.200	1.32	6.200	2.15	12.200	17.23	18.20	2.15
0.217	1.32	6.217	2.15	12.217	17.23	18.22	2.15
0.233	1.32	6.233	2.15	12.233	17.23	18.23	2.15
0.250	1.32	6.250	2.15	12.250	17.23	18.25	2.15
0.267	1.32	6.267	2.15	12.267	17.23	18.27	2.15
0.283	1.32	6.283	2.15	12.283	17.23	18.28	2.15
0.300	1.32	6.300	2.15	12.300	17.23	18.30	2.15
0.317	1.32	6.317	2.15	12.317	17.23	18.32	2.15
0.333	1.32	6.333	2.15	12.333	17.23	18.33	2.15
0.350	1.32	6.350	2.15	12.350	17.23	18.35	2.15
0.367	1.32	6.367	2.15	12.367	17.23	18.37	2.15
0.383	1.32	6.383	2.15	12.383	17.23	18.38	2.15
0.400	1.32	6.400	2.15	12.400	17.23	18.40	2.15
0.417	1.32	6.417	2.15	12.417	17.23	18.42	2.15
0.433	1.32	6.433	2.15	12.433	17.23	18.43	2.15
0.450	1.32	6.450	2.15	12.450	17.23	18.45	2.15
0.467	1.32	6.467	2.15	12.467	17.23	18.47	2.15
0.483	1.32	6.483	2.15	12.483	17.23	18.48	2.15
0.500	1.32	6.500	2.15	12.500	17.23	18.50	2.15
0.517	1.32	6.517	2.15	12.517	8.86	18.52	2.15
0.533	1.32	6.533	2.15	12.533	8.85	18.53	2.15
0.550	1.32	6.550	2.15	12.550	8.85	18.55	2.15
0.567	1.32	6.567	2.15	12.567	8.85	18.57	2.15
0.583	1.32	6.583	2.15	12.583	8.85	18.58	2.15
0.600	1.32	6.600	2.15	12.600	8.85	18.60	2.15
0.617	1.32	6.617	2.15	12.617	8.85	18.62	2.15
0.633	1.32	6.633	2.15	12.633	8.85	18.63	2.15
0.650	1.32	6.650	2.15	12.650	8.85	18.65	2.15
0.667	1.32	6.667	2.15	12.667	8.85	18.67	2.15
0.683	1.32	6.683	2.15	12.683	8.85	18.68	2.15
0.700	1.32	6.700	2.15	12.700	8.85	18.70	2.15
0.717	1.32	6.717	2.15	12.717	8.85	18.72	2.15
0.733	1.32	6.733	2.15	12.733	8.85	18.73	2.15
0.750	1.32	6.750	2.15	12.750	8.85	18.75	2.15
0.767	1.32	6.767	2.15	12.767	8.85	18.77	2.15
0.783	1.32	6.783	2.15	12.783	8.85	18.78	2.15
0.800	1.32	6.800	2.15	12.800	8.85	18.80	2.15
0.817	1.32	6.817	2.15	12.817	8.85	18.82	2.15
0.833	1.32	6.833	2.15	12.833	8.85	18.83	2.15
0.850	1.32	6.850	2.15	12.850	8.85	18.85	2.15
0.867	1.32	6.867	2.15	12.867	8.85	18.87	2.15
0.883	1.32	6.883	2.15	12.883	8.85	18.88	2.15
0.900	1.32	6.900	2.15	12.900	8.85	18.90	2.15
0.917	1.32	6.917	2.15	12.917	8.85	18.92	2.15
0.933	1.32	6.933	2.15	12.933	8.85	18.93	2.15
0.950	1.32	6.950	2.15	12.950	8.85	18.95	2.15
0.967	1.32	6.967	2.15	12.967	8.85	18.97	2.15
0.983	1.32	6.983	2.15	12.983	8.85	18.98	2.15
1.000	1.32	7.000	2.15	13.000	8.85	19.00	2.15
1.017	1.32	7.017	2.63	13.017	6.46	19.02	2.15
1.033	1.32	7.033	2.63	13.033	6.46	19.03	2.15
1.050	1.32	7.050	2.63	13.050	6.46	19.05	2.15
1.067	1.32	7.067	2.63	13.067	6.46	19.07	2.15
1.083	1.32	7.083	2.63	13.083	6.46	19.08	2.15
1.100	1.32	7.100	2.63	13.100	6.46	19.10	2.15
1.117	1.32	7.117	2.63	13.117	6.46	19.12	2.15
1.133	1.32	7.133	2.63	13.133	6.46	19.13	2.15
1.150	1.32	7.150	2.63	13.150	6.46	19.15	2.15
1.167	1.32	7.167	2.63	13.167	6.46	19.17	2.15
1.183	1.32	7.183	2.63	13.183	6.46	19.18	2.15
1.200	1.32	7.200	2.63	13.200	6.46	19.20	2.15
1.217	1.32	7.217	2.63	13.217	6.46	19.22	2.15
1.233	1.32	7.233	2.63	13.233	6.46	19.23	2.15
1.250	1.32	7.250	2.63	13.250	6.46	19.25	2.15
1.267	1.32	7.267	2.63	13.267	6.46	19.27	2.15
1.283	1.32	7.283	2.63	13.283	6.46	19.28	2.15
1.300	1.32	7.300	2.63	13.300	6.46	19.30	2.15
1.317	1.32	7.317	2.63	13.317	6.46	19.32	2.15

1.333	1.32	7.333	2.63	13.333	6.46	19.33	2.15
1.350	1.32	7.350	2.63	13.350	6.46	19.35	2.15
1.367	1.32	7.367	2.63	13.367	6.46	19.37	2.15
1.383	1.32	7.383	2.63	13.383	6.46	19.38	2.15
1.400	1.32	7.400	2.63	13.400	6.46	19.40	2.15
1.417	1.32	7.417	2.63	13.417	6.46	19.42	2.15
1.433	1.32	7.433	2.63	13.433	6.46	19.43	2.15
1.450	1.32	7.450	2.63	13.450	6.46	19.45	2.15
1.467	1.32	7.467	2.63	13.467	6.46	19.47	2.15
1.483	1.32	7.483	2.63	13.483	6.46	19.48	2.15
1.500	1.32	7.500	2.63	13.500	6.46	19.50	2.15
1.517	1.32	7.517	2.63	13.517	5.03	19.52	2.15
1.533	1.32	7.533	2.63	13.533	5.03	19.53	2.15
1.550	1.32	7.550	2.63	13.550	5.03	19.55	2.15
1.567	1.32	7.567	2.63	13.567	5.03	19.57	2.15
1.583	1.32	7.583	2.63	13.583	5.03	19.58	2.15
1.600	1.32	7.600	2.63	13.600	5.03	19.60	2.15
1.617	1.32	7.617	2.63	13.617	5.03	19.62	2.15
1.633	1.32	7.633	2.63	13.633	5.03	19.63	2.15
1.650	1.32	7.650	2.63	13.650	5.03	19.65	2.15
1.667	1.32	7.667	2.63	13.667	5.03	19.67	2.15
1.683	1.32	7.683	2.63	13.683	5.03	19.68	2.15
1.700	1.32	7.700	2.63	13.700	5.03	19.70	2.15
1.717	1.32	7.717	2.63	13.717	5.03	19.72	2.15
1.733	1.32	7.733	2.63	13.733	5.03	19.73	2.15
1.750	1.32	7.750	2.63	13.750	5.03	19.75	2.15
1.767	1.32	7.767	2.63	13.767	5.03	19.77	2.15
1.783	1.32	7.783	2.63	13.783	5.03	19.78	2.15
1.800	1.32	7.800	2.63	13.800	5.03	19.80	2.15
1.817	1.32	7.817	2.63	13.817	5.03	19.82	2.15
1.833	1.32	7.833	2.63	13.833	5.03	19.83	2.15
1.850	1.32	7.850	2.63	13.850	5.03	19.85	2.15
1.867	1.32	7.867	2.63	13.867	5.03	19.87	2.15
1.883	1.32	7.883	2.63	13.883	5.03	19.88	2.15
1.900	1.32	7.900	2.63	13.900	5.03	19.90	2.15
1.917	1.32	7.917	2.63	13.917	5.03	19.92	2.15
1.933	1.32	7.933	2.63	13.933	5.03	19.93	2.15
1.950	1.32	7.950	2.63	13.950	5.03	19.95	2.15
1.967	1.32	7.967	2.63	13.967	5.03	19.97	2.15
1.983	1.32	7.983	2.63	13.983	5.03	19.98	2.15
2.000	1.32	8.000	2.63	14.000	5.03	20.00	2.15
2.017	1.56	8.017	3.11	14.017	3.59	20.02	1.44
2.033	1.56	8.033	3.11	14.033	3.59	20.03	1.44
2.050	1.56	8.050	3.11	14.050	3.59	20.05	1.44
2.067	1.56	8.067	3.11	14.067	3.59	20.07	1.44
2.083	1.56	8.083	3.11	14.083	3.59	20.08	1.44
2.100	1.56	8.100	3.11	14.100	3.59	20.10	1.44
2.117	1.56	8.117	3.11	14.117	3.59	20.12	1.44
2.133	1.56	8.133	3.11	14.133	3.59	20.13	1.44
2.150	1.56	8.150	3.11	14.150	3.59	20.15	1.44
2.167	1.56	8.167	3.11	14.167	3.59	20.17	1.44
2.183	1.56	8.183	3.11	14.183	3.59	20.18	1.44
2.200	1.56	8.200	3.11	14.200	3.59	20.20	1.44
2.217	1.56	8.217	3.11	14.217	3.59	20.22	1.44
2.233	1.56	8.233	3.11	14.233	3.59	20.23	1.44
2.250	1.56	8.250	3.11	14.250	3.59	20.25	1.44
2.267	1.56	8.267	3.11	14.267	3.59	20.27	1.44
2.283	1.56	8.283	3.11	14.283	3.59	20.28	1.44
2.300	1.56	8.300	3.11	14.300	3.59	20.30	1.44
2.317	1.56	8.317	3.11	14.317	3.59	20.32	1.44
2.333	1.56	8.333	3.11	14.333	3.59	20.33	1.44
2.350	1.56	8.350	3.11	14.350	3.59	20.35	1.44
2.367	1.56	8.367	3.11	14.367	3.59	20.37	1.44
2.383	1.56	8.383	3.11	14.383	3.59	20.38	1.44
2.400	1.56	8.400	3.11	14.400	3.59	20.40	1.44
2.417	1.56	8.417	3.11	14.417	3.59	20.42	1.44
2.433	1.56	8.433	3.11	14.433	3.59	20.43	1.44
2.450	1.56	8.450	3.11	14.450	3.59	20.45	1.44
2.467	1.56	8.467	3.11	14.467	3.59	20.47	1.44
2.483	1.56	8.483	3.11	14.483	3.59	20.48	1.44
2.500	1.56	8.500	3.11	14.500	3.59	20.50	1.44
2.517	1.56	8.517	3.35	14.517	3.59	20.52	1.44
2.533	1.56	8.533	3.35	14.533	3.59	20.53	1.44
2.550	1.56	8.550	3.35	14.550	3.59	20.55	1.44
2.567	1.56	8.567	3.35	14.567	3.59	20.57	1.44
2.583	1.56	8.583	3.35	14.583	3.59	20.58	1.44
2.600	1.56	8.600	3.35	14.600	3.59	20.60	1.44
2.617	1.56	8.617	3.35	14.617	3.59	20.62	1.44
2.633	1.56	8.633	3.35	14.633	3.59	20.63	1.44
2.650	1.56	8.650	3.35	14.650	3.59	20.65	1.44
2.667	1.56	8.667	3.35	14.667	3.59	20.67	1.44
2.683	1.56	8.683	3.35	14.683	3.59	20.68	1.44
2.700	1.56	8.700	3.35	14.700	3.59	20.70	1.44
2.717	1.56	8.717	3.35	14.717	3.59	20.72	1.44

2.733	1.56	8.733	3.35	14.733	3.59	20.73	1.44
2.750	1.56	8.750	3.35	14.750	3.59	20.75	1.44
2.767	1.56	8.767	3.35	14.767	3.59	20.77	1.44
2.783	1.56	8.783	3.35	14.783	3.59	20.78	1.44
2.800	1.56	8.800	3.35	14.800	3.59	20.80	1.44
2.817	1.56	8.817	3.35	14.817	3.59	20.82	1.44
2.833	1.56	8.833	3.35	14.833	3.59	20.83	1.44
2.850	1.56	8.850	3.35	14.850	3.59	20.85	1.44
2.867	1.56	8.867	3.35	14.867	3.59	20.87	1.44
2.883	1.56	8.883	3.35	14.883	3.59	20.88	1.44
2.900	1.56	8.900	3.35	14.900	3.59	20.90	1.44
2.917	1.56	8.917	3.35	14.917	3.59	20.92	1.44
2.933	1.56	8.933	3.35	14.933	3.59	20.93	1.44
2.950	1.56	8.950	3.35	14.950	3.59	20.95	1.44
2.967	1.56	8.967	3.35	14.967	3.59	20.97	1.44
2.983	1.56	8.983	3.35	14.983	3.59	20.98	1.44
3.000	1.56	9.000	3.35	15.000	3.59	21.00	1.44
3.017	1.56	9.017	3.83	15.017	3.59	21.02	1.44
3.033	1.56	9.033	3.83	15.033	3.59	21.03	1.44
3.050	1.56	9.050	3.83	15.050	3.59	21.05	1.44
3.067	1.56	9.067	3.83	15.067	3.59	21.07	1.44
3.083	1.56	9.083	3.83	15.083	3.59	21.08	1.44
3.100	1.56	9.100	3.83	15.100	3.59	21.10	1.44
3.117	1.56	9.117	3.83	15.117	3.59	21.12	1.44
3.133	1.56	9.133	3.83	15.133	3.59	21.13	1.44
3.150	1.56	9.150	3.83	15.150	3.59	21.15	1.44
3.167	1.56	9.167	3.83	15.167	3.59	21.17	1.44
3.183	1.56	9.183	3.83	15.183	3.59	21.18	1.44
3.200	1.56	9.200	3.83	15.200	3.59	21.20	1.44
3.217	1.56	9.217	3.83	15.217	3.59	21.22	1.44
3.233	1.56	9.233	3.83	15.233	3.59	21.23	1.44
3.250	1.56	9.250	3.83	15.250	3.59	21.25	1.44
3.267	1.56	9.267	3.83	15.267	3.59	21.27	1.44
3.283	1.56	9.283	3.83	15.283	3.59	21.28	1.44
3.300	1.56	9.300	3.83	15.300	3.59	21.30	1.44
3.317	1.56	9.317	3.83	15.317	3.59	21.32	1.44
3.333	1.56	9.333	3.83	15.333	3.59	21.33	1.44
3.350	1.56	9.350	3.83	15.350	3.59	21.35	1.44
3.367	1.56	9.367	3.83	15.367	3.59	21.37	1.44
3.383	1.56	9.383	3.83	15.383	3.59	21.38	1.44
3.400	1.56	9.400	3.83	15.400	3.59	21.40	1.44
3.417	1.56	9.417	3.83	15.417	3.59	21.42	1.44
3.433	1.56	9.433	3.83	15.433	3.59	21.43	1.44
3.450	1.56	9.450	3.83	15.450	3.59	21.45	1.44
3.467	1.56	9.467	3.83	15.467	3.59	21.47	1.44
3.483	1.56	9.483	3.83	15.483	3.59	21.48	1.44
3.500	1.56	9.500	3.83	15.500	3.59	21.50	1.44
3.517	1.56	9.517	4.31	15.517	3.59	21.52	1.44
3.533	1.56	9.533	4.31	15.533	3.59	21.53	1.44
3.550	1.56	9.550	4.31	15.550	3.59	21.55	1.44
3.567	1.56	9.567	4.31	15.567	3.59	21.57	1.44
3.583	1.56	9.583	4.31	15.583	3.59	21.58	1.44
3.600	1.56	9.600	4.31	15.600	3.59	21.60	1.44
3.617	1.56	9.617	4.31	15.617	3.59	21.62	1.44
3.633	1.56	9.633	4.31	15.633	3.59	21.63	1.44
3.650	1.56	9.650	4.31	15.650	3.59	21.65	1.44
3.667	1.56	9.667	4.31	15.667	3.59	21.67	1.44
3.683	1.56	9.683	4.31	15.683	3.59	21.68	1.44
3.700	1.56	9.700	4.31	15.700	3.59	21.70	1.44
3.717	1.56	9.717	4.31	15.717	3.59	21.72	1.44
3.733	1.56	9.733	4.31	15.733	3.59	21.73	1.44
3.750	1.56	9.750	4.31	15.750	3.59	21.75	1.44
3.767	1.56	9.767	4.31	15.767	3.59	21.77	1.44
3.783	1.56	9.783	4.31	15.783	3.59	21.78	1.44
3.800	1.56	9.800	4.31	15.800	3.59	21.80	1.44
3.817	1.56	9.817	4.31	15.817	3.59	21.82	1.44
3.833	1.56	9.833	4.31	15.833	3.59	21.83	1.44
3.850	1.56	9.850	4.31	15.850	3.59	21.85	1.44
3.867	1.56	9.867	4.31	15.867	3.59	21.87	1.44
3.883	1.56	9.883	4.31	15.883	3.59	21.88	1.44
3.900	1.56	9.900	4.31	15.900	3.59	21.90	1.44
3.917	1.56	9.917	4.31	15.917	3.59	21.92	1.44
3.933	1.56	9.933	4.31	15.933	3.59	21.93	1.44
3.950	1.56	9.950	4.31	15.950	3.59	21.95	1.44
3.967	1.56	9.967	4.31	15.967	3.59	21.97	1.44
3.983	1.56	9.983	4.31	15.983	3.59	21.98	1.44
4.000	1.56	10.000	4.31	16.000	3.59	22.00	1.44
4.017	1.91	10.017	5.50	16.017	2.16	22.02	1.44
4.033	1.91	10.033	5.50	16.033	2.15	22.03	1.44
4.050	1.91	10.050	5.50	16.050	2.15	22.05	1.44
4.067	1.91	10.067	5.50	16.067	2.15	22.07	1.44
4.083	1.91	10.083	5.50	16.083	2.15	22.08	1.44
4.100	1.91	10.100	5.50	16.100	2.15	22.10	1.44
4.117	1.91	10.117	5.50	16.117	2.15	22.12	1.44

4.133	1.91	10.133	5.50	16.133	2.15	22.13	1.44
4.150	1.91	10.150	5.50	16.150	2.15	22.15	1.44
4.167	1.91	10.167	5.50	16.167	2.15	22.17	1.44
4.183	1.91	10.183	5.50	16.183	2.15	22.18	1.44
4.200	1.91	10.200	5.50	16.200	2.15	22.20	1.44
4.217	1.91	10.217	5.50	16.217	2.15	22.22	1.44
4.233	1.91	10.233	5.50	16.233	2.15	22.23	1.44
4.250	1.91	10.250	5.50	16.250	2.15	22.25	1.44
4.267	1.91	10.267	5.50	16.267	2.15	22.27	1.44
4.283	1.91	10.283	5.50	16.283	2.15	22.28	1.44
4.300	1.91	10.300	5.50	16.300	2.15	22.30	1.44
4.317	1.91	10.317	5.50	16.317	2.15	22.32	1.44
4.333	1.91	10.333	5.50	16.333	2.15	22.33	1.44
4.350	1.91	10.350	5.50	16.350	2.15	22.35	1.44
4.367	1.91	10.367	5.50	16.367	2.15	22.37	1.44
4.383	1.91	10.383	5.50	16.383	2.15	22.38	1.44
4.400	1.91	10.400	5.50	16.400	2.15	22.40	1.44
4.417	1.91	10.417	5.50	16.417	2.15	22.42	1.44
4.433	1.91	10.433	5.50	16.433	2.15	22.43	1.44
4.450	1.91	10.450	5.50	16.450	2.15	22.45	1.44
4.467	1.91	10.467	5.50	16.467	2.15	22.47	1.44
4.483	1.91	10.483	5.50	16.483	2.15	22.48	1.44
4.500	1.91	10.500	5.51	16.500	2.15	22.50	1.44
4.517	1.91	10.517	7.42	16.517	2.15	22.52	1.44
4.533	1.91	10.533	7.42	16.533	2.15	22.53	1.44
4.550	1.91	10.550	7.42	16.550	2.15	22.55	1.44
4.567	1.91	10.567	7.42	16.567	2.15	22.57	1.44
4.583	1.91	10.583	7.42	16.583	2.15	22.58	1.44
4.600	1.91	10.600	7.42	16.600	2.15	22.60	1.44
4.617	1.91	10.617	7.42	16.617	2.15	22.62	1.44
4.633	1.91	10.633	7.42	16.633	2.15	22.63	1.44
4.650	1.91	10.650	7.42	16.650	2.15	22.65	1.44
4.667	1.91	10.667	7.42	16.667	2.15	22.67	1.44
4.683	1.91	10.683	7.42	16.683	2.15	22.68	1.44
4.700	1.91	10.700	7.42	16.700	2.15	22.70	1.44
4.717	1.91	10.717	7.42	16.717	2.15	22.72	1.44
4.733	1.91	10.733	7.42	16.733	2.15	22.73	1.44
4.750	1.91	10.750	7.42	16.750	2.15	22.75	1.44
4.767	1.91	10.767	7.42	16.767	2.15	22.77	1.44
4.783	1.91	10.783	7.42	16.783	2.15	22.78	1.44
4.800	1.91	10.800	7.42	16.800	2.15	22.80	1.44
4.817	1.91	10.817	7.42	16.817	2.15	22.82	1.44
4.833	1.91	10.833	7.42	16.833	2.15	22.83	1.44
4.850	1.91	10.850	7.42	16.850	2.15	22.85	1.44
4.867	1.91	10.867	7.42	16.867	2.15	22.87	1.44
4.883	1.91	10.883	7.42	16.883	2.15	22.88	1.44
4.900	1.91	10.900	7.42	16.900	2.15	22.90	1.44
4.917	1.91	10.917	7.42	16.917	2.15	22.92	1.44
4.933	1.91	10.933	7.42	16.933	2.15	22.93	1.44
4.950	1.91	10.950	7.42	16.950	2.15	22.95	1.44
4.967	1.91	10.967	7.42	16.967	2.15	22.97	1.44
4.983	1.91	10.983	7.42	16.983	2.15	22.98	1.44
5.000	1.91	11.000	7.42	17.000	2.15	23.00	1.44
5.017	1.91	11.017	11.49	17.017	2.15	23.02	1.44
5.033	1.91	11.033	11.49	17.033	2.15	23.03	1.44
5.050	1.91	11.050	11.49	17.050	2.15	23.05	1.44
5.067	1.91	11.067	11.49	17.067	2.15	23.07	1.44
5.083	1.91	11.083	11.49	17.083	2.15	23.08	1.44
5.100	1.91	11.100	11.49	17.100	2.15	23.10	1.44
5.117	1.91	11.117	11.49	17.117	2.15	23.12	1.44
5.133	1.91	11.133	11.49	17.133	2.15	23.13	1.44
5.150	1.91	11.150	11.49	17.150	2.15	23.15	1.44
5.167	1.91	11.167	11.49	17.167	2.15	23.17	1.44
5.183	1.91	11.183	11.49	17.183	2.15	23.18	1.44
5.200	1.91	11.200	11.49	17.200	2.15	23.20	1.44
5.217	1.91	11.217	11.49	17.217	2.15	23.22	1.44
5.233	1.91	11.233	11.49	17.233	2.15	23.23	1.44
5.250	1.91	11.250	11.49	17.250	2.15	23.25	1.44
5.267	1.91	11.267	11.49	17.267	2.15	23.27	1.44
5.283	1.91	11.283	11.49	17.283	2.15	23.28	1.44
5.300	1.91	11.300	11.49	17.300	2.15	23.30	1.44
5.317	1.91	11.317	11.49	17.317	2.15	23.32	1.44
5.333	1.91	11.333	11.49	17.333	2.15	23.33	1.44
5.350	1.91	11.350	11.49	17.350	2.15	23.35	1.44
5.367	1.91	11.367	11.49	17.367	2.15	23.37	1.44
5.383	1.91	11.383	11.49	17.383	2.15	23.38	1.44
5.400	1.91	11.400	11.49	17.400	2.15	23.40	1.44
5.417	1.91	11.417	11.49	17.417	2.15	23.42	1.44
5.433	1.91	11.433	11.49	17.433	2.15	23.43	1.44
5.450	1.91	11.450	11.49	17.450	2.15	23.45	1.44
5.467	1.91	11.467	11.49	17.467	2.15	23.47	1.44
5.483	1.91	11.483	11.49	17.483	2.15	23.48	1.44
5.500	1.91	11.500	11.49	17.500	2.15	23.50	1.44
5.517	1.91	11.517	35.41	17.517	2.15	23.52	1.44

5.533	1.91	11.533	35.42	17.533	2.15	23.53	1.44
5.550	1.91	11.550	35.42	17.550	2.15	23.55	1.44
5.567	1.91	11.567	35.42	17.567	2.15	23.57	1.44
5.583	1.91	11.583	35.42	17.583	2.15	23.58	1.44
5.600	1.91	11.600	35.42	17.600	2.15	23.60	1.44
5.617	1.91	11.617	35.42	17.617	2.15	23.62	1.44
5.633	1.91	11.633	35.42	17.633	2.15	23.63	1.44
5.650	1.91	11.650	35.42	17.650	2.15	23.65	1.44
5.667	1.91	11.667	35.42	17.667	2.15	23.67	1.44
5.683	1.91	11.683	35.42	17.683	2.15	23.68	1.44
5.700	1.91	11.700	35.42	17.700	2.15	23.70	1.44
5.717	1.91	11.717	35.42	17.717	2.15	23.72	1.44
5.733	1.91	11.733	35.42	17.733	2.15	23.73	1.44
5.750	1.91	11.750	35.42	17.750	2.15	23.75	1.44
5.767	1.91	11.767	146.40	17.767	2.15	23.77	1.44
5.783	1.91	11.783	146.45	17.783	2.15	23.78	1.44
5.800	1.91	11.800	146.45	17.800	2.15	23.80	1.44
5.817	1.91	11.817	146.45	17.817	2.15	23.82	1.44
5.833	1.91	11.833	146.45	17.833	2.15	23.83	1.44
5.850	1.91	11.850	146.45	17.850	2.15	23.85	1.44
5.867	1.91	11.867	146.45	17.867	2.15	23.87	1.44
5.883	1.91	11.883	146.45	17.883	2.15	23.88	1.44
5.900	1.91	11.900	146.45	17.900	2.15	23.90	1.44
5.917	1.91	11.917	146.45	17.917	2.15	23.92	1.44
5.933	1.91	11.933	146.45	17.933	2.15	23.93	1.44
5.950	1.91	11.950	146.45	17.950	2.15	23.95	1.44
5.967	1.91	11.967	146.45	17.967	2.15	23.97	1.44
5.983	1.91	11.983	146.45	17.983	2.15	23.98	1.44
6.000	1.91	12.000	146.45	18.000	2.15	24.00	1.44

Max.Eff.Inten.(mm/hr)=	146.45	165.13		
over (min)	5.00	9.00		
Storage Coeff. (min)=	2.67 (ii)	8.27 (ii)		
Unit Hyd. Tpeak (min)=	5.00	9.00		
Unit Hyd. peak (cms)=	0.33	0.13		
			TOTALS	
PEAK FLOW (cms)=	0.46	0.32	0.752 (iii)	
TIME TO PEAK (hrs)=	12.00	12.05	12.00	
RUNOFF VOLUME (mm)=	117.65	59.40	82.12	
TOTAL RAINFALL (mm)=	119.65	119.65	119.65	
RUNOFF COEFFICIENT =	0.98	0.50	0.69	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (2101):		17.31	4.109	12.00	81.15
+ ID2= 2 (3100):		2.89	0.752	12.00	82.12
ID = 3 (0097):		20.20	4.861	12.00	81.29

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0097)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0097):		20.20	4.861	12.00	81.29
+ ID2= 2 (0096):		1.16	0.181	12.00	56.85
ID = 1 (0097):		21.36	5.043	12.00	79.96

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 1.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0400	0.6360
	0.0160	0.1070	0.0790	0.7870
	0.0240	0.2260	0.2900	0.9450
	0.0300	0.3550	0.4710	1.0430
	0.0350	0.4920	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0097)	21.360	5.043	12.00	79.96
OUTFLOW: ID= 1 (0001)	21.360	0.461	12.92	51.42

PEAK FLOW REDUCTION [Qout/Qin](%)= 9.14
TIME SHIFT OF PEAK FLOW (min)= 55.00
MAXIMUM STORAGE USED (ha.m.)= 1.0375

CALIB STANDHYD (2102) ID= 1 DT= 5.0 min	Area (ha)= 0.21 Total Imp(%)= 65.00 Dir. Conn.(%)= 65.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.14	0.07
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	37.42	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.32	6.083	2.15	12.083	17.24	18.08	2.15
0.167	1.32	6.167	2.15	12.167	17.23	18.17	2.15
0.250	1.32	6.250	2.15	12.250	17.23	18.25	2.15
0.333	1.32	6.333	2.15	12.333	17.23	18.33	2.15
0.417	1.32	6.417	2.15	12.417	17.23	18.42	2.15
0.500	1.32	6.500	2.15	12.500	17.23	18.50	2.15
0.583	1.32	6.583	2.15	12.583	8.86	18.58	2.15
0.667	1.32	6.667	2.15	12.667	8.85	18.67	2.15
0.750	1.32	6.750	2.15	12.750	8.85	18.75	2.15
0.833	1.32	6.833	2.15	12.833	8.85	18.83	2.15
0.917	1.32	6.917	2.15	12.917	8.85	18.92	2.15
1.000	1.32	7.000	2.15	13.000	8.85	19.00	2.15
1.083	1.32	7.083	2.63	13.083	6.46	19.08	2.15
1.167	1.32	7.167	2.63	13.167	6.46	19.17	2.15
1.250	1.32	7.250	2.63	13.250	6.46	19.25	2.15
1.333	1.32	7.333	2.63	13.333	6.46	19.33	2.15
1.417	1.32	7.417	2.63	13.417	6.46	19.42	2.15
1.500	1.32	7.500	2.63	13.500	6.46	19.50	2.15
1.583	1.32	7.583	2.63	13.583	5.03	19.58	2.15
1.667	1.32	7.667	2.63	13.667	5.03	19.67	2.15
1.750	1.32	7.750	2.63	13.750	5.03	19.75	2.15
1.833	1.32	7.833	2.63	13.833	5.03	19.83	2.15
1.917	1.32	7.917	2.63	13.917	5.03	19.92	2.15
2.000	1.32	8.000	2.63	14.000	5.03	20.00	2.15
2.083	1.56	8.083	3.11	14.083	3.59	20.08	1.44
2.167	1.56	8.167	3.11	14.167	3.59	20.17	1.44
2.250	1.56	8.250	3.11	14.250	3.59	20.25	1.44
2.333	1.56	8.333	3.11	14.333	3.59	20.33	1.44
2.417	1.56	8.417	3.11	14.417	3.59	20.42	1.44
2.500	1.56	8.500	3.11	14.500	3.59	20.50	1.44
2.583	1.56	8.583	3.35	14.583	3.59	20.58	1.44
2.667	1.56	8.667	3.35	14.667	3.59	20.67	1.44
2.750	1.56	8.750	3.35	14.750	3.59	20.75	1.44
2.833	1.56	8.833	3.35	14.833	3.59	20.83	1.44
2.917	1.56	8.917	3.35	14.917	3.59	20.92	1.44
3.000	1.56	9.000	3.35	15.000	3.59	21.00	1.44
3.083	1.56	9.083	3.83	15.083	3.59	21.08	1.44
3.167	1.56	9.167	3.83	15.167	3.59	21.17	1.44
3.250	1.56	9.250	3.83	15.250	3.59	21.25	1.44
3.333	1.56	9.333	3.83	15.333	3.59	21.33	1.44
3.417	1.56	9.417	3.83	15.417	3.59	21.42	1.44
3.500	1.56	9.500	3.83	15.500	3.59	21.50	1.44
3.583	1.56	9.583	4.31	15.583	3.59	21.58	1.44
3.667	1.56	9.667	4.31	15.667	3.59	21.67	1.44
3.750	1.56	9.750	4.31	15.750	3.59	21.75	1.44
3.833	1.56	9.833	4.31	15.833	3.59	21.83	1.44
3.917	1.56	9.917	4.31	15.917	3.59	21.92	1.44
4.000	1.56	10.000	4.31	16.000	3.59	22.00	1.44
4.083	1.91	10.083	5.50	16.083	2.15	22.08	1.44
4.167	1.91	10.167	5.50	16.167	2.15	22.17	1.44
4.250	1.91	10.250	5.50	16.250	2.15	22.25	1.44
4.333	1.91	10.333	5.50	16.333	2.15	22.33	1.44
4.417	1.91	10.417	5.50	16.417	2.15	22.42	1.44
4.500	1.91	10.500	5.50	16.500	2.15	22.50	1.44
4.583	1.91	10.583	7.42	16.583	2.15	22.58	1.44

4.667	1.91	10.667	7.42	16.667	2.15	22.67	1.44
4.750	1.91	10.750	7.42	16.750	2.15	22.75	1.44
4.833	1.91	10.833	7.42	16.833	2.15	22.83	1.44
4.917	1.91	10.917	7.42	16.917	2.15	22.92	1.44
5.000	1.91	11.000	7.42	17.000	2.15	23.00	1.44
5.083	1.91	11.083	11.49	17.083	2.15	23.08	1.44
5.167	1.91	11.167	11.49	17.167	2.15	23.17	1.44
5.250	1.91	11.250	11.49	17.250	2.15	23.25	1.44
5.333	1.91	11.333	11.49	17.333	2.15	23.33	1.44
5.417	1.91	11.417	11.49	17.417	2.15	23.42	1.44
5.500	1.91	11.500	11.49	17.500	2.15	23.50	1.44
5.583	1.91	11.583	35.41	17.583	2.15	23.58	1.44
5.667	1.91	11.667	35.42	17.667	2.15	23.67	1.44
5.750	1.91	11.750	35.42	17.750	2.15	23.75	1.44
5.833	1.91	11.833	146.44	17.833	2.15	23.83	1.44
5.917	1.91	11.917	146.45	17.917	2.15	23.92	1.44
6.000	1.91	12.000	146.45	18.000	2.15	24.00	1.44

			TOTALS
Max.Eff.Inten.(mm/hr)=	146.45	57.88	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.22 (ii)	5.95 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.33	0.15	
PEAK FLOW (cms)=	0.06	0.01	0.065 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	117.65	39.71	90.36
TOTAL RAINFALL (mm)=	119.65	119.65	119.65
RUNOFF COEFFICIENT =	0.98	0.33	0.76

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0015)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0001):	21.36	0.461	12.92	51.42
	+ ID2= 2 (2102):	0.21	0.065	12.00	90.36
	ID = 3 (0015):	21.57	0.465	12.90	51.80

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION:5.0 Chicago 4hr 25mm **
****

READ STORM	Filename: C:\Users\rbrockie\AppData\Local\Temp\913e2f46-79e8-42d3-b20d-3fb65cefc10e\dcd3868a
Ptotal= 25.00 mm	Comments: 25MM4HR

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	2.07	1.00	5.70	2.00	5.19	3.00	2.80
0.17	2.27	1.17	10.78	2.17	4.47	3.17	2.62
0.33	2.52	1.33	50.21	2.33	3.95	3.33	2.48
0.50	2.88	1.50	13.37	2.50	3.56	3.50	2.35
0.67	3.38	1.67	8.29	2.67	3.25	3.67	2.23
0.83	4.18	1.83	6.30	2.83	3.01	3.83	2.14

CALIB STANDHYD (2101)	Area (ha)= 17.31	
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00	Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.08	6.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	339.71	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.18	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.30	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)=	50.21	4.62		
over (min)	5.00	35.00		
Storage Coeff. (min)=	7.01 (ii)	31.16 (ii)		
Unit Hyd. Tpeak (min)=	5.00	35.00		
Unit Hyd. peak (cms)=	0.17	0.03		
			TOTALS	
PEAK FLOW (cms)=	0.84	0.04	0.841 (iii)	
TIME TO PEAK (hrs)=	1.50	2.08	1.50	
RUNOFF VOLUME (mm)=	23.00	3.01	11.60	
TOTAL RAINFALL (mm)=	25.00	25.00	25.00	
RUNOFF COEFFICIENT =	0.92	0.12	0.46	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0096)
ID= 1 DT= 5.0 min

Area (ha)= 1.16
Total Imp(%)= 22.00 Dir. Conn.(%)= 22.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.26	0.90
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.94	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.18	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.30	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)=	50.21	1.15		
over (min)	5.00	50.00		
Storage Coeff. (min)=	3.12 (ii)	45.28 (ii)		
Unit Hyd. Tpeak (min)=	5.00	50.00		
Unit Hyd. peak (cms)=	0.27	0.02		
			TOTALS	
PEAK FLOW (cms)=	0.03	0.00	0.035 (iii)	
TIME TO PEAK (hrs)=	1.50	2.58	1.50	
RUNOFF VOLUME (mm)=	23.00	1.69	6.36	
TOTAL RAINFALL (mm)=	25.00	25.00	25.00	
RUNOFF COEFFICIENT =	0.92	0.07	0.25	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (3100)	Area (ha)= 2.89
ID= 1 DT= 1.0 min	Total Imp(%)= 68.00 Dir. Conn.(%)= 39.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.97	0.92
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	138.80	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 1.0 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
0.017	2.07	1.017	5.70	2.017	5.19	3.02	2.80
0.033	2.07	1.033	5.70	2.033	5.19	3.03	2.80
0.050	2.07	1.050	5.70	2.050	5.19	3.05	2.80
0.067	2.07	1.067	5.70	2.067	5.19	3.07	2.80
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.100	2.07	1.100	5.70	2.100	5.19	3.10	2.80
0.117	2.07	1.117	5.70	2.117	5.19	3.12	2.80
0.133	2.07	1.133	5.70	2.133	5.19	3.13	2.80
0.150	2.07	1.150	5.70	2.150	5.19	3.15	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.183	2.27	1.183	10.78	2.183	4.47	3.18	2.62
0.200	2.27	1.200	10.78	2.200	4.47	3.20	2.62
0.217	2.27	1.217	10.78	2.217	4.47	3.22	2.62
0.233	2.27	1.233	10.78	2.233	4.47	3.23	2.62
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.267	2.27	1.267	10.78	2.267	4.47	3.27	2.62
0.283	2.27	1.283	10.78	2.283	4.47	3.28	2.62
0.300	2.27	1.300	10.78	2.300	4.47	3.30	2.62
0.317	2.27	1.317	10.78	2.317	4.47	3.32	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.350	2.52	1.350	50.21	2.350	3.95	3.35	2.48
0.367	2.52	1.367	50.21	2.367	3.95	3.37	2.48
0.383	2.52	1.383	50.21	2.383	3.95	3.38	2.48
0.400	2.52	1.400	50.21	2.400	3.95	3.40	2.48
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.433	2.52	1.433	50.21	2.433	3.95	3.43	2.48
0.450	2.52	1.450	50.21	2.450	3.95	3.45	2.48
0.467	2.52	1.467	50.21	2.467	3.95	3.47	2.48
0.483	2.52	1.483	50.21	2.483	3.95	3.48	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.517	2.88	1.517	13.37	2.517	3.56	3.52	2.35
0.533	2.88	1.533	13.37	2.533	3.56	3.53	2.35
0.550	2.88	1.550	13.37	2.550	3.56	3.55	2.35
0.567	2.88	1.567	13.37	2.567	3.56	3.57	2.35
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.600	2.88	1.600	13.37	2.600	3.56	3.60	2.35
0.617	2.88	1.617	13.37	2.617	3.56	3.62	2.35
0.633	2.88	1.633	13.37	2.633	3.56	3.63	2.35
0.650	2.88	1.650	13.37	2.650	3.56	3.65	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.683	3.38	1.683	8.29	2.683	3.25	3.68	2.23
0.700	3.38	1.700	8.29	2.700	3.25	3.70	2.23
0.717	3.38	1.717	8.29	2.717	3.25	3.72	2.23
0.733	3.38	1.733	8.29	2.733	3.25	3.73	2.23
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.767	3.38	1.767	8.29	2.767	3.25	3.77	2.23
0.783	3.38	1.783	8.29	2.783	3.25	3.78	2.23
0.800	3.38	1.800	8.29	2.800	3.25	3.80	2.23
0.817	3.38	1.817	8.29	2.817	3.25	3.82	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.850	4.18	1.850	6.30	2.850	3.01	3.85	2.14
0.867	4.18	1.867	6.30	2.867	3.01	3.87	2.14
0.883	4.18	1.883	6.30	2.883	3.01	3.88	2.14
0.900	4.18	1.900	6.30	2.900	3.01	3.90	2.14
0.917	4.18	1.917	6.30	2.917	3.01	3.92	2.14
0.933	4.18	1.933	6.30	2.933	3.01	3.93	2.14
0.950	4.18	1.950	6.30	2.950	3.01	3.95	2.14
0.967	4.18	1.967	6.30	2.967	3.01	3.97	2.14
0.983	4.18	1.983	6.30	2.983	3.01	3.98	2.14

```
            1.000    4.18 | 2.000    6.30 | 3.000    3.01 |  4.00    2.14

     Max.Eff.Inten.(mm/hr)=      50.21        10.96
               over (min)         5.00        13.00
     Storage Coeff.  (min)=       4.10 (ii)   12.69 (ii)
     Unit Hyd. Tpeak (min)=       5.00        13.00
     Unit Hyd. peak  (cms)=       0.26         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.14         0.02          0.145 (iii)
     TIME TO PEAK    (hrs)=       1.52         1.68           1.52
     RUNOFF VOLUME    (mm)=      23.00         3.68          11.21
     TOTAL RAINFALL   (mm)=      25.00        25.00          25.00
     RUNOFF COEFFICIENT   =       0.92         0.15           0.45


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  54.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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


--------------------
| ADD HYD  (  0097)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  2101):    17.31   0.841     1.50    11.60
     + ID2= 2 (  3100):     2.89   0.145     1.52    11.21
       ================================================
       ID = 3 (  0097):    20.20   0.985     1.50    11.55

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


--------------------
| ADD HYD  (  0097)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0097):    20.20   0.985     1.50    11.55
     + ID2= 2 (  0096):     1.16   0.035     1.50     6.36
       ================================================
       ID = 1 (  0097):    21.36   1.019     1.50    11.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  1.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000      0.0000   |    0.0400      0.6360
                          0.0160      0.1070   |    0.0790      0.7870
                          0.0240      0.2260   |    0.2900      0.9450
                          0.0300      0.3550   |    0.4710      1.0430
                          0.0350      0.4920   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0097)     21.360      1.019      1.50      11.27
   OUTFLOW: ID= 1 (  0001)     21.360      0.023      4.27       8.78

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  2.29
                  TIME SHIFT OF PEAK FLOW         (min)=166.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.2156

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2102)|   Area    (ha)=   0.21
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.14         0.07
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      37.42        40.00
     Mannings n             =    0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
```

hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.18	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.30	3.000	3.01	4.00	2.14

			TOTALS
Max.Eff.Inten.(mm/hr)=	50.21	1.15	
over (min)	5.00	45.00	
Storage Coeff. (min)=	1.87 (ii)	44.04 (ii)	
Unit Hyd. Tpeak (min)=	5.00	45.00	
Unit Hyd. peak (cms)=	0.32	0.03	
PEAK FLOW (cms)=	0.02	0.00	0.019 (iii)
TIME TO PEAK (hrs)=	1.50	2.50	1.50
RUNOFF VOLUME (mm)=	23.00	1.69	15.40
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.92	0.07	0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 54.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0015) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	21.36	0.023	4.27	8.78
+ ID2= 2 (2102):	0.21	0.019	1.50	15.40
ID = 3 (0015):	21.57	0.028	1.50	8.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Appendix F Sediment Removal Calculations

SCS consulting group ltd

CLEANOUT FREQUENCY CALCULATIONS
WETLAND SWM POND

Project Number: 2365A
Date: December 2025
Designer Initials: R.R.B.

THEORY

Time required for sediment accumulation to cause the TSS removal efficiency to be reduced by 5%

INPUT DATA

SWMF Type =	Wetland	
Drainage Area =	21.36	ha
Weighted Impervious =	62	%
Total Permanent Pool Storage =	1840	m^3
Protection Level =	1	(Enhanced)
Designed TSS Removal Rate =	80	%

Using Table 6.3 from the 2003 MOE SWM Planning and Design Manual

Table 6.3: Annual Sediment Loadings

Catchment Impervious (%)	Annual Loading (kg/ha)	Wet Density (kg/m^3)	Annual Loading (m^3/ha)
35	770	1230	0.6
55	2300	1230	1.9
70	3495	1230	2.8
85	4680	1230	3.8

Total TSS Loading = 2.3 m^3/ha/year

Total TSS Loading from Drainage Area = 49.89 m^3/year
Total TSS Removed from SWM Pond = 39.91 m^3/year

CALCULATIONS - TSS REMOVAL EFFICIENCY REDUCED BY 5%

Refer to attached calculations

Cleanout Frequency for 63% impervious = 15 years

The required sediment volume to be removed at 15 year is 514 m3

The accumulated sediment volume after 10 years is 346 m3

CLEANOUT FREQUENCY CALCULATIONS
WETLAND SWM POND

Project Number: 2365A
Date: December 2025
Designer Initials: R.R.B.

CALCULATIONS - TSS REMOVAL EFFICIENCY REDUCED BY 5%

Input Data

Protection Level	1	
Drainage Area	21.36	Ha
Level of Imperviousness(35, 55, 70, 85)	62	%
Actual Starting Permanent Pool Storage	1840	m^3
Total TSS Loading from drainage area	49.9	m^3/year
Actual Starting Permanent Pool Storage	1840.0	m^3
Actual Unit Starting Permanent Pool Storage	72.0	m^3/ha
Required TSS Removal Efficiency	80	%
Actual Starting TSS Removal Efficiency	80.00	%
Target "Cleanout" TSS Removal Efficiency	75	%
Resultant Cleanout Frequency	15	Years
Sediment Cleanout Volume	514.0	m^3
Time increment	1	Years

Year	Actual Pool Volume (m^3/ha)	TSS Removal Efficiency (%)	Resultant TSS Loading (m^3)	Remaining Permanent Pool Volume (m^3)
1	72.0	84.0	34.2	1805.8
2	84.5	98.8	35.2	1770.6
3	82.9	96.8	35.1	1735.5
4	81.3	94.9	35.0	1700.6
5	79.6	93.0	34.8	1665.7
6	78.0	91.0	34.7	1631.1
7	76.4	89.1	34.5	1596.5
8	74.7	87.2	34.4	1562.1
9	73.1	85.3	34.3	1527.9
10	71.5	83.4	34.1	1493.7
11	69.9	81.5	34.0	1459.7
12	68.3	79.6	33.8	1425.9
13	66.8	77.8	33.6	1392.3
14	65.2	75.9	33.5	1358.8
15	63.6	74.0	33.3	1325.5

Appendix G Erosion and Sediment Control Calculations

SCS consulting group ltd

ESC POND ORIFICE SIZING

Project Number: 2365a
Date:December 2025
Designer Initials: R.R.B.

Drainage Area:	16.34	ha			
Permanent Pool Volume=	16.34	ha	125	m^3/ha	
=	2042.5	m^3	(Required)		
Active Pond Volume=	125	m^3/ha			
=	2042.5	m^3	(Required)		
Bottom of Pond =	138.55		1.4	m Permanent Pool Depth	
NWL =	140.0		0.8	m Active Storage Depth	
MAX Contour =	140.8		2.2	m deep (Total)	

Elevation (m)	Stage (m)	Total Area (m^2)	Avg. Area (m^2)	Incremental Storage (m^3)	Perm Pool Storage (m^3)	Active Storage (m^3)
138.55	0.0	555			0	
138.95	0.4	716	636	254	254	
139.25	0.7	1947	1332	399	654	
139.55	1.0	4030	2989	897	1550	
140.00	1.4	4935	3441	2581	3234	0
140.2	1.6	5172	5054	758		758
140.8	2.2	6734	5953	3810		4568

Volume Summary

Permanent Pool Vol.:	Required :	2042.5	m^3	
	Designed :	3234	m^3	58% Greater
Active Storage Vol.:	Required :	2042.5	m^3	
	Designed :	4568	m^3	124% Greater

Orifice Sizing

Extended Detention Water Elevation @ required volume =	140.38	m
Area at Extended Detention Water Elevation =	5535	m^2
Orifice invert =	140.00	m
Head above centre of orifice =	0.31	m
Orifice Size (diameter) =	0.140	m
=	**140**	**mm**
Peak flow from Extended Detention Orifice =	0.024	m^3/s
Diameter of outfall sewer =	300	mm
Pipe capacity of 300mm diam. @ 0.5% =	0.068	m^3/s

ESC POND ORIFICE SIZING

Project Number: 2365a
Date:December 2025
Designer Initials: R.R.B.

Perforated Pipe

The perforated pipe will be sized to ensure that the orifice still controls with 50% blockage of the pipe

Diameter of the Orifice =	140	mm
Area of the Orifice = pr^2 =	0.015	m^2
Diameter of Perforated Pipe =	300	mm
Length of submerged Pipe=	1.00	m
Circumference of Pipe =	0.94	m

Diameter of holes on perforated pipe	25	mm
Spacing Distance	75	mm

Using 25 mm diameter holes spaced at 75 mm c/c:

Holes per row (75 mm spacing) =	12	holes/row
Rows per length of pipe (75 mm spacing) =	13	rows
Holes per length of pipe =	156	holes
Area of one 25 mm diameter hole =	0.0005	m^2
Total open area of perforated pipe =	0.0766	m^2

The perforated pipe should provide an opening area greater than 2 x the orifice area

2x Orifice Area =	0.031	m^2

0.0766 m^2 > 0.0308 m^2

ESC POND ORIFICE SIZING

Project Number: 2365a
Date:December 2025
Designer Initials: R.R.B.

Orifice Dia. (mm)	140				
Pond Max. Elev (m)	140.79				
Ext. Det. Elev. (m)	140.38	Ext. Det. Surf. Area	5535	m^2	
Pond Min. Elev (m)	140.00	Pond Min. Surf. Area	4935	m^2	
Orifice Invert Elev (m)	140.00				
Increment (m)	0.02	**Total Detention Time**	**48**	**Hours**	

Elevation (m)	Head (m)	Flow (cms)	Area (m^2)	Volume (m^3)	Detention Time (hours)	Cumulative Time (hours)
140.00	na	0.000	4935	0	0.0	0.0
140.02	na	0.002	4967	99	17.2	0.0
140.04	na	0.003	4998	199	8.7	8.7
140.06	na	0.005	5030	299	5.8	14.5
140.08	na	0.006	5061	400	4.4	18.9
140.10	na	0.008	5093	501	3.5	22.4
140.12	na	0.010	5125	604	3.0	25.3
140.14	0.07	0.011	5156	706	2.6	27.9
140.16	0.09	0.013	5188	810	2.3	30.2
140.18	0.11	0.014	5219	914	2.1	32.2
140.20	0.13	0.015	5251	1019	1.9	34.1
140.22	0.15	0.016	5283	1124	1.8	35.9
140.24	0.17	0.017	5314	1230	1.7	37.6
140.26	0.19	0.018	5346	1337	1.6	39.2
140.28	0.21	0.019	5377	1444	1.5	40.8
140.30	0.23	0.020	5409	1552	1.5	42.2
140.32	0.25	0.021	5441	1660	1.4	43.7
140.34	0.27	0.022	5472	1769	1.4	45.0
140.36	0.29	0.023	5504	1879	1.3	46.4
140.38	0.31	0.024	5535	1989	1.3	47.7
140.40	0.33	0.024	5567	2100	1.3	49.0
140.42	0.35	0.025	5599	2212	1.2	50.2
140.44	0.37	0.026	5630	2324	1.2	51.4
140.46	0.39	0.026	5662	2437	1.2	52.6
140.48	0.41	0.027	5693	2551	1.2	53.8
140.50	0.43	0.028	5725	2665	1.1	54.9
140.52	0.45	0.028	5757	2780	1.1	56.0
140.54	0.47	0.029	5788	2895	1.1	57.1
140.56	0.49	0.030	5820	3011	1.1	58.2
140.58	0.51	0.030	5851	3128	1.1	59.3
140.60	0.53	0.031	5883	3245	1.1	60.4
140.62	0.55	0.031	5915	3363	1.0	61.4