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The Gateway Centre

PRELIMINARY STORMWATER MANAGEMENT REPORT

Charis Developments

File 120119 | December 22, 2025

Document Control

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Date: **December 22, 2025**		

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Issue	Date	Description
1	April 6, 2022	OPA/ZBA 1st Submission
2	September 16, 2024	Revised Site Plan
3	July 8, 2025	Revised Site Plan
4	December 22, 2025	2nd Submission

Document Contents

1 Introduction 1

1.1 Objectives 1

1.2 Guidelines & Background Reports 1

2 Development Site 2

2.1 Site Location & Description 2

2.2 Surface Conditions 2

2.3 Subsurface Conditions 3

2.4 Proposed Development 3

3 Existing Drainage Conditions 5

3.1 Surface Drainage & Runoff 5

3.2 Pre-Development Peak Flows 6

4 Proposed Stormwater Management Plan 8

4.1 Design Criteria 8

4.2 Stormwater Management Strategy 8

4.3 Water Quantity 10

4.4 Water Quality 14

4.5 Feature Based Water Budget 15

5 Siltation & Erosion Controls 16

6 Summary 17

Tables

Table 1: External Catchment Peak Flow Rates 6
Table 2: Pre-Development Peak Flow Rates 7
Table 3: Post-Development Peak Flow Rates 11
Table 4: Underground Storage Volumes 12
Table 5: Rooftop Storage Volumes 13

Figures

Figure 1: Key Plan 18

Drawings

Richard Ziegler Architect Inc.

A101: Site Plan – Option C4B

Tatham Engineering Limited

DP.1: Pre-Development Drainage Plan
DP.2: Post-Development Drainage Plan
ODP.1: Overall Drainage Plan
STM.1: Preliminary Storm Layout Plan

Appendices

Appendix A: Pre-Development SWM Calculations
Appendix B: Post-Development SWM Calculations
Appendix C: Conveyance Calculations
Appendix D: Underground Storage System & OGS Details

1 Introduction

Tatham Engineering has been retained by Charis Developments to prepare a Preliminary Stormwater Management (SWM) Report to support an official plan amendment (OPA) and zoning by-law amendment (ZBA) for the proposed Gateway Centre Commercial Development in the Town of Collingwood, County of Simcoe.

1.1 OBJECTIVES

The primary objective of this report is to demonstrate that the proposed development will not adversely affect local surface water quantity or water quality conditions. This will be accomplished by evaluating the effect of the development on local drainage conditions and, where necessary, providing solutions to mitigate any adverse impacts.

1.2 GUIDELINES & BACKGROUND REPORTS

This report was prepared recognizing municipal and provincial guidelines on water resources and the environment, including the following publications:

- *The Ministry of the Environment, Conservation and Parks (MECP) Stormwater Management Practices Planning and Design Manual* (2003);
- *Town of Collingwood Development Standards* (Amended 2022); and
- *Nottawasaga Valley Conservation Authority Stormwater Technical Guide* (2013).

Additional reports were reviewed in preparation of this report as summarized below:

- *Geotechnical Investigation Proposed Commercial Development – 839, 853 and 869 Hurontario Street and 7564 Poplar Sideroad, Collingwood* (July 2025) by G2S Consulting Inc.;
- *Hydrogeological Investigation – 839, 853 and 869 Hurontario Street & 7564 Poplar Sideroad, Collingwood* (July 2025) by G2S Consulting Inc.;
- *L – The Gateway Centre Feature Based Water Balance,* (December 2025) by Tatham Engineering;
- *Poplar Sideroad Improvements* (March 2010) by C.C. Tatham & Associates Ltd; and
- *South Collingwood Final Stormwater Management Report* (2006) by C.C. Tatham & Associates Ltd.

2 Development Site

2.1 SITE LOCATION & DESCRIPTION

The subject property consists of approximately 3.75 ha of mostly undeveloped land located northeast of the Hurontario Street and Poplar Sideroad intersection in the Town of Collingwood. The proposed development incorporates four properties, the municipal addresses being part of 839 Hurontario Street, 853 Hurontario Street, 869 Hurontario Street and 7564 Poplar Sideroad. The subject property is bounded by Poplar Sideroad to the south, Hurontario Street to the west, residential homes to the east and a pedestrian path and the Hamilton Drain to the north. Figure 1 illustrates the location of the subject property.

2.2 SURFACE CONDITIONS

Information regarding the existing topography, ground cover and drainage patterns were obtained through collection of detailed topographic survey data and aerial imagery. Existing drainage patterns are depicted on drawing DP.1 – Pre-Development Drainage Plan.

The topographic information (survey completed by J.D. Barnes Ltd. on September 13, 2023) indicates the majority of the site gently slopes north towards the Hamilton Drain via overland flow. The Hamilton Drain flows east towards the Pretty River Estates subdivision, ultimately discharging into the Pretty River.

There is an existing wetland at the northeast corner of the site regulated by the Nottawasaga Valley Conservation Authority (NVCA). The wetland includes an area of approximately 0.197 ha on-site and 0.094 ha offsite on adjacent private lands.

The remainder of the site drains to the roadside ditch along the north side of Poplar Sideroad and the east side of Hurontario Street. The ditch along the north side of Poplar Sideroad flows east to west, tying into the Hurontario Street ditch which flows north. A 500x660 mm CSPA culvert and a 900 mm diameter culvert bring external drainage from the south side of Poplar Sideroad into this ditch system, and ultimately towards the Hamilton Drain north of the subject property.

The site is currently vacant, and primarily grass covered. The centre of the site includes a vegetated 1.2 ha fill pad, and an overgrown wooded portion occupies the northern and eastern sections of the property. An existing single family residential dwelling is located on 853 Hurontario Street.

2.3 SUBSURFACE CONDITIONS

A geotechnical investigation, submitted under a separate cover, was completed by G2S Consulting Inc. dated July 2025. Fieldwork was conducted between September 30 and October 22, 2021, consisting of 23 exploratory sampled boreholes. Two more boreholes were conducted on June 4 and 5, 2024. The boreholes extended to depths ranging from 2.1 m to 8.2 m below existing grade. Subsurface conditions are as follows:

- 75 to 360 mm of surficial topsoil;
- 9 boreholes indicated a clayey silt fill layer ranging from depths of 0.8 m to 1.2 m below grade;
- 8 boreholes indicated a granular fill (sand and gravel) layer ranging from depths of 0.9 m to 1.6 m below grade;
- a layer of clayey silt extending 1.5 m to 4.6 m below grade was identified below the fill (17 applicable boreholes) or topsoil (6 applicable boreholes);
- silt deposits were identified below the clayey silt layer at 11 borehole locations. The silt deposit depths ranged from 3.1 m to 6.1 m below grade;
- lower clayey silt deposits were encountered beneath the silt deposits in two borehole locations, extending to depths between 4.6 m and 6.1 m below grade;
- sandy silt till was encountered below the silt deposits in 12 locations with depths ranging from 5.2 m to 8.2 m below grade;
- sandy gravel till was encountered beneath the sandy silt till in both of the additional boreholes with depths ranging from 6.9 m to 7.5 m below grade; and
- limestone/dolostone was encountered at depths ranging from 6.9 m to 7.5 m below grade, and bedrock was encountered at depths ranging from 7.5 m to 11.1 m below grade.

For the purposes of hydrologic modelling, the soil has been classified as silt loam (Type BC).

Groundwater monitoring wells were previously installed in seven boreholes. Two new monitoring wells were installed in the additional boreholes. The groundwater was found to be approximately 0.4 m to 1.4 m below existing grade.

2.4 PROPOSED DEVELOPMENT

The proposed development will consist of the following facilities, as shown on the attached Site Plan. The site will be constructed in two phases, as summarized below.

PHASE 1

- Building 1 – Starbucks
- Building 2 – Dollarama
- Building 5 – Grocery Store – No Frills
- Building 6 – Shopper's Drug Mart and Retail
- Building 7 – McDonald's
- Building 8 – Restaurant/Commercial, Pet Valu and Commercial/Office

PHASE 2

- Building 3 – 12-storey mixed-used building including a commercial area, 165 two-bedroom apartment units, rooftop amenity space and underground parking
- Building 4 – Retail building with offices above

SITE PARKING

- 285 parking stalls required for commercial use
- 294 parking stalls provided for commercial use
- 125 parking stalls required for residential use
- 213 parking stalls provided for residential use
- 10 accessible spaces required (2% of required parking)
- 14 accessible spaces provided

3 Existing Drainage Conditions

Information regarding the existing topography, ground cover and drainage patterns was obtained through collection of detailed topographic survey data, aerial photos and the review of relevant background.

3.1 SURFACE DRAINAGE & RUNOFF

3.1.1 Existing Conditions

Most of the site (Catchment 101) generally slopes towards the north side of the subject property at an average gradient of 0.8% outletting north to the Hamilton Drain. Stormwater from a 1.22 ha area within the site will drain to the wetland at the northeast corner of the site before outletting north into the Hamilton Drain via overland flow. The remainder of the site flows to existing roadside ditches and overland, directly towards the Hamilton Drain.

Refer to drawing DP.1: Pre-Development Drainage Plan for details on existing drainage areas.

3.1.2 Hurontario Street and Poplar Sideroad

The subject property's south and west property lines border Poplar Sideroad and Hurontario Street's north and east roadside ditches respectively. These ditches collect and convey runoff from their respective roads, as well as a small portion of the subject property (Catchment 102). The ditch originates along Poplar Sideroad and flows west where it connects to the Hurontario Street ditch which flows north. Ultimately runoff will discharge into the Hamilton Drain. Refer to the DP.1 - Pre-Development Drainage Plan for details on existing drainage areas.

A 500x660 mm CSPA culvert and a 900 mm diameter culvert brings external drainage from the catchments on the south side of Poplar Sideroad into this ditch system. Peak flow rates from these external catchments (10 and 11) were obtained from the *South Collingwood Final Stormwater Management Report* (2006) by C.C. Tatham & Associates Ltd. These external catchment peak flow rates are summarized in Table 1 and are illustrated in the Overall Drainage Plan (ODP) included in this report.

3.1.3 Hamilton Drain

The Hamilton Drain is located immediately north of the subject property and is the primary receiving body of runoff generated from the subject site. The 2-year and the 100-year storm high water levels in the Hamilton Drain are 192.88 and 193.10 respectively. Water from the Hamilton Drain flows east towards the Pretty River, ultimately ending up in Georgian Bay.

Table 1: External Catchment Peak Flow Rates

STORM EVENT	CATCHMENT 10 CHICAGO (m^3/s)	CATCHMENT 10 SCS (m^3/s)	CATCHMENT 11 CHICAGO (m^3/s)	CATCHMENT 11 SCS (m^3/s)
25 mm	0.01	-	0.04	-
2-year	0.02	0.03	0.09	0.12
5-year	0.04	0.06	0.16	0.18
10-year	0.05	0.08	0.21	0.24
25-year	0.07	0.11	0.29	0.31
50-year	0.08	0.13	0.36	0.37
100-year	0.10	0.16	0.43	0.43
Timmins	0.19	-	0.92	-

3.1.4 Pretty River Estates

The Pretty River Estates subdivision borders the east property line of the subject site. Runoff from the rear yards of the residential units does not drain into the subject site but instead drain into an existing ditch and conveyed to ditch inlet catch basins located between Lots 17 and 19, and Lots 27 and 29.

3.2 PRE-DEVELOPMENT PEAK FLOWS

The existing conditions of the subject site, including the sections of Hurontario Street and Poplar Sideroad have been modelled in Visual OTTHYMO to establish the pre-development peak flows. The pre-development flows result for Catchments 101 and 102 (see DP.1 – Pre-Development Drainage Plan) are summarized in Table 2 and supporting calculations are provided in Appendix A.

Table 2: Pre-Development Peak Flow Rates

STORM EVENT	CATCHMENTS 101 & 102 CHICAGO DESIGN STORM (m^3/s)	CATCHMENTS 101 & 102 SCS 24-HOUR STORM (m^3/s)
25 mm	0.023	-
2-year	0.029	0.087
5-year	0.057	0.150
10-year	0.079	0.196
25-year	0.112	0.260
50-year	0.139	0.310
100-year	0.167	0.361
Timmins	0.334	-

4 Proposed Stormwater Management Plan

4.1 DESIGN CRITERIA

The proposed stormwater management plan is subject to the review and approval of the Town of Collingwood and the NVCA. Issues to be addressed and criteria to be met regarding the development of the site are summarized below.

4.1.1 Quality Control

Water quality controls must be provided to satisfy the MECP SWM Practices Planning and Design Manual. Georgian Bay is the ultimate receiving waterbody for site drainage and Enhanced Level water quality protection is required in the form of 80% total suspended solids (TSS) removal and treatment of 90% of the surface runoff generated from the contributing drainage area that occurs on a long-term average basis.

4.1.2 Quantity Control

Proposed condition peak flow rates must be controlled to existing condition rates for all storms up to and including the 100-year event to ensure there are no adverse impacts for downstream landowners. Safe conveyance to a sufficient outlet must be provided for the Regulatory Storm event.

4.1.3 Feature Based Water Budget

The NVCA requires that a preliminary feature-based water balance be provided for the wetland at the northeast corner of the site.

4.1.4 Siltation & Erosion Control

Recommendations for a siltation and erosion control strategy that will be implemented during construction must be provided.

4.2 STORMWATER MANAGEMENT STRATEGY

The proposed stormwater management strategy identified for this development includes water quantity control provided primarily by an underground storage facility working in conjunction with rooftop storage and a soakaway pit for the grocery store rooftop. Water quality control will be provided to underground storage system by an isolator row and an oil and grit separator (OGS) downstream of the storage system before it discharges into the Hamilton Drain. Runoff from the remainder of the site is considered clean and does not require water quality treatment.

Most of the runoff generated by the site (Catchment 201) will drain via an internal storm sewer network to the underground storage system located beneath the parking lot between the Dollarama and the grocery store.

Rooftop stormwater collected by the grocery store will be retained via eight 2-notch Zurn Z-105 Control-Flo roof drains prior to discharging to a soakaway pit at the northeast corner of the site. The maximum allowable rooftop storage depth is 102 mm. The soakaway pit will satisfy the requirements of the featured based water budget. Storm flows exceeding the soakaway pits storage volume will be directed to the internal storm sewer system downstream of the underground storage facility ultimately discharging to the Hamilton Drain. The underground storage system and rooftop storage design details are included in Appendix B.

The outer limit of the site consists of grassed and landscaped areas. Runoff from these areas will drain uncontrolled to a proposed external storm sewer network along Poplar Sideroad and Hurontario Street or via grassed swales and will discharge directly into the Hamilton Drain.

The drainage catchment areas are depicted in DP.2 - Post-Development Drainage Plan and described as follows.

- Catchment 201: Defines the drainage from Phase 1, 2 and 3 of the proposed development, except the grocery store. This area encompasses all buildings except for the grocery store and all of the parking area. The entire catchment drains to the underground storage system via a network of storm sewers and catchbasins and ultimately outlets to the Hamilton Drain.
- Catchment 202: Defines the boundary drainage from the grassed and landscaped areas around Phase 1, 2 and 3 that drains north, uncontrolled towards the Hamilton Drain.
- Catchment 203: Defines the drainage from the rooftop storage of the grocery store, storage will be provided by rooftop drains. The roof will drain into a soakaway pit and any storm flows exceeding the storage capacity of the soakaway pit will drain into the storm sewer network upstream of the underground storage control maintenance structure.
- Catchments 10/11: Defines the drainage from the properties south of Poplar Sideroad that connect to the existing ditch within Catchment 202 via a 500x660 mm CSPA culvert and a 900 mm diameter culvert. Peak flow rates from these catchments were obtained from the South Collingwood Final Stormwater Management Report (2006) by C.C. Tatham & Associates Ltd. and are summarized in Table 1.

The section of Poplar Sideroad and Hurontario Street adjacent to the subject site will be urbanized. The existing roadside ditch which conveys runoff from Catchments 10, 11 and 202 towards the Hamilton Drain will be replaced with an external storm sewer network that runs along

the north side of Poplar Sideroad and the east side of Hurontario Street. Details pertaining to the proposed external storm sewer network can be found on the STM.1 – Storm Layout Plan.

The storm sewer will outlet outside of the northwest corner of the subject site into the existing ditch, through an existing 950 mm diameter culvert and into the Hamilton Drain. The existing culvert has sufficient capacity for the increase in flows from the development. Supporting calculations can be found in Appendix C.

4.3 WATER QUANTITY

The existing drainage patterns will generally be maintained, with stormwater being conveyed to the Hamilton Drain. Stormwater from Catchment 201 will be conveyed via an internal storm sewer network to the underground storage system that will attenuate major and minor peak flows (up to and including the 100-year storm event) for controlled release to the existing Hamilton Drain. Peak flows exceeding the 100-year storm event will be conveyed overland to the Hamilton Drain. The maximum ponding depth within the parking lots will not exceed 250 mm before flowing overland into the Hamilton Drain.

A Visual OTTHYMO model was developed to determine peak flow rates from the subject site under existing and proposed conditions. The model was then used to determine the required water quantity storage volume to attenuate the proposed condition peak flow rates to existing condition levels. A summary of the proposed condition peak flow rates is provided in Table 3. The proposed condition supporting calculations are provided in Appendix B. The results shown in Table 3 confirm that the proposed condition peak flow rates at the site outlet are maintained below existing condition levels for all storm events.

Table 3: Post-Development Peak Flow Rates

STORM EVENT	CATCHMENTS 201, 202 & 203 CHICAGO DESIGN STORM (m^3/s)	CATCHMENTS 201, 202 & 203 SCS 24-HOUR STORM (m^3/s)
25 mm	0.021 (0.023)	-
2-year	0.023 (0.029)	0.067 (0.087)
5-year	0.055 (0.057)	0.123 (0.150)
10-year	0.079 (0.079)	0.155 (0.196)
25-year	0.110 (0.112)	0.195 (0.260)
50-year	0.130 (0.139)	0.226 (0.310)
100-year	0.150 (0.167)	0.263 (0.361)
Timmins	0.281 (0.334)	-

Note: Values in brackets represent existing condition flows.

The storage volume requirements for each given storm event, and the corresponding water level elevations are highlighted in Table 4. The storage volumes required to control the Chicago and SCS 100-year storms are 1,125 m^3 and 1,656 m^3 respectively. The system provides 1,675 m^3 of storage. The storage volume required for the Timmins storm (1,734 m^3) is larger than the storage system provides. The excess stormwater will be conveyed safely via overland flow to the Hamilton Drain. The stage-storage-discharge table for the underground storage facility is included in Appendix B.

Table 4: Underground Storage Volumes

STORM EVENT	4-HOUR CHICAGO STORM			24-HOUR STORM		
	Storage (m^3)	Discharge (m^3/s)	Water Level (m)	Storage (m^3)	Discharge (m^3/s)	Water Level (m)
25 mm	498	0.012	194.26	-	-	-
2-year	696	0.014	194.38	761	0.039	194.43
5-year	753	0.036	194.43	969	0.077	194.60
10-year	819	0.053	194.48	1125	0.096	194.74
25-year	933	0.072	194.57	1338	0.119	194.95
50-year	1031	0.085	194.66	1500	0.139	195.16
100-year	1125	0.096	194.74	1656	0.159	195.42
Timmins	1675	0.171	195.45	-	-	-

1. Maximum available underground storage volume is 1675 m^3
2. Top of UGS perimeter stone is 195.45

4.3.1 Hamilton Drain Outlet

As part of the South Collingwood Final Stormwater Management Report (Tatham, 2006) the Hamilton Drain travels from west to east towards Pretty River and was modelled in HEC-RAS from the west side of Hurontario Street to approximately 50 m east of Hurontario Street. At this location the 2-year, 100-year and Timmins water levels were modelled at 192.88 m, 193.10 m and 194.24 m respectively. The proposed outlet to the Hamilton Drain, located in the northeast corner of the property, will have an invert elevation above the Regional water level in the Hamilton Drain and therefore will not be impacted by stormwater levels in the Hamilton Drain. Similarly, the lowest emergency overflow invert will be set above the Regional water level, so the site will remain protected from the elevated water levels in the Hamilton Drain during major storm events. The design of the outlet configuration for the underground storage facility will consist of the following:

- a 450 mm diameter sewer outletting from the underground storage control structure to the Hamilton Drain;
- a 85 mm diameter orifice at the outlet of the underground storage; and
- PVC tee with a 250 mm overflow standpipe.

Additional details of the underground storage system will be provided at the detailed design stage in support of site plan approval. The underground storage system will be installed with a 30 mm PVC impermeable liner if required, to ensure groundwater does not infiltrate into the system. Groundwater will continue to be monitored by the monitoring wells installed on the proposed site prior to detailed design.

4.3.2 Rooftop Storage Outlet

The design of the outlet configuration for the rooftop storage facility will consist of the following:

- rooftop storage capacity designed to attenuate up to the Regional storm, with a maximum ponding depth of 102 mm before overflowing through scuppers;
- 8 2-notch Zurn Z-105 Control-Flo roof drains connected to a 200 mm diameter horizontal and a 125 mm diameter vertical storm drain; and
- rooftop storage will discharge into the storm sewer network at a controlled rate upstream of the underground storage control structure via a 300 mm diameter PVC storm service.

Table 5 highlights the volume of rainwater stored for each given storm event, and the corresponding water level elevations. Refer to Appendix B for supporting details and calculations pertaining to the rooftop drain and storage.

Table 5: Rooftop Storage Volumes

STORM EVENT	CHICAGO DESIGN STORM		SCS 24-HOUR STORM	
	Volume (m^3)	Depth[1] (mm)	Volume (m^3)	Depth[1] (mm)
25 mm	51	18	-	-
2-year	59	20	83	29
5-year	79	27	111	39
10-year	92	32	129	45
25-year	110	38	152	53
50-year	122	42	169	59
100-year	135	47	186	65
Timmins	252	88	-	-

1. Maximum allowable depth of 102 mm

4.3.3 Soakaway Pit

The primary purpose of the proposed soakaway pit is to provide infiltration as part of the feature-based water budget; however, the soakaway pit will also provide a level of quantity control and has been included in the hydrologic model. The soakaway pit has a design storage volume of 28.4 m^3 which is exceeded in all design storms except the 25 mm CHC design storm. Flows exceeding the soakaway pit storage capacity will enter the internal storm sewer system downstream of the underground storage facility and ultimately discharge to the Hamilton Drain.

4.3.4 Emergency Overland Outlet

In the event the storm sewer becomes plugged (assuming a 50% blockage) or the underground storage is filled, an emergency overland flow route will be provided to safely convey runoff overland to the Hamilton Drain. Ponding in the parking lot will occur to a maximum depth of 250 mm prior to discharging into the Hamilton Drain. The proposed drainage patterns are illustrated in DP.2 – Post-Development Drainage Plan. Preliminary weir flow and channel calculations, based on the emergency overland flow route coinciding with the trail to the east of Building 4, are included in Appendix B.

4.4 WATER QUALITY

An oil and grit separator designed to provide at least 80% total solids removal and treatment of 90% of the surface runoff generated from its contributing drainage area (Catchment 201) will be installed downstream of the underground storage system. A HydroStorm HS 10 treatment unit or approved equal is proposed to provide primary quality control for the site. The HydroStorm HS 10 was sized using the verified sizing tool available from the manufacturer. This treatment unit will provide 84% total suspended solids removal for the site. The HydroStorm provides the treatment required to satisfy Provincial standards for enhanced quality control. Additional quality control will be provided by isolator rows at inlets to the underground storage system which will provide sediment removal from small storm events and the first flush of larger storms. The HydroStorm HS 10 sizing calculations are attached in Appendix D for reference. The location of the oil and grit separator will be downstream of the underground storage system.

Catchment 202 consists of grassed / landscaped areas that will drain uncontrolled to the proposed external storm sewer network or the Hamilton Drain. Specific water quality controls are not required for this catchment as the runoff is considered clean.

Catchment 203 consists of rooftop drainage which is considered clean and specific water quantity controls are not required.

4.5 FEATURE BASED WATER BALANCE

A feature-based water balance was prepared in the letter *"L – The Gateway Centre Preliminary Feature Based Water Balance",* (December 2025) by Tatham Engineering, the letter should be reviewed in conjunction with this report. The letter recommended that runoff from the grocery store's rooftop be directed to a soakaway pit with a minimum storage volume of 26.6 m^3 to ensure the proposed development will not interfere with the hydrology of the off-site wetland. A preliminary soakaway pit has been designed with a total storage volume of 28.4 m^3. A design infiltration rate of 25 mm/hr was used which is considered conservative and the soakaway pit will not exceed a maximum drawdown time of 48 hours. Infiltration testing can be completed at the location of the proposed soakaway pit at detailed design. Groundwater will continue to be monitored by the monitoring wells installed on the proposed site prior to detailed design.

Based on its proximity to the wetland, Building 3 will not have permanent drainage under the underground parking. Instead, the building will be designed to be "bathtubbed" allowing groundwater to sit around the building foundation without flooding the underground parking.

5 Siltation & Erosion Controls

Siltation and erosion controls will be implemented for all construction activities, including topsoil stripping, material stockpiling, road construction and grading operations. Detailed erosion and sediment control measures to be implemented during and after construction are summarized as follows:

- heavy duty silt fence will be erected before the commencement of any grading operations to control sediment movement;
- a construction vehicle entrance will be constructed and maintained consisting of a stone mud mat to reduce off-site tracking of material;
- regular inspection of control measures will be instituted, and repairs will be made as necessary;
- temporary swales, sediment trap and/or rock flow check dams will be constructed to control runoff during construction; and
- long term siltation and erosion control will be enhanced with a revegetation strategy for disturbed areas.

6 Summary

The proposed commercial development will consist of 8 buildings constructed over 3 phases. Stormwater runoff from the majority of the site will be directed via an internal storm sewer to a proposed underground storage facility to provide quantity control for the site. Water quality control will be provided by an OGS system downstream of the underground storage facility. Rooftop storage on the grocery store building will provide additional quantity control. The grocery store roof will discharge to soakaway pit designed to achieve a feature-based water budget for a wetland at the northeast corner of the site. Flows exceeding the soakaway pits capacity will drain to the internal storm sewer network downstream of the underground storage facility. Water quality control will not be provided to drainage from the rooftop as it is considered clean. The Hamilton Drain will be the receiving body for stormwater, maintaining the existing drainage patterns.

Siltation and erosion control will be provided with the proper construction mitigation efforts. Long-term erosion control will be enhanced with an effective revegetation strategy.

PARKING - COMMERCIAL

Parking aisle minimum width of 6.0 metres
Parking space minimum dimensions of 2.8 m x 6.0 m
Accessible parking space minimum dimensions 4.5 m x 6.0 m
Dual accessible parking spaces at 3.4 m x 6.0 m with 1.5 m shared aisle

Parking Requirements - Commercial					
Building	**Rate**	**Gross Area**	**Gross Floor Area***	**Required**	**Provided**
Phase 1					
01 Restaurant	8/100 m2	225.5 m2	157.85 m2		
02 Commercial	3/100 m2	929 m2	836.1 m2		
Grocery Store	3/100 m2	2,880.0 m2	2,016 m2		
06 Commercial	3/100 m2	1,851.4 m2	1,666.26 m2		
07 Restaurant	8/100 m2	376.2 m2	263.3 m2		
08 Commercial	3/100 m2	846.8 m2	762.12		
08 Restaurant	8/100 m2	491.5 m2	344.05 m2		
Total Phase 1 Commercial		6,507.2 m2	5,856.5 m2	176	
Total Phase 1 Restaurant		1,093.2 m2	765.24 m2	62	
Total Phase 1		**7920.8**	**6259.62**	**218**	**264**
Phase 2				**Required**	**Provided**
03 Commercial	3/100 ,2	654.54 m2	589.1 m2		
04 Commercial	3/100 m2	1,799.4 m2	1,619.46 m2		
Total Phase 2		**2,453.94**	**2,208.56**	**67**	**30**
Total				**Required**	**Provided**
Total Phase 1 & 2		**10,374.74**	**8,468.18**	**285**	**294**

*Gross Floor Area as defined by the Town of Collingwood ZBL and is based on Gross Area –10% for general commercial uses and -30% for grocery store and restaurant uses.

DELIVERY SPACES - LOADING SPACES

1 Delivery Space for GFA between 460 and 2,500
1 Loading Space for GFA between 2,501 and 7,000
Delivery Spaces at 3.5 m (w) x 7.5 m (l) x 3.0 (v)
Loading Spaces at 3.5 m (w) x 20.0 m (l) x 4.5 m (v)

Building	Use	Gross Area	Gross Floor Area	Type Required	Type Provided
Building 01	Restaurant	225.5 m2	157 m2	N/A	1 Delivery Space
Building 02	Commercial	929 m2	836.1 m2	1 Delivery Space	1 Loading Space
Building 03	Mixed-Use	654.54 m2	589.1 m2	1 Delivery Space	1 Delivery Space
Building 04	Commercial	1,799.4 m2	1619.46 m2	1 Delivery Space	1 Delivery Space
Grocery Store	Commercial	2,880 m2	2,106 m2	1 Delivery Space	2 Loading Spaces
Building 06	Commercial	1,851.4 m2	1,666.26 m2	1 Delivery Space	1 Del & 1 Ldg Space
Building 07	Restaurant	376.2 m2	263.3 m2	N/A	1 Del Space
Building 08	Commercial & Rest.	1,338.3 m2	1,106.17 m2	1 Delivery Space	1 Delivery Space

**Gross Floor Area as defined by the Town of Collingwood Zoning By-law and is based on Gross Area –10% for general commercial uses and -30% for grocery store and restaurant uses.*

QUEUING AISLES

Parking space minimum dimensions of 2.8 m x 6.0 m

Building	Use	# of Spaces Required	# of Spaces Provided	Comments
Building 01	Restaurant	10	12	Addn'tl Spaces Beyond Pick-up Window
Building 07	Restaurant	10	13	Addn'tl Spaces Beyond Pick-up Window

THE GATEWAY CENTRE - ZONE PROVISIONS

Provision	C4 Zone Reqmnt / 2024 OP...	Proposed	Compliance
Minimum Lot Area	1,000 m2	37,604.1 m2	Y
Minimum Lot Frontage (Hurontario Street)	30.0 m	193.98 m	Y
Minimum Front Yard (Hurontario Street)	6.0 m	0.0 m / 7.525 m (1)	No
Minimum Exterior Side Yard (Poplar Sideroad)	9.0 m	15.0 m	Y
Minimum County Setback @ Poplar Sideroad	15.0 m	15.0 m	Y
Minimum Interior Side Lot Line (North Lot Line)	0.0 m	0.0 m / 9.0 m (2)	No
Minimum Rear Yard (East Lot Line)	7.5 m	9.0 m	Y
Maximum Height	15.0 m	39.0 m	No
Minimum Height	7.0 m	> = 7.0 m	Y
Minimum Grnd Flr Height	4.25 m	>= 4.25 m	Y
Minimum Grnd Flr NRGFA	75%	45%	No
Maximum Lot Coverage	40%	27%	Y
Minimum Landscape Open Space	10%	23%	Y
Minimum Hurontario Street CL Setback	15.0 m	42.5 m	Y
45* Ang Plane from CL of Hurontario	45*	Within 45*	Y
Minimum Poplar Sideroad CL Setback	18.0 m	29.3	Y
Minimum Parking Space Setback	6.0 metres	> 6.0 m	Y
Entrance Width	7.5 m to 15.0 m	9.0 m	Y
Maximum Number of Dwelling Units/Rooms	FSI Max 7.5 x Lot Area	< 7.5 FSI / 165 units/rooms	Y

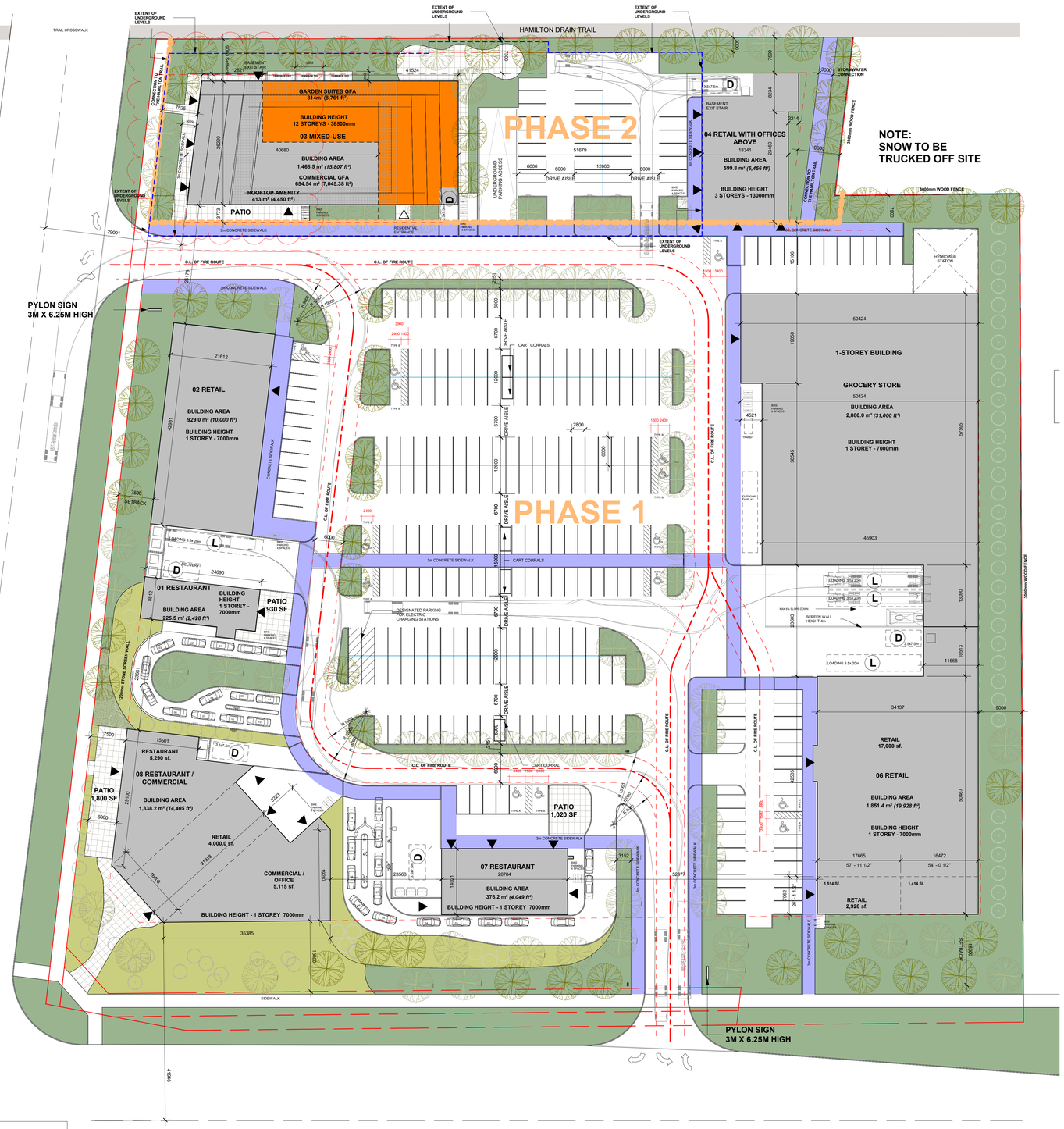
Notes:
(1) 0.00 m @ U/G Garage & 7.525 m to Bldg 03
(2) 0.00 m @ U/G Garage & 9.0 m to Bldg 03
(3) FLL = Defined as Hurontario Street
(4) Phase 1 & 2 = To be deemed to be 1 Lot

PARKING - RESIDENTIAL

Parking aisle minimum width of 6.0 and 6.7 metres
Parking space minimum dimensions of 2.8 m x 6.0 m
Accessible parking spaces per IASR

Residential						
Building	**Rate**	**# of Units**	**Resident Parking Required**	**Visitor Parking Required**	**Total Required**	**Total Provided**
Building 03	1/unit + 0.25/unit for Visitors	165	83	42	125	213

Note: Parking for the Mixed-Use Building to be provided at the 'Dwelling, Apartment' Rate (ZBLA Required)

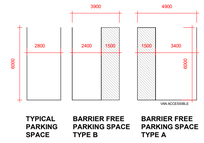


RZA
RICHARD ZIEGLER ARCHITECT INC.
39 POLSON STREET TORONTO, ONTARIO M5A 1A4
T: 416 461 1494 or 1 800 413 7992 F: 866 895 1488
www.rzarchitect.com E: mail@rzarchitect.com

CHARIS DEVELOPMENTS
Built on Community Values

ISSUED FOR DISCUSSION
2025-12-22 9:33:43 AM

RESIDENTIAL ENTRANCE
RETAIL ENTRANCE



PARKING SPACE CONFIGURATIONS

NO.	ISSUANCE	DATE
02	ISSUED FOR PLANNING APPROVALS	2025.07.03
01	ISSUED FOR CLIENT APPROVALS	2025.05.29

THE GENERAL CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT. DO NOT SCALE THE DRAWINGS. DO NOT USE THIS DRAWING FOR CONSTRUCTION UNLESS SIGNED AND SEALED BY THE ARCHITECT.

NORTH
STAMP
ONTARIO ASSOCIATION OF ARCHITECTS
RICHARD E. ZIEGLER
LICENCE 4462

THE GATEWAY CENTRE

CHARIS DEVELOPMENTS
HIGHWAY 124 & POPLAR SIDE ROAD
COLLINGWOOD, ONTARIO

SITE PLAN - OPTION C4B

SCALE	As indicated	PROJECT NUMBER
DATE	2025-12-22 9:33:43 AM	202022
DRAWN	SO	
CHECKED	REZ	
SHEET		REVISION

A101

FILE NAME: Y:\2020 Projects\202022 - Charis - The Gateway\Current\2.0 Design and Construction Documents\Phase 1\Revit\Revit Planning Submission 2024\R21\The Gateway Centre Option C4B-5 - Rev 2022.2023.10.31.rvt
PLOT DATE: 2025-12-22 9:33:43 AM

Appendix A: Pre-Development SWM Calculations

Ontario IDF CURVE LOOKUP

Active coordinate

44° 28' 45" N, 80° 12' 45" W (44.479167,-80.212500)

Retrieved: Fri, 22 Oct 2021 03:02:06 GMT

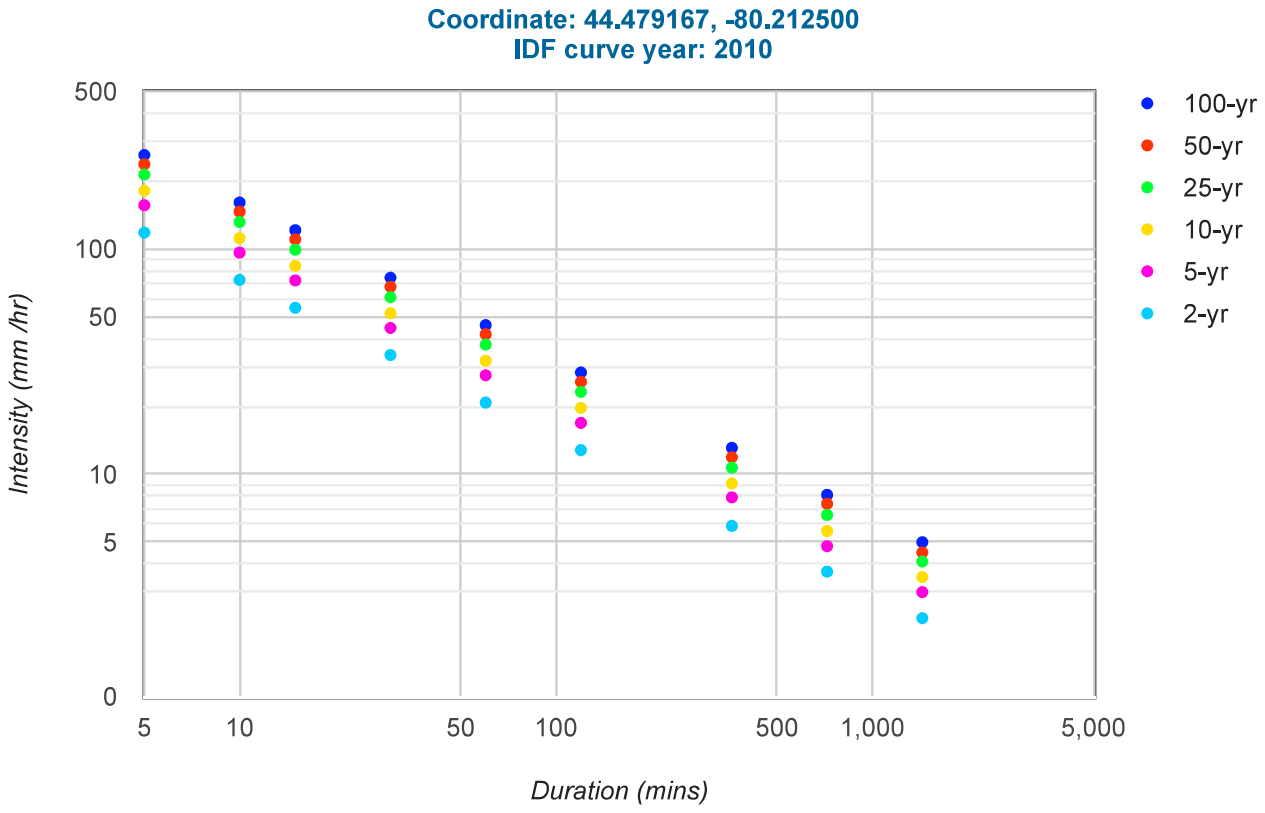
Location summary

These are the locations in the selection.

IDF Curve: 44° 28' 45" N, 80° 12' 45" W (44.479167,-80.212500)

Results

An IDF curve was found.



Coefficient summary

IDF Curve: 44° 28' 45" N, 80° 12' 45" W (44.479167,-80.212500)

Retrieved: Fri, 22 Oct 2021 03:02:06 GMT

Data year: 2010
IDF curve year: 2010

Return period	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
A	20.8	27.5	31.9	37.6	41.8	45.9
B	-0.699	-0.699	-0.699	-0.699	-0.699	-0.699

Statistics

Rainfall intensity (mm hr^{-1})

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	118.1	72.8	54.8	33.8	20.8	12.8	5.9	3.7	2.3
5-yr	156.2	96.2	72.5	44.6	27.5	16.9	7.9	4.8	3.0
10-yr	181.2	111.6	84.1	51.8	31.9	19.7	9.1	5.6	3.5
25-yr	213.6	131.6	99.1	61.0	37.6	23.2	10.7	6.6	4.1
50-yr	237.4	146.3	110.2	67.9	41.8	25.7	11.9	7.4	4.5
100-yr	260.7	160.6	121.0	74.5	45.9	28.3	13.1	8.1	5.0

Rainfall depth (mm)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	9.8	12.1	13.7	16.9	20.8	25.6	35.7	43.9	54.1
5-yr	13.0	16.0	18.1	22.3	27.5	33.9	47.2	58.1	71.6
10-yr	15.1	18.6	21.0	25.9	31.9	39.3	54.7	67.4	83.0
25-yr	17.8	21.9	24.8	30.5	37.6	46.3	64.5	79.4	97.9
50-yr	19.8	24.4	27.5	33.9	41.8	51.5	71.7	88.3	108.8
100-yr	21.7	26.8	30.2	37.3	45.9	56.5	78.7	97.0	119.5

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TATHAM ENGINEERING	**Project:**	Gateway Centre
	Date:	2021-09-01
	File No.:	120119
	Designed By:	KG
	Checked By:	AS
	Subject:	IDF Parameter Conversion

Input A, B values from MTO IDF Lookup:

http://www.mto.gov.on.ca/IDF_Curves/terms.shtml

	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
A	20.8	27.5	31.9	37.6	41.8	45.9
B	-0.699	-0.699	-0.699	-0.699	-0.699	-0.699

Convert to A', B', C' where:

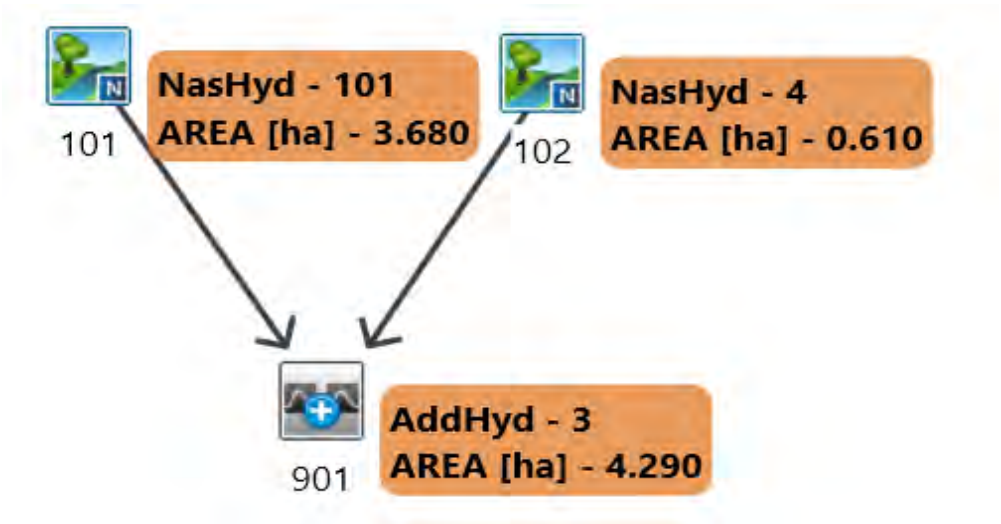
$A' = A*60^{-B}$

$B' = 0$

$C' = -B$

	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
A'	363.908	481.128	558.108	657.833	731.314	803.046
B'	0	0	0	0	0	0
C'	0.699	0.699	0.699	0.699	0.699	0.699

The Gateway Centre
EXISTING CONDITIONS



Nashyd		SoakawayPit	
Standhyd		Junction	
Addhyd		Route Reservoir	

TATHAM ENGINEERING

Project:	THE GATEWAY CENTRE
File No.:	120119
Subject:	Otthymo Flow Schematic
Date:	Jun-25

Visual OTTHYMO Model Parameter Calculations (NasHYD)

TATHAM ENGINEERING

Project Details

The Gateway Centre	120119

Prepared By

Julia Suen	May 17, 2024

Data Sources

Detailed Soil Survey Reports for Ontario, NVCA Stormwater Technical Guide (2013), MTO Drainage Management Manual (1997)

Pre-Development Condition

Watershed:	NVCA
Catchment ID:	101
Catchment Area (ha):	3.68
Impervious %:	0%

Average Curve Number (CN), Runoff Coefficient (C) and Initial Abstraction (IA)

Soil Symbol		**Bef**											
Soil Series		Berrien											
Hydrologic Soils Group		BC											
Soil Texture		Silt Loam											
Runoff Coefficient Type		2											
Area (ha)		3.68											
Percentage of Catchment		100%											
Land Cover Category	**IA**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**
Impervious	2	0.01	100	0.95									
Gravel	3	0.25	89	0.27									
Woodland	10	0.18	67	0.25									
Pasture/Lawns	5	1.01	74	0.28									
Meadows	8	2.17	71	0.27									
Cultivated	7		78	0.35									
Waterbody	12	0.06	50	0.05									
Average CN		72.58											
Average C		0.27											
Average IA		6.98											

Time to Peak Calculations

Max. Catchment Elev. (m):	195.76
Min. Catchment Elev. (m):	194.07
Catchment Length (m):	200
Catchment Slope (%):	0.84%
Method: Airport Method	
Time of Concentration (mins):	40.64

Summary

Catchment CN:	72.6
Catchment C:	0.27
Catchment IA (mm):	6.98
Time of Concentration (hrs):	0.68
Catchment Time to Peak (hrs):	0.45
Catchment Time Step (mins):	5.42

Visual OTTHYMO Model Parameter Calculations (NasHYD)

TATHAM ENGINEERING

Project Details

The Gateway Centre	120119

Prepared By

Julia Suen	May 17, 2024

Data Sources

Detailed Soil Survey Reports for Ontario, NVCA
Stormwater Technical Guide (2013), MTO
Drainage Management Manual (1997)

Pre-Development Condition

Watershed:	NVCA
Catchment ID:	102
Catchment Area (ha):	0.61
Impervious %:	

Average Curve Number (CN), Runoff Coefficient (C) and Initial Abstraction (IA)

Soil Symbol		**Bef**											
Soil Series		Berrien											
Hydrologic Soils Group		BC											
Soil Texture		Silt Loam											
Runoff Coefficient Type		2											
Area (ha)		0.61											
Percentage of Catchment		100%											
Land Cover Category	**IA**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**
Impervious	2	0.01	100	0.95									
Gravel	3	0.03	89	0.27									
Woodland	10		67	0.25									
Pasture/Lawns	5	0.04	74	0.28									
Meadows	8	0.52	71	0.27									
Cultivated	7		78	0.35									
Waterbody	12	0.02	50	0.05									
Average CN		71.70											
Average C		0.27											
Average IA		7.63											

Time to Peak Calculations

Max. Catchment Elev. (m):	196.55
Min. Catchment Elev. (m):	193.81
Catchment Length (m):	395
Catchment Slope (%):	0.69%
Method: Airport Method	
Time of Concentration (mins):	60.78

Summary

Catchment CN:	71.7
Catchment C:	0.27
Catchment IA (mm):	7.63
Time of Concentration (hrs):	1.01
Catchment Time to Peak (hrs):	0.68
Catchment Time Step (mins):	8.10

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

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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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DATE: 09/16/2024                           TIME: 02:16:35

USER:



COMMENTS: ____________________________________________________________


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  ** SIMULATION : a OWEN SOUND CHIC25MM         **
  ************************************************


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| Ptotal= 24.97 mm |    Comments: OWEN SOUND CHIC25MM
--------------------
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                  0.00    1.29 |  1.00    2.81 |  2.00   13.05 |  3.00    2.04
                  0.10    1.36 |  1.10    3.22 |  2.10    8.44 |  3.10    1.89
                  0.20    1.44 |  1.20    3.77 |  2.20    6.21 |  3.20    1.76
                  0.30    1.53 |  1.30    4.55 |  2.30    4.91 |  3.30    1.65
                  0.40    1.63 |  1.40    5.77 |  2.40    4.06 |  3.40    1.55
                  0.50    1.75 |  1.50    7.86 |  2.50    3.47 |  3.50    1.46
                  0.60    1.89 |  1.60   12.27 |  2.60    3.03 |  3.60    1.39
                  0.70    2.06 |  1.70   26.17 |  2.70    2.70 |  3.70    1.32
                  0.80    2.26 |  1.80   72.58 |  2.80    2.43 |  3.80    1.26
                  0.90    2.50 |  1.90   26.96 |  2.90    2.22 |  3.90    1.20

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

--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   3.68   Curve Number   (CN)= 72.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.45

         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    1.29 | 1.083    2.81 | 2.083   13.05 |  3.08    2.04
                 0.167    1.35 | 1.167    3.14 | 2.167    9.36 |  3.17    1.92
                 0.250    1.41 | 1.250    3.55 | 2.250    7.10 |  3.25    1.81
                 0.333    1.48 | 1.333    4.08 | 2.333    5.69 |  3.33    1.72
                 0.417    1.55 | 1.417    4.79 | 2.417    4.74 |  3.42    1.63
                 0.500    1.63 | 1.500    5.77 | 2.500    4.06 |  3.50    1.55
                 0.583    1.75 | 1.583    7.86 | 2.583    3.47 |  3.58    1.46
                 0.667    1.86 | 1.667   11.39 | 2.667    3.12 |  3.67    1.40
                 0.750    1.99 | 1.750   20.61 | 2.750    2.83 |  3.75    1.35
                 0.833    2.14 | 1.833   44.73 | 2.833    2.59 |  3.83    1.30
                 0.917    2.31 | 1.917   63.46 | 2.917    2.39 |  3.92    1.25
                 1.000    2.50 | 2.000   26.96 | 3.000    2.22 |  4.00    1.20

     Unit Hyd Qpeak  (cms)=   0.312

     PEAK FLOW       (cms)=   0.021 (i)
     TIME TO PEAK    (hrs)=   2.500
     RUNOFF VOLUME    (mm)=   2.842
     TOTAL RAINFALL   (mm)=  24.971
     RUNOFF COEFFICIENT   =   0.114
```

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

```
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.61   Curve Number   (CN)= 71.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.63   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.68
```

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	1.29	1.083	2.81	2.083	13.05	3.08	2.04
0.167	1.35	1.167	3.14	2.167	9.36	3.17	1.92
0.250	1.41	1.250	3.55	2.250	7.10	3.25	1.81
0.333	1.48	1.333	4.08	2.333	5.69	3.33	1.72
0.417	1.55	1.417	4.79	2.417	4.74	3.42	1.63
0.500	1.63	1.500	5.77	2.500	4.06	3.50	1.55
0.583	1.75	1.583	7.86	2.583	3.47	3.58	1.46
0.667	1.86	1.667	11.39	2.667	3.12	3.67	1.40
0.750	1.99	1.750	20.61	2.750	2.83	3.75	1.35
0.833	2.14	1.833	44.73	2.833	2.59	3.83	1.30
0.917	2.31	1.917	63.46	2.917	2.39	3.92	1.25
1.000	2.50	2.000	26.96	3.000	2.22	4.00	1.20

```
Unit Hyd Qpeak  (cms)=   0.034

PEAK FLOW       (cms)=   0.002 (i)
TIME TO PEAK    (hrs)=   2.833
RUNOFF VOLUME    (mm)=   2.555
TOTAL RAINFALL   (mm)=  24.971
RUNOFF COEFFICIENT   =   0.102
```

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

```
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     3.68   0.021     2.50     2.84
      + ID2= 2 (  0102):     0.61   0.002     2.83     2.55
        ==================================================
        ID = 3 (  0901):     4.29   0.023     2.50     2.80
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
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        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


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DATE: 09/16/2024                          TIME: 02:16:36

USER:



COMMENTS: ____________________________________________________________


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  ** SIMULATION : b 2yr (Chicago)               **
  ************************************************


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|                  |              89e37a6c-3e84-4d6f-b14c-084f4f074549\3ac851e3
| Ptotal= 31.56 mm |    Comments: Modified Chicago Storm
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TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	2.65	1.00	12.56	2.00	5.25	3.00	3.06
0.17	2.96	1.17	72.78	2.17	4.63	3.17	2.88
0.33	3.38	1.33	15.41	2.33	4.17	3.33	2.72
0.50	3.98	1.50	9.72	2.50	3.81	3.50	2.59
0.67	4.94	1.67	7.41	2.67	3.51	3.67	2.47
0.83	6.75	1.83	6.10	2.83	3.26	3.83	2.36

```
--------------------------------------------------------------------------------

--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   3.68   Curve Number   (CN)= 72.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.45

         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	2.65	1.083	12.56	2.083	5.25	3.08	3.06
0.167	2.65	1.167	12.56	2.167	5.25	3.17	3.06
0.250	2.97	1.250	72.78	2.250	4.63	3.25	2.88
0.333	2.96	1.333	72.78	2.333	4.63	3.33	2.88
0.417	3.38	1.417	15.41	2.417	4.17	3.42	2.72
0.500	3.38	1.500	15.41	2.500	4.17	3.50	2.72
0.583	3.98	1.583	9.72	2.583	3.81	3.58	2.59
0.667	3.98	1.667	9.72	2.667	3.81	3.67	2.59
0.750	4.94	1.750	7.41	2.750	3.51	3.75	2.47
0.833	4.94	1.833	7.41	2.833	3.51	3.83	2.47
0.917	6.75	1.917	6.10	2.917	3.26	3.92	2.36
1.000	6.75	2.000	6.10	3.000	3.26	4.00	2.36

```
     Unit Hyd Qpeak  (cms)=   0.312

     PEAK FLOW       (cms)=   0.026 (i)
     TIME TO PEAK    (hrs)=   1.917
     RUNOFF VOLUME    (mm)=   5.015
     TOTAL RAINFALL   (mm)=  31.559
     RUNOFF COEFFICIENT   =   0.159

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.61   Curve Number   (CN)= 71.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.63   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.68

         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	2.65	1.083	12.56	2.083	5.25	3.08	3.06
0.167	2.65	1.167	12.56	2.167	5.25	3.17	3.06
0.250	2.97	1.250	72.78	2.250	4.63	3.25	2.88
0.333	2.96	1.333	72.78	2.333	4.63	3.33	2.88
0.417	3.38	1.417	15.41	2.417	4.17	3.42	2.72
0.500	3.38	1.500	15.41	2.500	4.17	3.50	2.72
0.583	3.98	1.583	9.72	2.583	3.81	3.58	2.59
0.667	3.98	1.667	9.72	2.667	3.81	3.67	2.59
0.750	4.94	1.750	7.41	2.750	3.51	3.75	2.47
0.833	4.94	1.833	7.41	2.833	3.51	3.83	2.47
0.917	6.75	1.917	6.10	2.917	3.26	3.92	2.36
1.000	6.75	2.000	6.10	3.000	3.26	4.00	2.36

```
     Unit Hyd Qpeak  (cms)=   0.034

     PEAK FLOW       (cms)=   0.003 (i)
     TIME TO PEAK    (hrs)=   2.333
     RUNOFF VOLUME    (mm)=   4.608
     TOTAL RAINFALL   (mm)=  31.559
     RUNOFF COEFFICIENT   =   0.146

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

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

--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     3.68   0.026     1.92     5.02
      + ID2= 2 (  0102):     0.61   0.003     2.33     4.61
        ==================================================
        ID = 3 (  0901):     4.29   0.029     2.00     4.96

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

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

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


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

  Output  filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\85ec0
9cc-a1cd-4a96-a3e0-4bb76c34df05\scen
  Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\85ec0
9cc-a1cd-4a96-a3e0-4bb76c34df05\scen


DATE: 09/16/2024                           TIME: 02:16:36

USER:



COMMENTS: ____________________________________________________________


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  ************************************************
  ** SIMULATION : c 5yr (Chicago)               **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\ASchoof\AppD
|                  |              ata\Local\Temp\
|                  |              89e37a6c-3e84-4d6f-b14c-084f4f074549\ef00e4f0
| Ptotal= 41.72 mm |    Comments: Modified Chicago Storm
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    3.51 |  1.00   16.60 |  2.00    6.94 |  3.00    4.04
                0.17    3.92 |  1.17   96.22 |  2.17    6.13 |  3.17    3.81
                0.33    4.47 |  1.33   20.37 |  2.33    5.51 |  3.33    3.60
                0.50    5.27 |  1.50   12.85 |  2.50    5.03 |  3.50    3.42
                0.67    6.53 |  1.67    9.80 |  2.67    4.64 |  3.67    3.26
                0.83    8.93 |  1.83    8.07 |  2.83    4.32 |  3.83    3.12

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

--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   3.68   Curve Number   (CN)= 72.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.45

         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    3.51 | 1.083   16.60 | 2.083    6.94 |  3.08    4.04
               0.167    3.51 | 1.167   16.60 | 2.167    6.94 |  3.17    4.04
               0.250    3.92 | 1.250   96.22 | 2.250    6.13 |  3.25    3.81
               0.333    3.92 | 1.333   96.22 | 2.333    6.13 |  3.33    3.81
               0.417    4.47 | 1.417   20.37 | 2.417    5.51 |  3.42    3.60
               0.500    4.47 | 1.500   20.37 | 2.500    5.51 |  3.50    3.60
               0.583    5.27 | 1.583   12.85 | 2.583    5.03 |  3.58    3.42
               0.667    5.27 | 1.667   12.85 | 2.667    5.03 |  3.67    3.42
               0.750    6.53 | 1.750    9.80 | 2.750    4.64 |  3.75    3.26
               0.833    6.53 | 1.833    9.80 | 2.833    4.64 |  3.83    3.26
               0.917    8.93 | 1.917    8.07 | 2.917    4.32 |  3.92    3.12
               1.000    8.93 | 2.000    8.07 | 3.000    4.32 |  4.00    3.12

     Unit Hyd Qpeak  (cms)=   0.312

     PEAK FLOW       (cms)=   0.052 (i)
     TIME TO PEAK    (hrs)=   1.917
     RUNOFF VOLUME    (mm)=   9.242
     TOTAL RAINFALL   (mm)=  41.725
     RUNOFF COEFFICIENT   =   0.222

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

--------------------------------------------------------------------------------
```

```
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.61   Curve Number   (CN)= 71.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.63   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.68

         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    3.51 | 1.083   16.60 | 2.083    6.94 |  3.08    4.04
                0.167    3.51 | 1.167   16.60 | 2.167    6.94 |  3.17    4.04
                0.250    3.92 | 1.250   96.22 | 2.250    6.13 |  3.25    3.81
                0.333    3.92 | 1.333   96.22 | 2.333    6.13 |  3.33    3.81
                0.417    4.47 | 1.417   20.37 | 2.417    5.51 |  3.42    3.60
                0.500    4.47 | 1.500   20.37 | 2.500    5.51 |  3.50    3.60
                0.583    5.27 | 1.583   12.85 | 2.583    5.03 |  3.58    3.42
                0.667    5.27 | 1.667   12.85 | 2.667    5.03 |  3.67    3.42
                0.750    6.53 | 1.750    9.80 | 2.750    4.64 |  3.75    3.26
                0.833    6.53 | 1.833    9.80 | 2.833    4.64 |  3.83    3.26
                0.917    8.93 | 1.917    8.07 | 2.917    4.32 |  3.92    3.12
                1.000    8.93 | 2.000    8.07 | 3.000    4.32 |  4.00    3.12

     Unit Hyd Qpeak  (cms)=   0.034

     PEAK FLOW       (cms)=   0.006 (i)
     TIME TO PEAK    (hrs)=   2.250
     RUNOFF VOLUME    (mm)=   8.650
     TOTAL RAINFALL   (mm)=  41.725
     RUNOFF COEFFICIENT   =   0.207

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

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


--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     3.68   0.052     1.92     9.24
      + ID2= 2 (  0102):     0.61   0.006     2.25     8.65
        ===================================================
        ID = 3 (  0901):     4.29   0.057     1.92     9.16

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

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

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


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

  Output  filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\639d9
270-2cb9-493b-a145-5a1c29e90625\scen
  Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\639d9
270-2cb9-493b-a145-5a1c29e90625\scen


DATE: 09/16/2024                          TIME: 02:16:36

USER:



COMMENTS: ____________________________________________________________


--------------------------------------------------------------------------------
----------------------
  ************************************************
  ** SIMULATION : d 10yr (Chicago)              **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\ASchoof\AppD
|                  |              ata\Local\Temp\
|                  |              89e37a6c-3e84-4d6f-b14c-084f4f074549\a7659700
| Ptotal= 48.40 mm |    Comments: Modified Chicago Storm
```

```
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	4.07	1.00	19.26	2.00	8.05	3.00	4.69
0.17	4.55	1.17	111.61	2.17	7.11	3.17	4.42
0.33	5.19	1.33	23.63	2.33	6.40	3.33	4.18
0.50	6.11	1.50	14.90	2.50	5.84	3.50	3.97
0.67	7.57	1.67	11.36	2.67	5.38	3.67	3.78
0.83	10.35	1.83	9.36	2.83	5.01	3.83	3.62

```
--------------------------------------------------------------------------------

--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   3.68   Curve Number   (CN)= 72.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.45

         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	4.07	1.083	19.26	2.083	8.05	3.08	4.69
0.167	4.07	1.167	19.26	2.167	8.05	3.17	4.69
0.250	4.55	1.250	111.61	2.250	7.11	3.25	4.42
0.333	4.55	1.333	111.61	2.333	7.11	3.33	4.42
0.417	5.19	1.417	23.63	2.417	6.40	3.42	4.18
0.500	5.19	1.500	23.63	2.500	6.40	3.50	4.18
0.583	6.11	1.583	14.90	2.583	5.84	3.58	3.97
0.667	6.11	1.667	14.90	2.667	5.84	3.67	3.97
0.750	7.57	1.750	11.36	2.750	5.38	3.75	3.78
0.833	7.57	1.833	11.36	2.833	5.38	3.83	3.78
0.917	10.35	1.917	9.36	2.917	5.01	3.92	3.62
1.000	10.35	2.000	9.36	3.000	5.01	4.00	3.62

```
     Unit Hyd Qpeak  (cms)=   0.312

     PEAK FLOW       (cms)=   0.072 (i)
     TIME TO PEAK    (hrs)=   1.833
     RUNOFF VOLUME    (mm)=  12.496
     TOTAL RAINFALL   (mm)=  48.401
     RUNOFF COEFFICIENT   =   0.258

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.61   Curve Number   (CN)= 71.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.63   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.68

         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	4.07	1.083	19.26	2.083	8.05	3.08	4.69
0.167	4.07	1.167	19.26	2.167	8.05	3.17	4.69
0.250	4.55	1.250	111.61	2.250	7.11	3.25	4.42
0.333	4.55	1.333	111.61	2.333	7.11	3.33	4.42
0.417	5.19	1.417	23.63	2.417	6.40	3.42	4.18
0.500	5.19	1.500	23.63	2.500	6.40	3.50	4.18
0.583	6.11	1.583	14.90	2.583	5.84	3.58	3.97
0.667	6.11	1.667	14.90	2.667	5.84	3.67	3.97
0.750	7.57	1.750	11.36	2.750	5.38	3.75	3.78
0.833	7.57	1.833	11.36	2.833	5.38	3.83	3.78
0.917	10.35	1.917	9.36	2.917	5.01	3.92	3.62
1.000	10.35	2.000	9.36	3.000	5.01	4.00	3.62

```
     Unit Hyd Qpeak  (cms)=   0.034

     PEAK FLOW       (cms)=   0.009 (i)
     TIME TO PEAK    (hrs)=   2.250
     RUNOFF VOLUME    (mm)=  11.784
     TOTAL RAINFALL   (mm)=  48.401
     RUNOFF COEFFICIENT   =   0.243

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

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

--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     3.68   0.072     1.83    12.50
      + ID2= 2 (  0102):     0.61   0.009     2.25    11.78
        ==================================================
        ID = 3 (  0901):     4.29   0.079     1.92    12.39

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

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
```

```
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
```

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***** D E T A I L E D O U T P U T *****

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

Output filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\9534d114-b2a6-4b73-b1d8-7eaa6c7d9672\scen
Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\9534d114-b2a6-4b73-b1d8-7eaa6c7d9672\scen

DATE: 09/16/2024 TIME: 02:16:36

USER:

COMMENTS: _____


```
  ************************************************
  ** SIMULATION : e 25yr (Chicago)              **
  ************************************************
```

```
--------------------
|    READ STORM    |    Filename: C:\Users\ASchoof\AppD
|                  |              ata\Local\Temp\
|                  |              89e37a6c-3e84-4d6f-b14c-084f4f074549\27d0e6bc
| Ptotal= 57.05 mm |    Comments: Modified Chicago Storm
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	4.80	1.00	22.70	2.00	9.48	3.00	5.53
0.17	5.36	1.17	131.56	2.17	8.38	3.17	5.20
0.33	6.12	1.33	27.86	2.33	7.54	3.33	4.92
0.50	7.20	1.50	17.57	2.50	6.88	3.50	4.68
0.67	8.92	1.67	13.40	2.67	6.34	3.67	4.46
0.83	12.20	1.83	11.03	2.83	5.90	3.83	4.27

```
--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   3.68   Curve Number   (CN)= 72.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.45
```

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

---- TRANSFORMED HYETOGRAPH ----

TIME hr	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	4.80	1.083	22.70	2.083	9.48	3.08	5.53
0.167	4.80	1.167	22.70	2.167	9.48	3.17	5.53
0.250	5.36	1.250	131.56	2.250	8.38	3.25	5.20
0.333	5.36	1.333	131.56	2.333	8.38	3.33	5.20
0.417	6.12	1.417	27.86	2.417	7.54	3.42	4.92
0.500	6.12	1.500	27.86	2.500	7.54	3.50	4.92
0.583	7.20	1.583	17.57	2.583	6.88	3.58	4.68
0.667	7.20	1.667	17.57	2.667	6.88	3.67	4.68
0.750	8.92	1.750	13.40	2.750	6.34	3.75	4.46
0.833	8.92	1.833	13.40	2.833	6.34	3.83	4.46
0.917	12.20	1.917	11.03	2.917	5.90	3.92	4.27
1.000	12.20	2.000	11.03	3.000	5.90	4.00	4.27

```
     Unit Hyd Qpeak  (cms)=   0.312

     PEAK FLOW       (cms)=   0.102 (i)
     TIME TO PEAK    (hrs)=   1.833
     RUNOFF VOLUME    (mm)=  17.177
     TOTAL RAINFALL   (mm)=  57.049
     RUNOFF COEFFICIENT   =   0.301

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

```
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.61   Curve Number   (CN)= 71.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.63   # of Linear Res.(N)= 3.00
```

```
--------------------   U.H. Tp(hrs)=   0.68

         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   22.70 | 2.083    9.48 |  3.08    5.53
                0.167    4.80 | 1.167   22.70 | 2.167    9.48 |  3.17    5.53
                0.250    5.36 | 1.250  131.56 | 2.250    8.38 |  3.25    5.20
                0.333    5.36 | 1.333  131.56 | 2.333    8.38 |  3.33    5.20
                0.417    6.12 | 1.417   27.86 | 2.417    7.54 |  3.42    4.92
                0.500    6.12 | 1.500   27.86 | 2.500    7.54 |  3.50    4.92
                0.583    7.20 | 1.583   17.57 | 2.583    6.88 |  3.58    4.68
                0.667    7.20 | 1.667   17.57 | 2.667    6.88 |  3.67    4.68
                0.750    8.92 | 1.750   13.40 | 2.750    6.34 |  3.75    4.46
                0.833    8.92 | 1.833   13.40 | 2.833    6.34 |  3.83    4.46
                0.917   12.20 | 1.917   11.03 | 2.917    5.90 |  3.92    4.27
                1.000   12.20 | 2.000   11.03 | 3.000    5.90 |  4.00    4.27

     Unit Hyd Qpeak  (cms)=   0.034

     PEAK FLOW       (cms)=   0.012 (i)
     TIME TO PEAK    (hrs)=   2.167
     RUNOFF VOLUME    (mm)=  16.315
     TOTAL RAINFALL   (mm)=  57.049
     RUNOFF COEFFICIENT   =   0.286

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

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

--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     3.68   0.102     1.83    17.18
      + ID2= 2 (  0102):     0.61   0.012     2.17    16.31
        ===================================================
        ID = 3 (  0901):     4.29   0.112     1.83    17.05

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

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

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


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

  Output  filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\f1a06
6c9-f803-46e1-afd5-c6b3e96ca9b8\scen
  Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\f1a06
6c9-f803-46e1-afd5-c6b3e96ca9b8\scen


DATE: 09/16/2024                          TIME: 02:16:37

USER:


COMMENTS: ____________________________________________________________


--------------------------------------------------------------------------------
-----------------------
  ***********************************************
  ** SIMULATION : f 50yr (Chicago)             **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\ASchoof\AppD
|                  |              ata\Local\Temp\
|                  |              89e37a6c-3e84-4d6f-b14c-084f4f074549\4f140c2b
| Ptotal= 63.42 mm |    Comments: Modified Chicago Storm
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.00    5.33 |  1.00   25.24 |  2.00   10.54 |  3.00    6.14
```

```
                0.17    5.96 |  1.17  146.25 |  2.17    9.31 |  3.17    5.79
                0.33    6.80 |  1.33   30.97 |  2.33    8.38 |  3.33    5.47
                0.50    8.01 |  1.50   19.53 |  2.50    7.65 |  3.50    5.20
                0.67    9.92 |  1.67   14.89 |  2.67    7.05 |  3.67    4.96
                0.83   13.57 |  1.83   12.27 |  2.83    6.56 |  3.83    4.74

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

--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   3.68   Curve Number   (CN)= 72.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.45

         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    5.33 | 1.083   25.24 | 2.083   10.54 |  3.08    6.14
                0.167    5.33 | 1.167   25.24 | 2.167   10.54 |  3.17    6.14
                0.250    5.96 | 1.250  146.25 | 2.250    9.31 |  3.25    5.79
                0.333    5.96 | 1.333  146.25 | 2.333    9.31 |  3.33    5.79
                0.417    6.80 | 1.417   30.97 | 2.417    8.38 |  3.42    5.47
                0.500    6.80 | 1.500   30.97 | 2.500    8.38 |  3.50    5.47
                0.583    8.01 | 1.583   19.53 | 2.583    7.65 |  3.58    5.20
                0.667    8.01 | 1.667   19.53 | 2.667    7.65 |  3.67    5.20
                0.750    9.92 | 1.750   14.89 | 2.750    7.05 |  3.75    4.96
                0.833    9.92 | 1.833   14.89 | 2.833    7.05 |  3.83    4.96
                0.917   13.57 | 1.917   12.27 | 2.917    6.56 |  3.92    4.74
                1.000   13.57 | 2.000   12.27 | 3.000    6.56 |  4.00    4.74

     Unit Hyd Qpeak  (cms)=   0.312

     PEAK FLOW       (cms)=   0.126 (i)
     TIME TO PEAK    (hrs)=   1.833
     RUNOFF VOLUME    (mm)=  20.915
     TOTAL RAINFALL   (mm)=  63.422
     RUNOFF COEFFICIENT   =   0.330

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.61   Curve Number   (CN)= 71.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.63   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.68

         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    5.33 | 1.083   25.24 | 2.083   10.54 |  3.08    6.14
                0.167    5.33 | 1.167   25.24 | 2.167   10.54 |  3.17    6.14
                0.250    5.96 | 1.250  146.25 | 2.250    9.31 |  3.25    5.79
                0.333    5.96 | 1.333  146.25 | 2.333    9.31 |  3.33    5.79
                0.417    6.80 | 1.417   30.97 | 2.417    8.38 |  3.42    5.47
                0.500    6.80 | 1.500   30.97 | 2.500    8.38 |  3.50    5.47
                0.583    8.01 | 1.583   19.53 | 2.583    7.65 |  3.58    5.20
                0.667    8.01 | 1.667   19.53 | 2.667    7.65 |  3.67    5.20
                0.750    9.92 | 1.750   14.89 | 2.750    7.05 |  3.75    4.96
                0.833    9.92 | 1.833   14.89 | 2.833    7.05 |  3.83    4.96
                0.917   13.57 | 1.917   12.27 | 2.917    6.56 |  3.92    4.74
                1.000   13.57 | 2.000   12.27 | 3.000    6.56 |  4.00    4.74

     Unit Hyd Qpeak  (cms)=   0.034

     PEAK FLOW       (cms)=   0.015 (i)
     TIME TO PEAK    (hrs)=   2.167
     RUNOFF VOLUME    (mm)=  19.945
     TOTAL RAINFALL   (mm)=  63.422
     RUNOFF COEFFICIENT   =   0.314

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

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

--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     3.68   0.126     1.83    20.91
      + ID2= 2 (  0102):     0.61   0.015     2.17    19.94
        ==================================================
        ID = 3 (  0901):     4.29   0.139     1.83    20.78

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

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

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


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

  Output  filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\00ea4
53a-c13c-4e40-a2b0-dfee5e686b08\scen
  Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\00ea4
53a-c13c-4e40-a2b0-dfee5e686b08\scen


DATE: 09/16/2024                           TIME: 02:16:35

USER:



COMMENTS: ____________________________________________________________


--------------------------------------------------------------------------------
-----------------------
  ************************************************
  ** SIMULATION : g 100yr (Chicago)             **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\ASchoof\AppD
|                  |              ata\Local\Temp\
|                  |              89e37a6c-3e84-4d6f-b14c-084f4f074549\4e6b4d51
| Ptotal= 69.64 mm |    Comments: Modified Chicago Storm
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.00    5.86 |  1.00   27.71 |  2.00   11.58 |  3.00    6.75
                 0.17    6.54 |  1.17  160.60 |  2.17   10.23 |  3.17    6.35
                 0.33    7.47 |  1.33   34.01 |  2.33    9.20 |  3.33    6.01
                 0.50    8.79 |  1.50   21.44 |  2.50    8.40 |  3.50    5.71
                 0.67   10.89 |  1.67   16.35 |  2.67    7.75 |  3.67    5.45
                 0.83   14.90 |  1.83   13.47 |  2.83    7.20 |  3.83    5.21

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

--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   3.68   Curve Number   (CN)= 72.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.45

         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    5.86 | 1.083   27.71 | 2.083   11.58 |  3.08    6.75
                0.167    5.86 | 1.167   27.71 | 2.167   11.58 |  3.17    6.75
                0.250    6.54 | 1.250  160.60 | 2.250   10.23 |  3.25    6.35
                0.333    6.54 | 1.333  160.60 | 2.333   10.23 |  3.33    6.35
                0.417    7.47 | 1.417   34.01 | 2.417    9.20 |  3.42    6.01
                0.500    7.47 | 1.500   34.01 | 2.500    9.20 |  3.50    6.01
                0.583    8.79 | 1.583   21.44 | 2.583    8.40 |  3.58    5.71
                0.667    8.79 | 1.667   21.44 | 2.667    8.40 |  3.67    5.71
                0.750   10.89 | 1.750   16.35 | 2.750    7.75 |  3.75    5.45
                0.833   10.89 | 1.833   16.35 | 2.833    7.75 |  3.83    5.45
                0.917   14.90 | 1.917   13.47 | 2.917    7.20 |  3.92    5.21
                1.000   14.90 | 2.000   13.47 | 3.000    7.20 |  4.00    5.21

     Unit Hyd Qpeak  (cms)=   0.312

     PEAK FLOW       (cms)=   0.151 (i)
     TIME TO PEAK    (hrs)=   1.833
     RUNOFF VOLUME    (mm)=  24.767
     TOTAL RAINFALL   (mm)=  69.642
     RUNOFF COEFFICIENT   =   0.356

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.61   Curve Number   (CN)= 71.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.63   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.68

         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	5.86	1.083	27.71	2.083	11.58	3.08	6.75
0.167	5.86	1.167	27.71	2.167	11.58	3.17	6.75
0.250	6.54	1.250	160.60	2.250	10.23	3.25	6.35
0.333	6.54	1.333	160.60	2.333	10.23	3.33	6.35
0.417	7.47	1.417	34.01	2.417	9.20	3.42	6.01
0.500	7.47	1.500	34.01	2.500	9.20	3.50	6.01
0.583	8.79	1.583	21.44	2.583	8.40	3.58	5.71
0.667	8.79	1.667	21.44	2.667	8.40	3.67	5.71
0.750	10.89	1.750	16.35	2.750	7.75	3.75	5.45
0.833	10.89	1.833	16.35	2.833	7.75	3.83	5.45
0.917	14.90	1.917	13.47	2.917	7.20	3.92	5.21
1.000	14.90	2.000	13.47	3.000	7.20	4.00	5.21

```
     Unit Hyd Qpeak  (cms)=   0.034

     PEAK FLOW       (cms)=   0.018 (i)
     TIME TO PEAK    (hrs)=   2.167
     RUNOFF VOLUME    (mm)=  23.696
     TOTAL RAINFALL   (mm)=  69.642
     RUNOFF COEFFICIENT   =   0.340

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

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

--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     3.68   0.151     1.83    24.77
      + ID2= 2 (  0102):     0.61   0.018     2.17    23.70
        ====================================================
        ID = 3 (  0901):     4.29   0.167     1.83    24.61

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

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

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


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

  Output  filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\343cb
ed7-a2e8-48b9-8b8e-8afbf837003d\scen
  Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\343cb
ed7-a2e8-48b9-8b8e-8afbf837003d\scen


DATE: 09/16/2024                          TIME: 02:16:36

USER:


COMMENTS: ____________________________________________________________


--------------------------------------------------------------------------------
-----------------------
  ***********************************************
  ** SIMULATION : h TIMMINS                     **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\ASchoof\AppD
|                  |              ata\Local\Temp\
|                  |              89e37a6c-3e84-4d6f-b14c-084f4f074549\8ddbf0b1
| Ptotal=193.00 mm |    Comments: TIMMINS
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	15.00	3.00	3.00	6.00	43.00	9.00	13.00
0.25	15.00	3.25	3.00	6.25	43.00	9.25	13.00
0.50	15.00	3.50	3.00	6.50	43.00	9.50	13.00
0.75	15.00	3.75	3.00	6.75	43.00	9.75	13.00
1.00	20.00	4.00	5.00	7.00	20.00	10.00	13.00

1.25	20.00	4.25	5.00	7.25	20.00	10.25	13.00
1.50	20.00	4.50	5.00	7.50	20.00	10.50	13.00
1.75	20.00	4.75	5.00	7.75	20.00	10.75	13.00
2.00	10.00	5.00	20.00	8.00	23.00	11.00	8.00
2.25	10.00	5.25	20.00	8.25	23.00	11.25	8.00
2.50	10.00	5.50	20.00	8.50	23.00	11.50	8.00
2.75	10.00	5.75	20.00	8.75	23.00	11.75	8.00

```
--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   3.68   Curve Number   (CN)= 72.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.45
```

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	15.00	3.083	3.00	6.083	43.00	9.08	13.00
0.167	15.00	3.167	3.00	6.167	43.00	9.17	13.00
0.250	15.00	3.250	3.00	6.250	43.00	9.25	13.00
0.333	15.00	3.333	3.00	6.333	43.00	9.33	13.00
0.417	15.00	3.417	3.00	6.417	43.00	9.42	13.00
0.500	15.00	3.500	3.00	6.500	43.00	9.50	13.00
0.583	15.00	3.583	3.00	6.583	43.00	9.58	13.00
0.667	15.00	3.667	3.00	6.667	43.00	9.67	13.00
0.750	15.00	3.750	3.00	6.750	43.00	9.75	13.00
0.833	15.00	3.833	3.00	6.833	43.00	9.83	13.00
0.917	15.00	3.917	3.00	6.917	43.00	9.92	13.00
1.000	15.00	4.000	3.00	7.000	43.00	10.00	13.00
1.083	20.00	4.083	5.00	7.083	20.00	10.08	13.00
1.167	20.00	4.167	5.00	7.167	20.00	10.17	13.00
1.250	20.00	4.250	5.00	7.250	20.00	10.25	13.00
1.333	20.00	4.333	5.00	7.333	20.00	10.33	13.00
1.417	20.00	4.417	5.00	7.417	20.00	10.42	13.00
1.500	20.00	4.500	5.00	7.500	20.00	10.50	13.00
1.583	20.00	4.583	5.00	7.583	20.00	10.58	13.00
1.667	20.00	4.667	5.00	7.667	20.00	10.67	13.00
1.750	20.00	4.750	5.00	7.750	20.00	10.75	13.00
1.833	20.00	4.833	5.00	7.833	20.00	10.83	13.00
1.917	20.00	4.917	5.00	7.917	20.00	10.92	13.00
2.000	20.00	5.000	5.00	8.000	20.00	11.00	13.00
2.083	10.00	5.083	20.00	8.083	23.00	11.08	8.00
2.167	10.00	5.167	20.00	8.167	23.00	11.17	8.00
2.250	10.00	5.250	20.00	8.250	23.00	11.25	8.00
2.333	10.00	5.333	20.00	8.333	23.00	11.33	8.00
2.417	10.00	5.417	20.00	8.417	23.00	11.42	8.00
2.500	10.00	5.500	20.00	8.500	23.00	11.50	8.00
2.583	10.00	5.583	20.00	8.583	23.00	11.58	8.00
2.667	10.00	5.667	20.00	8.667	23.00	11.67	8.00
2.750	10.00	5.750	20.00	8.750	23.00	11.75	8.00
2.833	10.00	5.833	20.00	8.833	23.00	11.83	8.00
2.917	10.00	5.917	20.00	8.917	23.00	11.92	8.00
3.000	10.00	6.000	20.00	9.000	23.00	12.00	8.00

```
Unit Hyd Qpeak  (cms)=   0.312

PEAK FLOW       (cms)=   0.294 (i)
TIME TO PEAK    (hrs)=   7.083
RUNOFF VOLUME    (mm)= 122.749
TOTAL RAINFALL   (mm)= 193.000
RUNOFF COEFFICIENT   =   0.636
```

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

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--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.61   Curve Number   (CN)= 71.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.63   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.68
```

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	15.00	3.083	3.00	6.083	43.00	9.08	13.00
0.167	15.00	3.167	3.00	6.167	43.00	9.17	13.00
0.250	15.00	3.250	3.00	6.250	43.00	9.25	13.00
0.333	15.00	3.333	3.00	6.333	43.00	9.33	13.00
0.417	15.00	3.417	3.00	6.417	43.00	9.42	13.00
0.500	15.00	3.500	3.00	6.500	43.00	9.50	13.00
0.583	15.00	3.583	3.00	6.583	43.00	9.58	13.00
0.667	15.00	3.667	3.00	6.667	43.00	9.67	13.00
0.750	15.00	3.750	3.00	6.750	43.00	9.75	13.00
0.833	15.00	3.833	3.00	6.833	43.00	9.83	13.00
0.917	15.00	3.917	3.00	6.917	43.00	9.92	13.00
1.000	15.00	4.000	3.00	7.000	43.00	10.00	13.00
1.083	20.00	4.083	5.00	7.083	20.00	10.08	13.00
1.167	20.00	4.167	5.00	7.167	20.00	10.17	13.00
1.250	20.00	4.250	5.00	7.250	20.00	10.25	13.00
1.333	20.00	4.333	5.00	7.333	20.00	10.33	13.00
1.417	20.00	4.417	5.00	7.417	20.00	10.42	13.00
1.500	20.00	4.500	5.00	7.500	20.00	10.50	13.00

```
                1.583   20.00 | 4.583    5.00 | 7.583   20.00 | 10.58   13.00
                1.667   20.00 | 4.667    5.00 | 7.667   20.00 | 10.67   13.00
                1.750   20.00 | 4.750    5.00 | 7.750   20.00 | 10.75   13.00
                1.833   20.00 | 4.833    5.00 | 7.833   20.00 | 10.83   13.00
                1.917   20.00 | 4.917    5.00 | 7.917   20.00 | 10.92   13.00
                2.000   20.00 | 5.000    5.00 | 8.000   20.00 | 11.00   13.00
                2.083   10.00 | 5.083   20.00 | 8.083   23.00 | 11.08    8.00
                2.167   10.00 | 5.167   20.00 | 8.167   23.00 | 11.17    8.00
                2.250   10.00 | 5.250   20.00 | 8.250   23.00 | 11.25    8.00
                2.333   10.00 | 5.333   20.00 | 8.333   23.00 | 11.33    8.00
                2.417   10.00 | 5.417   20.00 | 8.417   23.00 | 11.42    8.00
                2.500   10.00 | 5.500   20.00 | 8.500   23.00 | 11.50    8.00
                2.583   10.00 | 5.583   20.00 | 8.583   23.00 | 11.58    8.00
                2.667   10.00 | 5.667   20.00 | 8.667   23.00 | 11.67    8.00
                2.750   10.00 | 5.750   20.00 | 8.750   23.00 | 11.75    8.00
                2.833   10.00 | 5.833   20.00 | 8.833   23.00 | 11.83    8.00
                2.917   10.00 | 5.917   20.00 | 8.917   23.00 | 11.92    8.00
                3.000   10.00 | 6.000   20.00 | 9.000   23.00 | 12.00    8.00

     Unit Hyd Qpeak  (cms)=   0.034

     PEAK FLOW       (cms)=   0.042 (i)
     TIME TO PEAK    (hrs)=   7.333
     RUNOFF VOLUME    (mm)= 120.301
     TOTAL RAINFALL   (mm)= 193.000
     RUNOFF COEFFICIENT   =   0.623

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

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--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     3.68   0.294     7.08   122.75
      + ID2= 2 (  0102):     0.61   0.042     7.33   120.30
        ===================================================
        ID = 3 (  0901):     4.29   0.334     7.17   122.40

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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================================================================================
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


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

  Output  filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\5ee86
2ec-c9d4-4583-a47e-a858d0ca04e6\scen
  Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\5ee86
2ec-c9d4-4583-a47e-a858d0ca04e6\scen


DATE: 09/16/2024                          TIME: 02:16:36

USER:


COMMENTS: ____________________________________________________________


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  ***********************************************
  ** SIMULATION : i 2yr (SCS)                  **
  ***********************************************


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|    READ STORM    |    Filename: C:\Users\ASchoof\AppD
|                  |              ata\Local\Temp\
|                  |              89e37a6c-3e84-4d6f-b14c-084f4f074549\cc9bf36a
| Ptotal= 53.94 mm |    Comments: SCS Type II 24 HR MASS CURVE
--------------------
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                  0.00    0.00 |  6.00    0.87 | 12.00    7.79 | 18.00    1.08
                  0.25    0.65 |  6.25    1.08 | 12.25    7.79 | 18.25    0.87
                  0.50    0.43 |  6.50    0.87 | 12.50    4.11 | 18.50    1.08
```

0.75	0.65	6.75	1.08	12.75	3.90	18.75	0.87
1.00	0.65	7.00	1.08	13.00	3.03	19.00	1.08
1.25	0.65	7.25	1.30	13.25	2.81	19.25	0.87
1.50	0.43	7.50	1.08	13.50	2.38	19.50	1.08
1.75	0.65	7.75	1.30	13.75	2.16	19.75	0.87
2.00	0.65	8.00	1.30	14.00	1.73	20.00	0.65
2.25	0.87	8.25	1.51	14.25	1.51	20.25	0.65
2.50	0.65	8.50	1.51	14.50	1.73	20.50	0.65
2.75	0.65	8.75	1.51	14.75	1.51	20.75	0.65
3.00	0.65	9.00	1.73	15.00	1.73	21.00	0.65
3.25	0.87	9.25	1.73	15.25	1.51	21.25	0.65
3.50	0.65	9.50	1.95	15.50	1.73	21.50	0.65
3.75	0.65	9.75	1.95	15.75	1.51	21.75	0.65
4.00	0.87	10.00	2.38	16.00	1.08	22.00	0.65
4.25	0.87	10.25	2.60	16.25	0.87	22.25	0.65
4.50	0.87	10.50	3.25	16.50	1.08	22.50	0.65
4.75	0.87	10.75	3.46	16.75	0.87	22.75	0.65
5.00	0.87	11.00	5.19	17.00	1.08	23.00	0.65
5.25	0.87	11.25	5.19	17.25	0.87	23.25	0.65
5.50	0.87	11.50	16.01	17.50	1.08	23.50	0.65
5.75	0.87	11.75	66.22	17.75	0.87	23.75	0.65

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--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   3.68   Curve Number   (CN)= 72.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.45
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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.083	0.87	12.083	7.80	18.08	1.08
0.167	0.00	6.167	0.87	12.167	7.79	18.17	1.08
0.250	0.00	6.250	0.87	12.250	7.79	18.25	1.08
0.333	0.65	6.333	1.08	12.333	7.79	18.33	0.87
0.417	0.65	6.417	1.08	12.417	7.79	18.42	0.87
0.500	0.65	6.500	1.08	12.500	7.79	18.50	0.87
0.583	0.43	6.583	0.87	12.583	4.11	18.58	1.08
0.667	0.43	6.667	0.87	12.667	4.11	18.67	1.08
0.750	0.43	6.750	0.87	12.750	4.11	18.75	1.08
0.833	0.65	6.833	1.08	12.833	3.90	18.83	0.87
0.917	0.65	6.917	1.08	12.917	3.90	18.92	0.87
1.000	0.65	7.000	1.08	13.000	3.90	19.00	0.87
1.083	0.65	7.083	1.08	13.083	3.03	19.08	1.08
1.167	0.65	7.167	1.08	13.167	3.03	19.17	1.08
1.250	0.65	7.250	1.08	13.250	3.03	19.25	1.08
1.333	0.65	7.333	1.30	13.333	2.81	19.33	0.87
1.417	0.65	7.417	1.30	13.417	2.81	19.42	0.87
1.500	0.65	7.500	1.30	13.500	2.81	19.50	0.87
1.583	0.43	7.583	1.08	13.583	2.38	19.58	1.08
1.667	0.43	7.667	1.08	13.667	2.38	19.67	1.08
1.750	0.43	7.750	1.08	13.750	2.38	19.75	1.08
1.833	0.65	7.833	1.30	13.833	2.16	19.83	0.87
1.917	0.65	7.917	1.30	13.917	2.16	19.92	0.87
2.000	0.65	8.000	1.30	14.000	2.16	20.00	0.87
2.083	0.65	8.083	1.30	14.083	1.73	20.08	0.65
2.167	0.65	8.167	1.30	14.167	1.73	20.17	0.65
2.250	0.65	8.250	1.30	14.250	1.73	20.25	0.65
2.333	0.87	8.333	1.51	14.333	1.51	20.33	0.65
2.417	0.87	8.417	1.51	14.417	1.51	20.42	0.65
2.500	0.87	8.500	1.51	14.500	1.51	20.50	0.65
2.583	0.65	8.583	1.51	14.583	1.73	20.58	0.65
2.667	0.65	8.667	1.51	14.667	1.73	20.67	0.65
2.750	0.65	8.750	1.51	14.750	1.73	20.75	0.65
2.833	0.65	8.833	1.51	14.833	1.51	20.83	0.65
2.917	0.65	8.917	1.51	14.917	1.51	20.92	0.65
3.000	0.65	9.000	1.51	15.000	1.51	21.00	0.65
3.083	0.65	9.083	1.73	15.083	1.73	21.08	0.65
3.167	0.65	9.167	1.73	15.167	1.73	21.17	0.65
3.250	0.65	9.250	1.73	15.250	1.73	21.25	0.65
3.333	0.87	9.333	1.73	15.333	1.51	21.33	0.65
3.417	0.87	9.417	1.73	15.417	1.51	21.42	0.65
3.500	0.87	9.500	1.73	15.500	1.51	21.50	0.65
3.583	0.65	9.583	1.95	15.583	1.73	21.58	0.65
3.667	0.65	9.667	1.95	15.667	1.73	21.67	0.65
3.750	0.65	9.750	1.95	15.750	1.73	21.75	0.65
3.833	0.65	9.833	1.95	15.833	1.51	21.83	0.65
3.917	0.65	9.917	1.95	15.917	1.51	21.92	0.65
4.000	0.65	10.000	1.95	16.000	1.51	22.00	0.65
4.083	0.87	10.083	2.38	16.083	1.08	22.08	0.65
4.167	0.87	10.167	2.38	16.167	1.08	22.17	0.65
4.250	0.87	10.250	2.38	16.250	1.08	22.25	0.65
4.333	0.87	10.333	2.60	16.333	0.87	22.33	0.65
4.417	0.87	10.417	2.60	16.417	0.87	22.42	0.65
4.500	0.87	10.500	2.60	16.500	0.87	22.50	0.65
4.583	0.87	10.583	3.25	16.583	1.08	22.58	0.65
4.667	0.87	10.667	3.25	16.667	1.08	22.67	0.65
4.750	0.87	10.750	3.25	16.750	1.08	22.75	0.65
4.833	0.87	10.833	3.46	16.833	0.87	22.83	0.65
4.917	0.87	10.917	3.46	16.917	0.87	22.92	0.65
5.000	0.87	11.000	3.46	17.000	0.87	23.00	0.65
5.083	0.87	11.083	5.19	17.083	1.08	23.08	0.65
5.167	0.87	11.167	5.19	17.167	1.08	23.17	0.65
5.250	0.87	11.250	5.19	17.250	1.08	23.25	0.65
5.333	0.87	11.333	5.19	17.333	0.87	23.33	0.65

5.417	0.87	11.417	5.19	17.417	0.87	23.42	0.65
5.500	0.87	11.500	5.19	17.500	0.87	23.50	0.65
5.583	0.87	11.583	16.01	17.583	1.08	23.58	0.65
5.667	0.87	11.667	16.01	17.667	1.08	23.67	0.65
5.750	0.87	11.750	16.01	17.750	1.08	23.75	0.65
5.833	0.87	11.833	66.21	17.833	0.87	23.83	0.65
5.917	0.87	11.917	66.22	17.917	0.87	23.92	0.65
6.000	0.87	12.000	66.22	18.000	0.87	24.00	0.65

Unit Hyd Qpeak (cms)= 0.312

PEAK FLOW (cms)= 0.079 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 15.438
TOTAL RAINFALL (mm)= 53.938
RUNOFF COEFFICIENT = 0.286

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

CALIB			
NASHYD (0102)	Area (ha)=	0.61	Curve Number (CN)= 71.7
ID= 1 DT= 5.0 min	Ia (mm)=	7.63	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.68	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.083	0.87	12.083	7.80	18.08	1.08
0.167	0.00	6.167	0.87	12.167	7.79	18.17	1.08
0.250	0.00	6.250	0.87	12.250	7.79	18.25	1.08
0.333	0.65	6.333	1.08	12.333	7.79	18.33	0.87
0.417	0.65	6.417	1.08	12.417	7.79	18.42	0.87
0.500	0.65	6.500	1.08	12.500	7.79	18.50	0.87
0.583	0.43	6.583	0.87	12.583	4.11	18.58	1.08
0.667	0.43	6.667	0.87	12.667	4.11	18.67	1.08
0.750	0.43	6.750	0.87	12.750	4.11	18.75	1.08
0.833	0.65	6.833	1.08	12.833	3.90	18.83	0.87
0.917	0.65	6.917	1.08	12.917	3.90	18.92	0.87
1.000	0.65	7.000	1.08	13.000	3.90	19.00	0.87
1.083	0.65	7.083	1.08	13.083	3.03	19.08	1.08
1.167	0.65	7.167	1.08	13.167	3.03	19.17	1.08
1.250	0.65	7.250	1.08	13.250	3.03	19.25	1.08
1.333	0.65	7.333	1.30	13.333	2.81	19.33	0.87
1.417	0.65	7.417	1.30	13.417	2.81	19.42	0.87
1.500	0.65	7.500	1.30	13.500	2.81	19.50	0.87
1.583	0.43	7.583	1.08	13.583	2.38	19.58	1.08
1.667	0.43	7.667	1.08	13.667	2.38	19.67	1.08
1.750	0.43	7.750	1.08	13.750	2.38	19.75	1.08
1.833	0.65	7.833	1.30	13.833	2.16	19.83	0.87
1.917	0.65	7.917	1.30	13.917	2.16	19.92	0.87
2.000	0.65	8.000	1.30	14.000	2.16	20.00	0.87
2.083	0.65	8.083	1.30	14.083	1.73	20.08	0.65
2.167	0.65	8.167	1.30	14.167	1.73	20.17	0.65
2.250	0.65	8.250	1.30	14.250	1.73	20.25	0.65
2.333	0.87	8.333	1.51	14.333	1.51	20.33	0.65
2.417	0.87	8.417	1.51	14.417	1.51	20.42	0.65
2.500	0.87	8.500	1.51	14.500	1.51	20.50	0.65
2.583	0.65	8.583	1.51	14.583	1.73	20.58	0.65
2.667	0.65	8.667	1.51	14.667	1.73	20.67	0.65
2.750	0.65	8.750	1.51	14.750	1.73	20.75	0.65
2.833	0.65	8.833	1.51	14.833	1.51	20.83	0.65
2.917	0.65	8.917	1.51	14.917	1.51	20.92	0.65
3.000	0.65	9.000	1.51	15.000	1.51	21.00	0.65
3.083	0.65	9.083	1.73	15.083	1.73	21.08	0.65
3.167	0.65	9.167	1.73	15.167	1.73	21.17	0.65
3.250	0.65	9.250	1.73	15.250	1.73	21.25	0.65
3.333	0.87	9.333	1.73	15.333	1.51	21.33	0.65
3.417	0.87	9.417	1.73	15.417	1.51	21.42	0.65
3.500	0.87	9.500	1.73	15.500	1.51	21.50	0.65
3.583	0.65	9.583	1.95	15.583	1.73	21.58	0.65
3.667	0.65	9.667	1.95	15.667	1.73	21.67	0.65
3.750	0.65	9.750	1.95	15.750	1.73	21.75	0.65
3.833	0.65	9.833	1.95	15.833	1.51	21.83	0.65
3.917	0.65	9.917	1.95	15.917	1.51	21.92	0.65
4.000	0.65	10.000	1.95	16.000	1.51	22.00	0.65
4.083	0.87	10.083	2.38	16.083	1.08	22.08	0.65
4.167	0.87	10.167	2.38	16.167	1.08	22.17	0.65
4.250	0.87	10.250	2.38	16.250	1.08	22.25	0.65
4.333	0.87	10.333	2.60	16.333	0.87	22.33	0.65
4.417	0.87	10.417	2.60	16.417	0.87	22.42	0.65
4.500	0.87	10.500	2.60	16.500	0.87	22.50	0.65
4.583	0.87	10.583	3.25	16.583	1.08	22.58	0.65
4.667	0.87	10.667	3.25	16.667	1.08	22.67	0.65
4.750	0.87	10.750	3.25	16.750	1.08	22.75	0.65
4.833	0.87	10.833	3.46	16.833	0.87	22.83	0.65
4.917	0.87	10.917	3.46	16.917	0.87	22.92	0.65
5.000	0.87	11.000	3.46	17.000	0.87	23.00	0.65
5.083	0.87	11.083	5.19	17.083	1.08	23.08	0.65
5.167	0.87	11.167	5.19	17.167	1.08	23.17	0.65
5.250	0.87	11.250	5.19	17.250	1.08	23.25	0.65
5.333	0.87	11.333	5.19	17.333	0.87	23.33	0.65
5.417	0.87	11.417	5.19	17.417	0.87	23.42	0.65
5.500	0.87	11.500	5.19	17.500	0.87	23.50	0.65
5.583	0.87	11.583	16.01	17.583	1.08	23.58	0.65
5.667	0.87	11.667	16.01	17.667	1.08	23.67	0.65

```
                5.750    0.87 |11.750   16.01 |17.750    1.08 | 23.75    0.65
                5.833    0.87 |11.833   66.21 |17.833    0.87 | 23.83    0.65
                5.917    0.87 |11.917   66.22 |17.917    0.87 | 23.92    0.65
                6.000    0.87 |12.000   66.22 |18.000    0.87 | 24.00    0.65

     Unit Hyd Qpeak  (cms)=   0.034

     PEAK FLOW       (cms)=   0.009 (i)
     TIME TO PEAK    (hrs)=  12.667
     RUNOFF VOLUME    (mm)=  14.628
     TOTAL RAINFALL   (mm)=  53.938
     RUNOFF COEFFICIENT   =   0.271

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

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

--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     3.68   0.079    12.33    15.44
      + ID2= 2 (  0102):     0.61   0.009    12.67    14.63
        ==================================================
        ID = 3 (  0901):     4.29   0.087    12.33    15.32

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

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

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\7c7af
cc8-297a-4022-b3cf-c87fc45095ad\scen
  Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\7c7af
cc8-297a-4022-b3cf-c87fc45095ad\scen


DATE: 09/16/2024                          TIME: 02:16:36

USER:


COMMENTS: ____________________________________________________________


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  ***********************************************
  ** SIMULATION : j 5yr (SCS)                  **
  ***********************************************


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|    READ STORM    |    Filename: C:\Users\ASchoof\AppD
|                  |              ata\Local\Temp\
|                  |              89e37a6c-3e84-4d6f-b14c-084f4f074549\c1f31b71
| Ptotal= 71.39 mm |    Comments: SCS Type II 24 HR MASS CURVE
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  6.00    1.15 | 12.00   10.31 | 18.00    1.43
                0.25    0.86 |  6.25    1.43 | 12.25   10.31 | 18.25    1.15
                0.50    0.57 |  6.50    1.15 | 12.50    5.44 | 18.50    1.43
                0.75    0.86 |  6.75    1.43 | 12.75    5.16 | 18.75    1.15
                1.00    0.86 |  7.00    1.43 | 13.00    4.01 | 19.00    1.43
                1.25    0.86 |  7.25    1.72 | 13.25    3.72 | 19.25    1.15
                1.50    0.57 |  7.50    1.43 | 13.50    3.15 | 19.50    1.43
                1.75    0.86 |  7.75    1.72 | 13.75    2.86 | 19.75    1.15
                2.00    0.86 |  8.00    1.72 | 14.00    2.29 | 20.00    0.86
                2.25    1.15 |  8.25    2.00 | 14.25    2.00 | 20.25    0.86
                2.50    0.86 |  8.50    2.00 | 14.50    2.29 | 20.50    0.86
                2.75    0.86 |  8.75    2.00 | 14.75    2.00 | 20.75    0.86
                3.00    0.86 |  9.00    2.29 | 15.00    2.29 | 21.00    0.86
                3.25    1.15 |  9.25    2.29 | 15.25    2.00 | 21.25    0.86
                3.50    0.86 |  9.50    2.58 | 15.50    2.29 | 21.50    0.86
                3.75    0.86 |  9.75    2.58 | 15.75    2.00 | 21.75    0.86
                4.00    1.15 | 10.00    3.15 | 16.00    1.43 | 22.00    0.86
```

4.25	1.15	10.25	3.44	16.25	1.15	22.25	0.86
4.50	1.15	10.50	4.30	16.50	1.43	22.50	0.86
4.75	1.15	10.75	4.58	16.75	1.15	22.75	0.86
5.00	1.15	11.00	6.87	17.00	1.43	23.00	0.86
5.25	1.15	11.25	6.87	17.25	1.15	23.25	0.86
5.50	1.15	11.50	21.19	17.50	1.43	23.50	0.86
5.75	1.15	11.75	87.64	17.75	1.15	23.75	0.86

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--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   3.68   Curve Number   (CN)= 72.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.45
```

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.083	1.15	12.083	10.32	18.08	1.43
0.167	0.00	6.167	1.15	12.167	10.31	18.17	1.43
0.250	0.00	6.250	1.15	12.250	10.31	18.25	1.43
0.333	0.86	6.333	1.43	12.333	10.31	18.33	1.15
0.417	0.86	6.417	1.43	12.417	10.31	18.42	1.15
0.500	0.86	6.500	1.43	12.500	10.31	18.50	1.15
0.583	0.57	6.583	1.15	12.583	5.44	18.58	1.43
0.667	0.57	6.667	1.15	12.667	5.44	18.67	1.43
0.750	0.57	6.750	1.15	12.750	5.44	18.75	1.43
0.833	0.86	6.833	1.43	12.833	5.16	18.83	1.15
0.917	0.86	6.917	1.43	12.917	5.16	18.92	1.15
1.000	0.86	7.000	1.43	13.000	5.16	19.00	1.15
1.083	0.86	7.083	1.43	13.083	4.01	19.08	1.43
1.167	0.86	7.167	1.43	13.167	4.01	19.17	1.43
1.250	0.86	7.250	1.43	13.250	4.01	19.25	1.43
1.333	0.86	7.333	1.72	13.333	3.72	19.33	1.15
1.417	0.86	7.417	1.72	13.417	3.72	19.42	1.15
1.500	0.86	7.500	1.72	13.500	3.72	19.50	1.15
1.583	0.57	7.583	1.43	13.583	3.15	19.58	1.43
1.667	0.57	7.667	1.43	13.667	3.15	19.67	1.43
1.750	0.57	7.750	1.43	13.750	3.15	19.75	1.43
1.833	0.86	7.833	1.72	13.833	2.86	19.83	1.15
1.917	0.86	7.917	1.72	13.917	2.86	19.92	1.15
2.000	0.86	8.000	1.72	14.000	2.86	20.00	1.15
2.083	0.86	8.083	1.72	14.083	2.29	20.08	0.86
2.167	0.86	8.167	1.72	14.167	2.29	20.17	0.86
2.250	0.86	8.250	1.72	14.250	2.29	20.25	0.86
2.333	1.15	8.333	2.00	14.333	2.00	20.33	0.86
2.417	1.15	8.417	2.00	14.417	2.00	20.42	0.86
2.500	1.15	8.500	2.00	14.500	2.00	20.50	0.86
2.583	0.86	8.583	2.00	14.583	2.29	20.58	0.86
2.667	0.86	8.667	2.00	14.667	2.29	20.67	0.86
2.750	0.86	8.750	2.00	14.750	2.29	20.75	0.86
2.833	0.86	8.833	2.00	14.833	2.00	20.83	0.86
2.917	0.86	8.917	2.00	14.917	2.00	20.92	0.86
3.000	0.86	9.000	2.00	15.000	2.00	21.00	0.86
3.083	0.86	9.083	2.29	15.083	2.29	21.08	0.86
3.167	0.86	9.167	2.29	15.167	2.29	21.17	0.86
3.250	0.86	9.250	2.29	15.250	2.29	21.25	0.86
3.333	1.15	9.333	2.29	15.333	2.00	21.33	0.86
3.417	1.15	9.417	2.29	15.417	2.00	21.42	0.86
3.500	1.15	9.500	2.29	15.500	2.00	21.50	0.86
3.583	0.86	9.583	2.58	15.583	2.29	21.58	0.86
3.667	0.86	9.667	2.58	15.667	2.29	21.67	0.86
3.750	0.86	9.750	2.58	15.750	2.29	21.75	0.86
3.833	0.86	9.833	2.58	15.833	2.00	21.83	0.86
3.917	0.86	9.917	2.58	15.917	2.00	21.92	0.86
4.000	0.86	10.000	2.58	16.000	2.00	22.00	0.86
4.083	1.15	10.083	3.15	16.083	1.43	22.08	0.86
4.167	1.15	10.167	3.15	16.167	1.43	22.17	0.86
4.250	1.15	10.250	3.15	16.250	1.43	22.25	0.86
4.333	1.15	10.333	3.44	16.333	1.15	22.33	0.86
4.417	1.15	10.417	3.44	16.417	1.15	22.42	0.86
4.500	1.15	10.500	3.44	16.500	1.15	22.50	0.86
4.583	1.15	10.583	4.30	16.583	1.43	22.58	0.86
4.667	1.15	10.667	4.30	16.667	1.43	22.67	0.86
4.750	1.15	10.750	4.30	16.750	1.43	22.75	0.86
4.833	1.15	10.833	4.58	16.833	1.15	22.83	0.86
4.917	1.15	10.917	4.58	16.917	1.15	22.92	0.86
5.000	1.15	11.000	4.58	17.000	1.15	23.00	0.86
5.083	1.15	11.083	6.87	17.083	1.43	23.08	0.86
5.167	1.15	11.167	6.87	17.167	1.43	23.17	0.86
5.250	1.15	11.250	6.87	17.250	1.43	23.25	0.86
5.333	1.15	11.333	6.87	17.333	1.15	23.33	0.86
5.417	1.15	11.417	6.87	17.417	1.15	23.42	0.86
5.500	1.15	11.500	6.87	17.500	1.15	23.50	0.86
5.583	1.15	11.583	21.19	17.583	1.43	23.58	0.86
5.667	1.15	11.667	21.19	17.667	1.43	23.67	0.86
5.750	1.15	11.750	21.19	17.750	1.43	23.75	0.86
5.833	1.15	11.833	87.63	17.833	1.15	23.83	0.86
5.917	1.15	11.917	87.64	17.917	1.15	23.92	0.86
6.000	1.15	12.000	87.64	18.000	1.15	24.00	0.86

```
Unit Hyd Qpeak  (cms)=   0.312

PEAK FLOW       (cms)=   0.136 (i)
TIME TO PEAK    (hrs)=  12.333
RUNOFF VOLUME    (mm)=  25.880
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TOTAL RAINFALL (mm)= 71.385
RUNOFF COEFFICIENT = 0.363

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

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| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.61   Curve Number   (CN)= 71.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.63   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.68
```

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.083	1.15	12.083	10.32	18.08	1.43
0.167	0.00	6.167	1.15	12.167	10.31	18.17	1.43
0.250	0.00	6.250	1.15	12.250	10.31	18.25	1.43
0.333	0.86	6.333	1.43	12.333	10.31	18.33	1.15
0.417	0.86	6.417	1.43	12.417	10.31	18.42	1.15
0.500	0.86	6.500	1.43	12.500	10.31	18.50	1.15
0.583	0.57	6.583	1.15	12.583	5.44	18.58	1.43
0.667	0.57	6.667	1.15	12.667	5.44	18.67	1.43
0.750	0.57	6.750	1.15	12.750	5.44	18.75	1.43
0.833	0.86	6.833	1.43	12.833	5.16	18.83	1.15
0.917	0.86	6.917	1.43	12.917	5.16	18.92	1.15
1.000	0.86	7.000	1.43	13.000	5.16	19.00	1.15
1.083	0.86	7.083	1.43	13.083	4.01	19.08	1.43
1.167	0.86	7.167	1.43	13.167	4.01	19.17	1.43
1.250	0.86	7.250	1.43	13.250	4.01	19.25	1.43
1.333	0.86	7.333	1.72	13.333	3.72	19.33	1.15
1.417	0.86	7.417	1.72	13.417	3.72	19.42	1.15
1.500	0.86	7.500	1.72	13.500	3.72	19.50	1.15
1.583	0.57	7.583	1.43	13.583	3.15	19.58	1.43
1.667	0.57	7.667	1.43	13.667	3.15	19.67	1.43
1.750	0.57	7.750	1.43	13.750	3.15	19.75	1.43
1.833	0.86	7.833	1.72	13.833	2.86	19.83	1.15
1.917	0.86	7.917	1.72	13.917	2.86	19.92	1.15
2.000	0.86	8.000	1.72	14.000	2.86	20.00	1.15
2.083	0.86	8.083	1.72	14.083	2.29	20.08	0.86
2.167	0.86	8.167	1.72	14.167	2.29	20.17	0.86
2.250	0.86	8.250	1.72	14.250	2.29	20.25	0.86
2.333	1.15	8.333	2.00	14.333	2.00	20.33	0.86
2.417	1.15	8.417	2.00	14.417	2.00	20.42	0.86
2.500	1.15	8.500	2.00	14.500	2.00	20.50	0.86
2.583	0.86	8.583	2.00	14.583	2.29	20.58	0.86
2.667	0.86	8.667	2.00	14.667	2.29	20.67	0.86
2.750	0.86	8.750	2.00	14.750	2.29	20.75	0.86
2.833	0.86	8.833	2.00	14.833	2.00	20.83	0.86
2.917	0.86	8.917	2.00	14.917	2.00	20.92	0.86
3.000	0.86	9.000	2.00	15.000	2.00	21.00	0.86
3.083	0.86	9.083	2.29	15.083	2.29	21.08	0.86
3.167	0.86	9.167	2.29	15.167	2.29	21.17	0.86
3.250	0.86	9.250	2.29	15.250	2.29	21.25	0.86
3.333	1.15	9.333	2.29	15.333	2.00	21.33	0.86
3.417	1.15	9.417	2.29	15.417	2.00	21.42	0.86
3.500	1.15	9.500	2.29	15.500	2.00	21.50	0.86
3.583	0.86	9.583	2.58	15.583	2.29	21.58	0.86
3.667	0.86	9.667	2.58	15.667	2.29	21.67	0.86
3.750	0.86	9.750	2.58	15.750	2.29	21.75	0.86
3.833	0.86	9.833	2.58	15.833	2.00	21.83	0.86
3.917	0.86	9.917	2.58	15.917	2.00	21.92	0.86
4.000	0.86	10.000	2.58	16.000	2.00	22.00	0.86
4.083	1.15	10.083	3.15	16.083	1.43	22.08	0.86
4.167	1.15	10.167	3.15	16.167	1.43	22.17	0.86
4.250	1.15	10.250	3.15	16.250	1.43	22.25	0.86
4.333	1.15	10.333	3.44	16.333	1.15	22.33	0.86
4.417	1.15	10.417	3.44	16.417	1.15	22.42	0.86
4.500	1.15	10.500	3.44	16.500	1.15	22.50	0.86
4.583	1.15	10.583	4.30	16.583	1.43	22.58	0.86
4.667	1.15	10.667	4.30	16.667	1.43	22.67	0.86
4.750	1.15	10.750	4.30	16.750	1.43	22.75	0.86
4.833	1.15	10.833	4.58	16.833	1.15	22.83	0.86
4.917	1.15	10.917	4.58	16.917	1.15	22.92	0.86
5.000	1.15	11.000	4.58	17.000	1.15	23.00	0.86
5.083	1.15	11.083	6.87	17.083	1.43	23.08	0.86
5.167	1.15	11.167	6.87	17.167	1.43	23.17	0.86
5.250	1.15	11.250	6.87	17.250	1.43	23.25	0.86
5.333	1.15	11.333	6.87	17.333	1.15	23.33	0.86
5.417	1.15	11.417	6.87	17.417	1.15	23.42	0.86
5.500	1.15	11.500	6.87	17.500	1.15	23.50	0.86
5.583	1.15	11.583	21.19	17.583	1.43	23.58	0.86
5.667	1.15	11.667	21.19	17.667	1.43	23.67	0.86
5.750	1.15	11.750	21.19	17.750	1.43	23.75	0.86
5.833	1.15	11.833	87.63	17.833	1.15	23.83	0.86
5.917	1.15	11.917	87.64	17.917	1.15	23.92	0.86
6.000	1.15	12.000	87.64	18.000	1.15	24.00	0.86

Unit Hyd Qpeak (cms)= 0.034

PEAK FLOW (cms)= 0.016 (i)
TIME TO PEAK (hrs)= 12.583
RUNOFF VOLUME (mm)= 24.781
TOTAL RAINFALL (mm)= 71.385
RUNOFF COEFFICIENT = 0.347

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

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

--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     3.68   0.136    12.33    25.88
      + ID2= 2 (  0102):     0.61   0.016    12.58    24.78
        ===================================================
        ID = 3 (  0901):     4.29   0.150    12.33    25.72

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

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

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


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

  Output  filename:
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28b-7a5d-473b-af56-4ead2400e174\scen
  Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\8ec04
28b-7a5d-473b-af56-4ead2400e174\scen


DATE: 09/16/2024                           TIME: 02:16:36

USER:
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COMMENTS: _____

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  ************************************************
  ** SIMULATION : k 10yr (SCS)                  **
  ************************************************


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|    READ STORM    |    Filename: C:\Users\ASchoof\AppD
|                  |              ata\Local\Temp\
|                  |              89e37a6c-3e84-4d6f-b14c-084f4f074549\40329db0
| Ptotal= 82.75 mm |    Comments: SCS Type II 24 HR MASS CURVE
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.00	1.33	12.00	11.95	18.00	1.66
0.25	1.00	6.25	1.66	12.25	11.95	18.25	1.33
0.50	0.66	6.50	1.33	12.50	6.31	18.50	1.66
0.75	1.00	6.75	1.66	12.75	5.98	18.75	1.33
1.00	1.00	7.00	1.66	13.00	4.65	19.00	1.66
1.25	1.00	7.25	1.99	13.25	4.32	19.25	1.33
1.50	0.66	7.50	1.66	13.50	3.65	19.50	1.66
1.75	1.00	7.75	1.99	13.75	3.32	19.75	1.33
2.00	1.00	8.00	1.99	14.00	2.66	20.00	1.00
2.25	1.33	8.25	2.32	14.25	2.32	20.25	1.00
2.50	1.00	8.50	2.32	14.50	2.66	20.50	1.00
2.75	1.00	8.75	2.32	14.75	2.32	20.75	1.00
3.00	1.00	9.00	2.66	15.00	2.66	21.00	1.00
3.25	1.33	9.25	2.66	15.25	2.32	21.25	1.00
3.50	1.00	9.50	2.99	15.50	2.66	21.50	1.00
3.75	1.00	9.75	2.99	15.75	2.32	21.75	1.00
4.00	1.33	10.00	3.65	16.00	1.66	22.00	1.00
4.25	1.33	10.25	3.98	16.25	1.33	22.25	1.00
4.50	1.33	10.50	4.98	16.50	1.66	22.50	1.00
4.75	1.33	10.75	5.31	16.75	1.33	22.75	1.00
5.00	1.33	11.00	7.97	17.00	1.66	23.00	1.00
5.25	1.33	11.25	7.97	17.25	1.33	23.25	1.00
5.50	1.33	11.50	24.57	17.50	1.66	23.50	1.00
5.75	1.33	11.75	101.59	17.75	1.33	23.75	1.00

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--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   3.68   Curve Number   (CN)= 72.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.98   # of Linear Res.(N)= 3.00
```

---------- U.H. Tp(hrs)= 0.45

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.083	1.33	12.083	11.96	18.08	1.66
0.167	0.00	6.167	1.33	12.167	11.95	18.17	1.66
0.250	0.00	6.250	1.33	12.250	11.95	18.25	1.66
0.333	1.00	6.333	1.66	12.333	11.95	18.33	1.33
0.417	1.00	6.417	1.66	12.417	11.95	18.42	1.33
0.500	1.00	6.500	1.66	12.500	11.95	18.50	1.33
0.583	0.66	6.583	1.33	12.583	6.31	18.58	1.66
0.667	0.66	6.667	1.33	12.667	6.31	18.67	1.66
0.750	0.66	6.750	1.33	12.750	6.31	18.75	1.66
0.833	1.00	6.833	1.66	12.833	5.98	18.83	1.33
0.917	1.00	6.917	1.66	12.917	5.98	18.92	1.33
1.000	1.00	7.000	1.66	13.000	5.98	19.00	1.33
1.083	1.00	7.083	1.66	13.083	4.65	19.08	1.66
1.167	1.00	7.167	1.66	13.167	4.65	19.17	1.66
1.250	1.00	7.250	1.66	13.250	4.65	19.25	1.66
1.333	1.00	7.333	1.99	13.333	4.32	19.33	1.33
1.417	1.00	7.417	1.99	13.417	4.32	19.42	1.33
1.500	1.00	7.500	1.99	13.500	4.32	19.50	1.33
1.583	0.66	7.583	1.66	13.583	3.65	19.58	1.66
1.667	0.66	7.667	1.66	13.667	3.65	19.67	1.66
1.750	0.66	7.750	1.66	13.750	3.65	19.75	1.66
1.833	1.00	7.833	1.99	13.833	3.32	19.83	1.33
1.917	1.00	7.917	1.99	13.917	3.32	19.92	1.33
2.000	1.00	8.000	1.99	14.000	3.32	20.00	1.33
2.083	1.00	8.083	1.99	14.083	2.66	20.08	1.00
2.167	1.00	8.167	1.99	14.167	2.66	20.17	1.00
2.250	1.00	8.250	1.99	14.250	2.66	20.25	1.00
2.333	1.33	8.333	2.32	14.333	2.32	20.33	1.00
2.417	1.33	8.417	2.32	14.417	2.32	20.42	1.00
2.500	1.33	8.500	2.32	14.500	2.32	20.50	1.00
2.583	1.00	8.583	2.32	14.583	2.66	20.58	1.00
2.667	1.00	8.667	2.32	14.667	2.66	20.67	1.00
2.750	1.00	8.750	2.32	14.750	2.66	20.75	1.00
2.833	1.00	8.833	2.32	14.833	2.32	20.83	1.00
2.917	1.00	8.917	2.32	14.917	2.32	20.92	1.00
3.000	1.00	9.000	2.32	15.000	2.32	21.00	1.00
3.083	1.00	9.083	2.66	15.083	2.66	21.08	1.00
3.167	1.00	9.167	2.66	15.167	2.66	21.17	1.00
3.250	1.00	9.250	2.66	15.250	2.66	21.25	1.00
3.333	1.33	9.333	2.66	15.333	2.32	21.33	1.00
3.417	1.33	9.417	2.66	15.417	2.32	21.42	1.00
3.500	1.33	9.500	2.66	15.500	2.32	21.50	1.00
3.583	1.00	9.583	2.99	15.583	2.66	21.58	1.00
3.667	1.00	9.667	2.99	15.667	2.66	21.67	1.00
3.750	1.00	9.750	2.99	15.750	2.66	21.75	1.00
3.833	1.00	9.833	2.99	15.833	2.32	21.83	1.00
3.917	1.00	9.917	2.99	15.917	2.32	21.92	1.00
4.000	1.00	10.000	2.99	16.000	2.32	22.00	1.00
4.083	1.33	10.083	3.65	16.083	1.66	22.08	1.00
4.167	1.33	10.167	3.65	16.167	1.66	22.17	1.00
4.250	1.33	10.250	3.65	16.250	1.66	22.25	1.00
4.333	1.33	10.333	3.98	16.333	1.33	22.33	1.00
4.417	1.33	10.417	3.98	16.417	1.33	22.42	1.00
4.500	1.33	10.500	3.98	16.500	1.33	22.50	1.00
4.583	1.33	10.583	4.98	16.583	1.66	22.58	1.00
4.667	1.33	10.667	4.98	16.667	1.66	22.67	1.00
4.750	1.33	10.750	4.98	16.750	1.66	22.75	1.00
4.833	1.33	10.833	5.31	16.833	1.33	22.83	1.00
4.917	1.33	10.917	5.31	16.917	1.33	22.92	1.00
5.000	1.33	11.000	5.31	17.000	1.33	23.00	1.00
5.083	1.33	11.083	7.97	17.083	1.66	23.08	1.00
5.167	1.33	11.167	7.97	17.167	1.66	23.17	1.00
5.250	1.33	11.250	7.97	17.250	1.66	23.25	1.00
5.333	1.33	11.333	7.97	17.333	1.33	23.33	1.00
5.417	1.33	11.417	7.97	17.417	1.33	23.42	1.00
5.500	1.33	11.500	7.97	17.500	1.33	23.50	1.00
5.583	1.33	11.583	24.57	17.583	1.66	23.58	1.00
5.667	1.33	11.667	24.57	17.667	1.66	23.67	1.00
5.750	1.33	11.750	24.57	17.750	1.66	23.75	1.00
5.833	1.33	11.833	101.58	17.833	1.33	23.83	1.00
5.917	1.33	11.917	101.59	17.917	1.33	23.92	1.00
6.000	1.33	12.000	101.59	18.000	1.33	24.00	1.00

Unit Hyd Qpeak (cms)= 0.312

PEAK FLOW (cms)= 0.177 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 33.448
TOTAL RAINFALL (mm)= 82.751
RUNOFF COEFFICIENT = 0.404

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

CALIB			
NASHYD (0102)	Area (ha)= 0.61	Curve Number (CN)= 71.7
ID= 1 DT= 5.0 min	Ia (mm)= 7.63	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.68	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.083	1.33	12.083	11.96	18.08	1.66
0.167	0.00	6.167	1.33	12.167	11.95	18.17	1.66
0.250	0.00	6.250	1.33	12.250	11.95	18.25	1.66
0.333	1.00	6.333	1.66	12.333	11.95	18.33	1.33
0.417	1.00	6.417	1.66	12.417	11.95	18.42	1.33
0.500	1.00	6.500	1.66	12.500	11.95	18.50	1.33
0.583	0.66	6.583	1.33	12.583	6.31	18.58	1.66
0.667	0.66	6.667	1.33	12.667	6.31	18.67	1.66
0.750	0.66	6.750	1.33	12.750	6.31	18.75	1.66
0.833	1.00	6.833	1.66	12.833	5.98	18.83	1.33
0.917	1.00	6.917	1.66	12.917	5.98	18.92	1.33
1.000	1.00	7.000	1.66	13.000	5.98	19.00	1.33
1.083	1.00	7.083	1.66	13.083	4.65	19.08	1.66
1.167	1.00	7.167	1.66	13.167	4.65	19.17	1.66
1.250	1.00	7.250	1.66	13.250	4.65	19.25	1.66
1.333	1.00	7.333	1.99	13.333	4.32	19.33	1.33
1.417	1.00	7.417	1.99	13.417	4.32	19.42	1.33
1.500	1.00	7.500	1.99	13.500	4.32	19.50	1.33
1.583	0.66	7.583	1.66	13.583	3.65	19.58	1.66
1.667	0.66	7.667	1.66	13.667	3.65	19.67	1.66
1.750	0.66	7.750	1.66	13.750	3.65	19.75	1.66
1.833	1.00	7.833	1.99	13.833	3.32	19.83	1.33
1.917	1.00	7.917	1.99	13.917	3.32	19.92	1.33
2.000	1.00	8.000	1.99	14.000	3.32	20.00	1.33
2.083	1.00	8.083	1.99	14.083	2.66	20.08	1.00
2.167	1.00	8.167	1.99	14.167	2.66	20.17	1.00
2.250	1.00	8.250	1.99	14.250	2.66	20.25	1.00
2.333	1.33	8.333	2.32	14.333	2.32	20.33	1.00
2.417	1.33	8.417	2.32	14.417	2.32	20.42	1.00
2.500	1.33	8.500	2.32	14.500	2.32	20.50	1.00
2.583	1.00	8.583	2.32	14.583	2.66	20.58	1.00
2.667	1.00	8.667	2.32	14.667	2.66	20.67	1.00
2.750	1.00	8.750	2.32	14.750	2.66	20.75	1.00
2.833	1.00	8.833	2.32	14.833	2.32	20.83	1.00
2.917	1.00	8.917	2.32	14.917	2.32	20.92	1.00
3.000	1.00	9.000	2.32	15.000	2.32	21.00	1.00
3.083	1.00	9.083	2.66	15.083	2.66	21.08	1.00
3.167	1.00	9.167	2.66	15.167	2.66	21.17	1.00
3.250	1.00	9.250	2.66	15.250	2.66	21.25	1.00
3.333	1.33	9.333	2.66	15.333	2.32	21.33	1.00
3.417	1.33	9.417	2.66	15.417	2.32	21.42	1.00
3.500	1.33	9.500	2.66	15.500	2.32	21.50	1.00
3.583	1.00	9.583	2.99	15.583	2.66	21.58	1.00
3.667	1.00	9.667	2.99	15.667	2.66	21.67	1.00
3.750	1.00	9.750	2.99	15.750	2.66	21.75	1.00
3.833	1.00	9.833	2.99	15.833	2.32	21.83	1.00
3.917	1.00	9.917	2.99	15.917	2.32	21.92	1.00
4.000	1.00	10.000	2.99	16.000	2.32	22.00	1.00
4.083	1.33	10.083	3.65	16.083	1.66	22.08	1.00
4.167	1.33	10.167	3.65	16.167	1.66	22.17	1.00
4.250	1.33	10.250	3.65	16.250	1.66	22.25	1.00
4.333	1.33	10.333	3.98	16.333	1.33	22.33	1.00
4.417	1.33	10.417	3.98	16.417	1.33	22.42	1.00
4.500	1.33	10.500	3.98	16.500	1.33	22.50	1.00
4.583	1.33	10.583	4.98	16.583	1.66	22.58	1.00
4.667	1.33	10.667	4.98	16.667	1.66	22.67	1.00
4.750	1.33	10.750	4.98	16.750	1.66	22.75	1.00
4.833	1.33	10.833	5.31	16.833	1.33	22.83	1.00
4.917	1.33	10.917	5.31	16.917	1.33	22.92	1.00
5.000	1.33	11.000	5.31	17.000	1.33	23.00	1.00
5.083	1.33	11.083	7.97	17.083	1.66	23.08	1.00
5.167	1.33	11.167	7.97	17.167	1.66	23.17	1.00
5.250	1.33	11.250	7.97	17.250	1.66	23.25	1.00
5.333	1.33	11.333	7.97	17.333	1.33	23.33	1.00
5.417	1.33	11.417	7.97	17.417	1.33	23.42	1.00
5.500	1.33	11.500	7.97	17.500	1.33	23.50	1.00
5.583	1.33	11.583	24.57	17.583	1.66	23.58	1.00
5.667	1.33	11.667	24.57	17.667	1.66	23.67	1.00
5.750	1.33	11.750	24.57	17.750	1.66	23.75	1.00
5.833	1.33	11.833	101.58	17.833	1.33	23.83	1.00
5.917	1.33	11.917	101.59	17.917	1.33	23.92	1.00
6.000	1.33	12.000	101.59	18.000	1.33	24.00	1.00

```
     Unit Hyd Qpeak  (cms)=   0.034

     PEAK FLOW       (cms)=   0.021 (i)
     TIME TO PEAK    (hrs)=  12.583
     RUNOFF VOLUME    (mm)=  32.175
     TOTAL RAINFALL   (mm)=  82.751
     RUNOFF COEFFICIENT   =   0.389

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

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--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     3.68   0.177    12.33    33.45
      + ID2= 2 (  0102):     0.61   0.021    12.58    32.17
        ==================================================
        ID = 3 (  0901):     4.29   0.196    12.33    33.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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================================================================================
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


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  Output  filename:
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6b3-b9eb-4452-8abb-b0b18e2c2e3c\scen
  Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\47272
6b3-b9eb-4452-8abb-b0b18e2c2e3c\scen


DATE: 09/16/2024                          TIME: 02:16:36

USER:



COMMENTS: ____________________________________________________________


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  ************************************************
  ** SIMULATION : 1 25yr (SCS)                  **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\ASchoof\AppD
|                  |              ata\Local\Temp\
|                  |              89e37a6c-3e84-4d6f-b14c-084f4f074549\b8ac5d2b
| Ptotal= 97.61 mm |    Comments: SCS Type II 24 HR MASS CURVE
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.00	1.57	12.00	14.10	18.00	1.96
0.25	1.17	6.25	1.96	12.25	14.10	18.25	1.57
0.50	0.78	6.50	1.57	12.50	7.44	18.50	1.96
0.75	1.17	6.75	1.96	12.75	7.05	18.75	1.57
1.00	1.17	7.00	1.96	13.00	5.48	19.00	1.96
1.25	1.17	7.25	2.35	13.25	5.09	19.25	1.57
1.50	0.78	7.50	1.96	13.50	4.31	19.50	1.96
1.75	1.17	7.75	2.35	13.75	3.92	19.75	1.57
2.00	1.17	8.00	2.35	14.00	3.13	20.00	1.17
2.25	1.57	8.25	2.74	14.25	2.74	20.25	1.17
2.50	1.17	8.50	2.74	14.50	3.13	20.50	1.17
2.75	1.17	8.75	2.74	14.75	2.74	20.75	1.17
3.00	1.17	9.00	3.13	15.00	3.13	21.00	1.17
3.25	1.57	9.25	3.13	15.25	2.74	21.25	1.17
3.50	1.17	9.50	3.52	15.50	3.13	21.50	1.17
3.75	1.17	9.75	3.52	15.75	2.74	21.75	1.17
4.00	1.57	10.00	4.31	16.00	1.96	22.00	1.17
4.25	1.57	10.25	4.70	16.25	1.57	22.25	1.17
4.50	1.57	10.50	5.87	16.50	1.96	22.50	1.17
4.75	1.57	10.75	6.27	16.75	1.57	22.75	1.17
5.00	1.57	11.00	9.40	17.00	1.96	23.00	1.17
5.25	1.57	11.25	9.40	17.25	1.57	23.25	1.17
5.50	1.57	11.50	28.98	17.50	1.96	23.50	1.17
5.75	1.57	11.75	119.83	17.75	1.57	23.75	1.17

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| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   3.68   Curve Number   (CN)= 72.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.45

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


                              ---- TRANSFORMED HYETOGRAPH ----
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.083	1.57	12.083	14.11	18.08	1.96
0.167	0.00	6.167	1.57	12.167	14.10	18.17	1.96
0.250	0.00	6.250	1.57	12.250	14.10	18.25	1.96
0.333	1.17	6.333	1.96	12.333	14.10	18.33	1.57
0.417	1.17	6.417	1.96	12.417	14.10	18.42	1.57
0.500	1.17	6.500	1.96	12.500	14.10	18.50	1.57

0.583	0.78	6.583	1.57	12.583	7.44	18.58	1.96
0.667	0.78	6.667	1.57	12.667	7.44	18.67	1.96
0.750	0.78	6.750	1.57	12.750	7.44	18.75	1.96
0.833	1.17	6.833	1.96	12.833	7.05	18.83	1.57
0.917	1.17	6.917	1.96	12.917	7.05	18.92	1.57
1.000	1.17	7.000	1.96	13.000	7.05	19.00	1.57
1.083	1.17	7.083	1.96	13.083	5.48	19.08	1.96
1.167	1.17	7.167	1.96	13.167	5.48	19.17	1.96
1.250	1.17	7.250	1.96	13.250	5.48	19.25	1.96
1.333	1.17	7.333	2.35	13.333	5.09	19.33	1.57
1.417	1.17	7.417	2.35	13.417	5.09	19.42	1.57
1.500	1.17	7.500	2.35	13.500	5.09	19.50	1.57
1.583	0.78	7.583	1.96	13.583	4.31	19.58	1.96
1.667	0.78	7.667	1.96	13.667	4.31	19.67	1.96
1.750	0.78	7.750	1.96	13.750	4.31	19.75	1.96
1.833	1.17	7.833	2.35	13.833	3.92	19.83	1.57
1.917	1.17	7.917	2.35	13.917	3.92	19.92	1.57
2.000	1.17	8.000	2.35	14.000	3.92	20.00	1.57
2.083	1.17	8.083	2.35	14.083	3.13	20.08	1.17
2.167	1.17	8.167	2.35	14.167	3.13	20.17	1.17
2.250	1.17	8.250	2.35	14.250	3.13	20.25	1.17
2.333	1.57	8.333	2.74	14.333	2.74	20.33	1.17
2.417	1.57	8.417	2.74	14.417	2.74	20.42	1.17
2.500	1.57	8.500	2.74	14.500	2.74	20.50	1.17
2.583	1.17	8.583	2.74	14.583	3.13	20.58	1.17
2.667	1.17	8.667	2.74	14.667	3.13	20.67	1.17
2.750	1.17	8.750	2.74	14.750	3.13	20.75	1.17
2.833	1.17	8.833	2.74	14.833	2.74	20.83	1.17
2.917	1.17	8.917	2.74	14.917	2.74	20.92	1.17
3.000	1.17	9.000	2.74	15.000	2.74	21.00	1.17
3.083	1.17	9.083	3.13	15.083	3.13	21.08	1.17
3.167	1.17	9.167	3.13	15.167	3.13	21.17	1.17
3.250	1.17	9.250	3.13	15.250	3.13	21.25	1.17
3.333	1.57	9.333	3.13	15.333	2.74	21.33	1.17
3.417	1.57	9.417	3.13	15.417	2.74	21.42	1.17
3.500	1.57	9.500	3.13	15.500	2.74	21.50	1.17
3.583	1.17	9.583	3.52	15.583	3.13	21.58	1.17
3.667	1.17	9.667	3.52	15.667	3.13	21.67	1.17
3.750	1.17	9.750	3.52	15.750	3.13	21.75	1.17
3.833	1.17	9.833	3.52	15.833	2.74	21.83	1.17
3.917	1.17	9.917	3.52	15.917	2.74	21.92	1.17
4.000	1.17	10.000	3.52	16.000	2.74	22.00	1.17
4.083	1.57	10.083	4.31	16.083	1.96	22.08	1.17
4.167	1.57	10.167	4.31	16.167	1.96	22.17	1.17
4.250	1.57	10.250	4.31	16.250	1.96	22.25	1.17
4.333	1.57	10.333	4.70	16.333	1.57	22.33	1.17
4.417	1.57	10.417	4.70	16.417	1.57	22.42	1.17
4.500	1.57	10.500	4.70	16.500	1.57	22.50	1.17
4.583	1.57	10.583	5.87	16.583	1.96	22.58	1.17
4.667	1.57	10.667	5.87	16.667	1.96	22.67	1.17
4.750	1.57	10.750	5.87	16.750	1.96	22.75	1.17
4.833	1.57	10.833	6.27	16.833	1.57	22.83	1.17
4.917	1.57	10.917	6.27	16.917	1.57	22.92	1.17
5.000	1.57	11.000	6.27	17.000	1.57	23.00	1.17
5.083	1.57	11.083	9.40	17.083	1.96	23.08	1.17
5.167	1.57	11.167	9.40	17.167	1.96	23.17	1.17
5.250	1.57	11.250	9.40	17.250	1.96	23.25	1.17
5.333	1.57	11.333	9.40	17.333	1.57	23.33	1.17
5.417	1.57	11.417	9.40	17.417	1.57	23.42	1.17
5.500	1.57	11.500	9.40	17.500	1.57	23.50	1.17
5.583	1.57	11.583	28.98	17.583	1.96	23.58	1.17
5.667	1.57	11.667	28.98	17.667	1.96	23.67	1.17
5.750	1.57	11.750	28.98	17.750	1.96	23.75	1.17
5.833	1.57	11.833	119.82	17.833	1.57	23.83	1.17
5.917	1.57	11.917	119.83	17.917	1.57	23.92	1.17
6.000	1.57	12.000	119.83	18.000	1.57	24.00	1.17

```
Unit Hyd Qpeak  (cms)=   0.312

PEAK FLOW       (cms)=   0.236 (i)
TIME TO PEAK    (hrs)=  12.333
RUNOFF VOLUME    (mm)=  44.037
TOTAL RAINFALL   (mm)=  97.606
RUNOFF COEFFICIENT   =   0.451

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

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| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.61   Curve Number   (CN)= 71.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.63   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.68

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.083	1.57	12.083	14.11	18.08	1.96
0.167	0.00	6.167	1.57	12.167	14.10	18.17	1.96
0.250	0.00	6.250	1.57	12.250	14.10	18.25	1.96
0.333	1.17	6.333	1.96	12.333	14.10	18.33	1.57
0.417	1.17	6.417	1.96	12.417	14.10	18.42	1.57
0.500	1.17	6.500	1.96	12.500	14.10	18.50	1.57
0.583	0.78	6.583	1.57	12.583	7.44	18.58	1.96
0.667	0.78	6.667	1.57	12.667	7.44	18.67	1.96
0.750	0.78	6.750	1.57	12.750	7.44	18.75	1.96
0.833	1.17	6.833	1.96	12.833	7.05	18.83	1.57

0.917	1.17	6.917	1.96	12.917	7.05	18.92	1.57
1.000	1.17	7.000	1.96	13.000	7.05	19.00	1.57
1.083	1.17	7.083	1.96	13.083	5.48	19.08	1.96
1.167	1.17	7.167	1.96	13.167	5.48	19.17	1.96
1.250	1.17	7.250	1.96	13.250	5.48	19.25	1.96
1.333	1.17	7.333	2.35	13.333	5.09	19.33	1.57
1.417	1.17	7.417	2.35	13.417	5.09	19.42	1.57
1.500	1.17	7.500	2.35	13.500	5.09	19.50	1.57
1.583	0.78	7.583	1.96	13.583	4.31	19.58	1.96
1.667	0.78	7.667	1.96	13.667	4.31	19.67	1.96
1.750	0.78	7.750	1.96	13.750	4.31	19.75	1.96
1.833	1.17	7.833	2.35	13.833	3.92	19.83	1.57
1.917	1.17	7.917	2.35	13.917	3.92	19.92	1.57
2.000	1.17	8.000	2.35	14.000	3.92	20.00	1.57
2.083	1.17	8.083	2.35	14.083	3.13	20.08	1.17
2.167	1.17	8.167	2.35	14.167	3.13	20.17	1.17
2.250	1.17	8.250	2.35	14.250	3.13	20.25	1.17
2.333	1.57	8.333	2.74	14.333	2.74	20.33	1.17
2.417	1.57	8.417	2.74	14.417	2.74	20.42	1.17
2.500	1.57	8.500	2.74	14.500	2.74	20.50	1.17
2.583	1.17	8.583	2.74	14.583	3.13	20.58	1.17
2.667	1.17	8.667	2.74	14.667	3.13	20.67	1.17
2.750	1.17	8.750	2.74	14.750	3.13	20.75	1.17
2.833	1.17	8.833	2.74	14.833	2.74	20.83	1.17
2.917	1.17	8.917	2.74	14.917	2.74	20.92	1.17
3.000	1.17	9.000	2.74	15.000	2.74	21.00	1.17
3.083	1.17	9.083	3.13	15.083	3.13	21.08	1.17
3.167	1.17	9.167	3.13	15.167	3.13	21.17	1.17
3.250	1.17	9.250	3.13	15.250	3.13	21.25	1.17
3.333	1.57	9.333	3.13	15.333	2.74	21.33	1.17
3.417	1.57	9.417	3.13	15.417	2.74	21.42	1.17
3.500	1.57	9.500	3.13	15.500	2.74	21.50	1.17
3.583	1.17	9.583	3.52	15.583	3.13	21.58	1.17
3.667	1.17	9.667	3.52	15.667	3.13	21.67	1.17
3.750	1.17	9.750	3.52	15.750	3.13	21.75	1.17
3.833	1.17	9.833	3.52	15.833	2.74	21.83	1.17
3.917	1.17	9.917	3.52	15.917	2.74	21.92	1.17
4.000	1.17	10.000	3.52	16.000	2.74	22.00	1.17
4.083	1.57	10.083	4.31	16.083	1.96	22.08	1.17
4.167	1.57	10.167	4.31	16.167	1.96	22.17	1.17
4.250	1.57	10.250	4.31	16.250	1.96	22.25	1.17
4.333	1.57	10.333	4.70	16.333	1.57	22.33	1.17
4.417	1.57	10.417	4.70	16.417	1.57	22.42	1.17
4.500	1.57	10.500	4.70	16.500	1.57	22.50	1.17
4.583	1.57	10.583	5.87	16.583	1.96	22.58	1.17
4.667	1.57	10.667	5.87	16.667	1.96	22.67	1.17
4.750	1.57	10.750	5.87	16.750	1.96	22.75	1.17
4.833	1.57	10.833	6.27	16.833	1.57	22.83	1.17
4.917	1.57	10.917	6.27	16.917	1.57	22.92	1.17
5.000	1.57	11.000	6.27	17.000	1.57	23.00	1.17
5.083	1.57	11.083	9.40	17.083	1.96	23.08	1.17
5.167	1.57	11.167	9.40	17.167	1.96	23.17	1.17
5.250	1.57	11.250	9.40	17.250	1.96	23.25	1.17
5.333	1.57	11.333	9.40	17.333	1.57	23.33	1.17
5.417	1.57	11.417	9.40	17.417	1.57	23.42	1.17
5.500	1.57	11.500	9.40	17.500	1.57	23.50	1.17
5.583	1.57	11.583	28.98	17.583	1.96	23.58	1.17
5.667	1.57	11.667	28.98	17.667	1.96	23.67	1.17
5.750	1.57	11.750	28.98	17.750	1.96	23.75	1.17
5.833	1.57	11.833	119.82	17.833	1.57	23.83	1.17
5.917	1.57	11.917	119.83	17.917	1.57	23.92	1.17
6.000	1.57	12.000	119.83	18.000	1.57	24.00	1.17

```
     Unit Hyd Qpeak  (cms)=   0.034

     PEAK FLOW       (cms)=   0.028 (i)
     TIME TO PEAK    (hrs)=  12.583
     RUNOFF VOLUME    (mm)=  42.554
     TOTAL RAINFALL   (mm)=  97.606
     RUNOFF COEFFICIENT   =   0.436

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

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--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     3.68   0.236    12.33    44.04
      + ID2= 2 (  0102):     0.61   0.028    12.58    42.55
        ===================================================
        ID = 3 (  0901):     4.29   0.260    12.33    43.83

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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================================================================================
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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

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

Output filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\f5aacd19-567a-4f0c-8157-ab530f6511cc\scen
Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\f5aacd19-567a-4f0c-8157-ab530f6511cc\scen

DATE: 09/16/2024 TIME: 02:16:37

USER:

COMMENTS: _____

```
  ************************************************
  ** SIMULATION : m 50yr (SCS)                  **
  ************************************************
```

READ STORM	Filename: C:\Users\ASchoof\AppD ata\Local\Temp\ 89e37a6c-3e84-4d6f-b14c-084f4f074549\93a3a212
Ptotal=108.47 mm	Comments: SCS Type II 24 HR MASS CURVE

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.00	1.74	12.00	15.67	18.00	2.18
0.25	1.31	6.25	2.18	12.25	15.67	18.25	1.74
0.50	0.87	6.50	1.74	12.50	8.27	18.50	2.18
0.75	1.31	6.75	2.18	12.75	7.83	18.75	1.74
1.00	1.31	7.00	2.18	13.00	6.09	19.00	2.18
1.25	1.31	7.25	2.61	13.25	5.66	19.25	1.74
1.50	0.87	7.50	2.18	13.50	4.79	19.50	2.18
1.75	1.31	7.75	2.61	13.75	4.35	19.75	1.74
2.00	1.31	8.00	2.61	14.00	3.48	20.00	1.31
2.25	1.74	8.25	3.05	14.25	3.05	20.25	1.31
2.50	1.31	8.50	3.05	14.50	3.48	20.50	1.31
2.75	1.31	8.75	3.05	14.75	3.05	20.75	1.31
3.00	1.31	9.00	3.48	15.00	3.48	21.00	1.31
3.25	1.74	9.25	3.48	15.25	3.05	21.25	1.31
3.50	1.31	9.50	3.92	15.50	3.48	21.50	1.31
3.75	1.31	9.75	3.92	15.75	3.05	21.75	1.31
4.00	1.74	10.00	4.79	16.00	2.18	22.00	1.31
4.25	1.74	10.25	5.22	16.25	1.74	22.25	1.31
4.50	1.74	10.50	6.53	16.50	2.18	22.50	1.31
4.75	1.74	10.75	6.96	16.75	1.74	22.75	1.31
5.00	1.74	11.00	10.44	17.00	2.18	23.00	1.31
5.25	1.74	11.25	10.44	17.25	1.74	23.25	1.31
5.50	1.74	11.50	32.20	17.50	2.18	23.50	1.31
5.75	1.74	11.75	133.17	17.75	1.74	23.75	1.31

CALIB NASHYD (0101) ID= 1 DT= 5.0 min	Area (ha)= 3.68	Curve Number (CN)= 72.6
	Ia (mm)= 6.98	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.45	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.083	1.74	12.083	15.68	18.08	2.18
0.167	0.00	6.167	1.74	12.167	15.67	18.17	2.18
0.250	0.00	6.250	1.74	12.250	15.67	18.25	2.18
0.333	1.31	6.333	2.18	12.333	15.67	18.33	1.74
0.417	1.31	6.417	2.18	12.417	15.67	18.42	1.74
0.500	1.31	6.500	2.18	12.500	15.67	18.50	1.74
0.583	0.87	6.583	1.74	12.583	8.27	18.58	2.18
0.667	0.87	6.667	1.74	12.667	8.27	18.67	2.18
0.750	0.87	6.750	1.74	12.750	8.27	18.75	2.18
0.833	1.31	6.833	2.18	12.833	7.83	18.83	1.74
0.917	1.31	6.917	2.18	12.917	7.83	18.92	1.74
1.000	1.31	7.000	2.18	13.000	7.83	19.00	1.74
1.083	1.31	7.083	2.18	13.083	6.09	19.08	2.18
1.167	1.31	7.167	2.18	13.167	6.09	19.17	2.18
1.250	1.31	7.250	2.18	13.250	6.09	19.25	2.18
1.333	1.31	7.333	2.61	13.333	5.66	19.33	1.74
1.417	1.31	7.417	2.61	13.417	5.66	19.42	1.74
1.500	1.31	7.500	2.61	13.500	5.66	19.50	1.74
1.583	0.87	7.583	2.18	13.583	4.79	19.58	2.18
1.667	0.87	7.667	2.18	13.667	4.79	19.67	2.18

1.750	0.87	7.750	2.18	13.750	4.79	19.75	2.18
1.833	1.31	7.833	2.61	13.833	4.35	19.83	1.74
1.917	1.31	7.917	2.61	13.917	4.35	19.92	1.74
2.000	1.31	8.000	2.61	14.000	4.35	20.00	1.74
2.083	1.31	8.083	2.61	14.083	3.48	20.08	1.31
2.167	1.31	8.167	2.61	14.167	3.48	20.17	1.31
2.250	1.31	8.250	2.61	14.250	3.48	20.25	1.31
2.333	1.74	8.333	3.05	14.333	3.05	20.33	1.31
2.417	1.74	8.417	3.05	14.417	3.05	20.42	1.31
2.500	1.74	8.500	3.05	14.500	3.05	20.50	1.31
2.583	1.31	8.583	3.05	14.583	3.48	20.58	1.31
2.667	1.31	8.667	3.05	14.667	3.48	20.67	1.31
2.750	1.31	8.750	3.05	14.750	3.48	20.75	1.31
2.833	1.31	8.833	3.05	14.833	3.05	20.83	1.31
2.917	1.31	8.917	3.05	14.917	3.05	20.92	1.31
3.000	1.31	9.000	3.05	15.000	3.05	21.00	1.31
3.083	1.31	9.083	3.48	15.083	3.48	21.08	1.31
3.167	1.31	9.167	3.48	15.167	3.48	21.17	1.31
3.250	1.31	9.250	3.48	15.250	3.48	21.25	1.31
3.333	1.74	9.333	3.48	15.333	3.05	21.33	1.31
3.417	1.74	9.417	3.48	15.417	3.05	21.42	1.31
3.500	1.74	9.500	3.48	15.500	3.05	21.50	1.31
3.583	1.31	9.583	3.92	15.583	3.48	21.58	1.31
3.667	1.31	9.667	3.92	15.667	3.48	21.67	1.31
3.750	1.31	9.750	3.92	15.750	3.48	21.75	1.31
3.833	1.31	9.833	3.92	15.833	3.05	21.83	1.31
3.917	1.31	9.917	3.92	15.917	3.05	21.92	1.31
4.000	1.31	10.000	3.92	16.000	3.05	22.00	1.31
4.083	1.74	10.083	4.79	16.083	2.18	22.08	1.31
4.167	1.74	10.167	4.79	16.167	2.18	22.17	1.31
4.250	1.74	10.250	4.79	16.250	2.18	22.25	1.31
4.333	1.74	10.333	5.22	16.333	1.74	22.33	1.31
4.417	1.74	10.417	5.22	16.417	1.74	22.42	1.31
4.500	1.74	10.500	5.22	16.500	1.74	22.50	1.31
4.583	1.74	10.583	6.53	16.583	2.18	22.58	1.31
4.667	1.74	10.667	6.53	16.667	2.18	22.67	1.31
4.750	1.74	10.750	6.53	16.750	2.18	22.75	1.31
4.833	1.74	10.833	6.96	16.833	1.74	22.83	1.31
4.917	1.74	10.917	6.96	16.917	1.74	22.92	1.31
5.000	1.74	11.000	6.96	17.000	1.74	23.00	1.31
5.083	1.74	11.083	10.44	17.083	2.18	23.08	1.31
5.167	1.74	11.167	10.44	17.167	2.18	23.17	1.31
5.250	1.74	11.250	10.44	17.250	2.18	23.25	1.31
5.333	1.74	11.333	10.44	17.333	1.74	23.33	1.31
5.417	1.74	11.417	10.44	17.417	1.74	23.42	1.31
5.500	1.74	11.500	10.44	17.500	1.74	23.50	1.31
5.583	1.74	11.583	32.20	17.583	2.18	23.58	1.31
5.667	1.74	11.667	32.20	17.667	2.18	23.67	1.31
5.750	1.74	11.750	32.20	17.750	2.18	23.75	1.31
5.833	1.74	11.833	133.16	17.833	1.74	23.83	1.31
5.917	1.74	11.917	133.17	17.917	1.74	23.92	1.31
6.000	1.74	12.000	133.17	18.000	1.74	24.00	1.31

Unit Hyd Qpeak (cms)= 0.312

PEAK FLOW (cms)= 0.281 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 52.191
TOTAL RAINFALL (mm)= 108.474
RUNOFF COEFFICIENT = 0.481

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

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| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.61   Curve Number   (CN)= 71.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.63   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.68
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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.083	1.74	12.083	15.68	18.08	2.18
0.167	0.00	6.167	1.74	12.167	15.67	18.17	2.18
0.250	0.00	6.250	1.74	12.250	15.67	18.25	2.18
0.333	1.31	6.333	2.18	12.333	15.67	18.33	1.74
0.417	1.31	6.417	2.18	12.417	15.67	18.42	1.74
0.500	1.31	6.500	2.18	12.500	15.67	18.50	1.74
0.583	0.87	6.583	1.74	12.583	8.27	18.58	2.18
0.667	0.87	6.667	1.74	12.667	8.27	18.67	2.18
0.750	0.87	6.750	1.74	12.750	8.27	18.75	2.18
0.833	1.31	6.833	2.18	12.833	7.83	18.83	1.74
0.917	1.31	6.917	2.18	12.917	7.83	18.92	1.74
1.000	1.31	7.000	2.18	13.000	7.83	19.00	1.74
1.083	1.31	7.083	2.18	13.083	6.09	19.08	2.18
1.167	1.31	7.167	2.18	13.167	6.09	19.17	2.18
1.250	1.31	7.250	2.18	13.250	6.09	19.25	2.18
1.333	1.31	7.333	2.61	13.333	5.66	19.33	1.74
1.417	1.31	7.417	2.61	13.417	5.66	19.42	1.74
1.500	1.31	7.500	2.61	13.500	5.66	19.50	1.74
1.583	0.87	7.583	2.18	13.583	4.79	19.58	2.18
1.667	0.87	7.667	2.18	13.667	4.79	19.67	2.18
1.750	0.87	7.750	2.18	13.750	4.79	19.75	2.18
1.833	1.31	7.833	2.61	13.833	4.35	19.83	1.74
1.917	1.31	7.917	2.61	13.917	4.35	19.92	1.74
2.000	1.31	8.000	2.61	14.000	4.35	20.00	1.74

```
 2.083    1.31 | 8.083    2.61 |14.083    3.48 | 20.08    1.31
 2.167    1.31 | 8.167    2.61 |14.167    3.48 | 20.17    1.31
 2.250    1.31 | 8.250    2.61 |14.250    3.48 | 20.25    1.31
 2.333    1.74 | 8.333    3.05 |14.333    3.05 | 20.33    1.31
 2.417    1.74 | 8.417    3.05 |14.417    3.05 | 20.42    1.31
 2.500    1.74 | 8.500    3.05 |14.500    3.05 | 20.50    1.31
 2.583    1.31 | 8.583    3.05 |14.583    3.48 | 20.58    1.31
 2.667    1.31 | 8.667    3.05 |14.667    3.48 | 20.67    1.31
 2.750    1.31 | 8.750    3.05 |14.750    3.48 | 20.75    1.31
 2.833    1.31 | 8.833    3.05 |14.833    3.05 | 20.83    1.31
 2.917    1.31 | 8.917    3.05 |14.917    3.05 | 20.92    1.31
 3.000    1.31 | 9.000    3.05 |15.000    3.05 | 21.00    1.31
 3.083    1.31 | 9.083    3.48 |15.083    3.48 | 21.08    1.31
 3.167    1.31 | 9.167    3.48 |15.167    3.48 | 21.17    1.31
 3.250    1.31 | 9.250    3.48 |15.250    3.48 | 21.25    1.31
 3.333    1.74 | 9.333    3.48 |15.333    3.05 | 21.33    1.31
 3.417    1.74 | 9.417    3.48 |15.417    3.05 | 21.42    1.31
 3.500    1.74 | 9.500    3.48 |15.500    3.05 | 21.50    1.31
 3.583    1.31 | 9.583    3.92 |15.583    3.48 | 21.58    1.31
 3.667    1.31 | 9.667    3.92 |15.667    3.48 | 21.67    1.31
 3.750    1.31 | 9.750    3.92 |15.750    3.48 | 21.75    1.31
 3.833    1.31 | 9.833    3.92 |15.833    3.05 | 21.83    1.31
 3.917    1.31 | 9.917    3.92 |15.917    3.05 | 21.92    1.31
 4.000    1.31 |10.000    3.92 |16.000    3.05 | 22.00    1.31
 4.083    1.74 |10.083    4.79 |16.083    2.18 | 22.08    1.31
 4.167    1.74 |10.167    4.79 |16.167    2.18 | 22.17    1.31
 4.250    1.74 |10.250    4.79 |16.250    2.18 | 22.25    1.31
 4.333    1.74 |10.333    5.22 |16.333    1.74 | 22.33    1.31
 4.417    1.74 |10.417    5.22 |16.417    1.74 | 22.42    1.31
 4.500    1.74 |10.500    5.22 |16.500    1.74 | 22.50    1.31
 4.583    1.74 |10.583    6.53 |16.583    2.18 | 22.58    1.31
 4.667    1.74 |10.667    6.53 |16.667    2.18 | 22.67    1.31
 4.750    1.74 |10.750    6.53 |16.750    2.18 | 22.75    1.31
 4.833    1.74 |10.833    6.96 |16.833    1.74 | 22.83    1.31
 4.917    1.74 |10.917    6.96 |16.917    1.74 | 22.92    1.31
 5.000    1.74 |11.000    6.96 |17.000    1.74 | 23.00    1.31
 5.083    1.74 |11.083   10.44 |17.083    2.18 | 23.08    1.31
 5.167    1.74 |11.167   10.44 |17.167    2.18 | 23.17    1.31
 5.250    1.74 |11.250   10.44 |17.250    2.18 | 23.25    1.31
 5.333    1.74 |11.333   10.44 |17.333    1.74 | 23.33    1.31
 5.417    1.74 |11.417   10.44 |17.417    1.74 | 23.42    1.31
 5.500    1.74 |11.500   10.44 |17.500    1.74 | 23.50    1.31
 5.583    1.74 |11.583   32.20 |17.583    2.18 | 23.58    1.31
 5.667    1.74 |11.667   32.20 |17.667    2.18 | 23.67    1.31
 5.750    1.74 |11.750   32.20 |17.750    2.18 | 23.75    1.31
 5.833    1.74 |11.833  133.16 |17.833    1.74 | 23.83    1.31
 5.917    1.74 |11.917  133.17 |17.917    1.74 | 23.92    1.31
 6.000    1.74 |12.000  133.17 |18.000    1.74 | 24.00    1.31

Unit Hyd Qpeak  (cms)=   0.034
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```
     PEAK FLOW       (cms)=   0.033 (i)
     TIME TO PEAK    (hrs)=  12.583
     RUNOFF VOLUME    (mm)=  50.567
     TOTAL RAINFALL   (mm)= 108.474
     RUNOFF COEFFICIENT   =   0.466

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

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| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     3.68   0.281    12.33    52.19
      + ID2= 2 (  0102):     0.61   0.033    12.58    50.57
        ==================================================
        ID = 3 (  0901):     4.29   0.310    12.33    51.96

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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 FINISH
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


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

Output filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\8aaa5913-a7ad-4ba5-8dda-a4edb0c8a0f5\scen
Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\8aaa5913-a7ad-4ba5-8dda-a4edb0c8a0f5\scen

DATE: 09/16/2024 TIME: 02:16:36

USER:

COMMENTS: _____

****
** SIMULATION : n 100yr (SCS) **
****

READ STORM	Filename: C:\Users\ASchoof\AppD ata\Local\Temp\ 89e37a6c-3e84-4d6f-b14c-084f4f074549\fd73645d
Ptotal=119.14 mm	Comments: SCS Type II 24 HR MASS CURVE

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.00	1.91	12.00	17.21	18.00	2.39
0.25	1.43	6.25	2.39	12.25	17.21	18.25	1.91
0.50	0.96	6.50	1.91	12.50	9.08	18.50	2.39
0.75	1.43	6.75	2.39	12.75	8.60	18.75	1.91
1.00	1.43	7.00	2.39	13.00	6.69	19.00	2.39
1.25	1.43	7.25	2.87	13.25	6.21	19.25	1.91
1.50	0.96	7.50	2.39	13.50	5.26	19.50	2.39
1.75	1.43	7.75	2.87	13.75	4.78	19.75	1.91
2.00	1.43	8.00	2.87	14.00	3.82	20.00	1.43
2.25	1.91	8.25	3.35	14.25	3.35	20.25	1.43
2.50	1.43	8.50	3.35	14.50	3.82	20.50	1.43
2.75	1.43	8.75	3.35	14.75	3.35	20.75	1.43
3.00	1.43	9.00	3.82	15.00	3.82	21.00	1.43
3.25	1.91	9.25	3.82	15.25	3.35	21.25	1.43
3.50	1.43	9.50	4.30	15.50	3.82	21.50	1.43
3.75	1.43	9.75	4.30	15.75	3.35	21.75	1.43
4.00	1.91	10.00	5.26	16.00	2.39	22.00	1.43
4.25	1.91	10.25	5.74	16.25	1.91	22.25	1.43
4.50	1.91	10.50	7.17	16.50	2.39	22.50	1.43
4.75	1.91	10.75	7.65	16.75	1.91	22.75	1.43
5.00	1.91	11.00	11.47	17.00	2.39	23.00	1.43
5.25	1.91	11.25	11.47	17.25	1.91	23.25	1.43
5.50	1.91	11.50	35.37	17.50	2.39	23.50	1.43
5.75	1.91	11.75	146.27	17.75	1.91	23.75	1.43

CALIB NASHYD (0101) ID= 1 DT= 5.0 min	Area (ha)= 3.68	Curve Number (CN)= 72.6
	Ia (mm)= 6.98	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.45	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.083	1.91	12.083	17.22	18.08	2.39
0.167	0.00	6.167	1.91	12.167	17.21	18.17	2.39
0.250	0.00	6.250	1.91	12.250	17.21	18.25	2.39
0.333	1.43	6.333	2.39	12.333	17.21	18.33	1.91
0.417	1.43	6.417	2.39	12.417	17.21	18.42	1.91
0.500	1.43	6.500	2.39	12.500	17.21	18.50	1.91
0.583	0.96	6.583	1.91	12.583	9.08	18.58	2.39
0.667	0.96	6.667	1.91	12.667	9.08	18.67	2.39
0.750	0.96	6.750	1.91	12.750	9.08	18.75	2.39
0.833	1.43	6.833	2.39	12.833	8.60	18.83	1.91
0.917	1.43	6.917	2.39	12.917	8.60	18.92	1.91
1.000	1.43	7.000	2.39	13.000	8.60	19.00	1.91
1.083	1.43	7.083	2.39	13.083	6.69	19.08	2.39
1.167	1.43	7.167	2.39	13.167	6.69	19.17	2.39
1.250	1.43	7.250	2.39	13.250	6.69	19.25	2.39
1.333	1.43	7.333	2.87	13.333	6.21	19.33	1.91
1.417	1.43	7.417	2.87	13.417	6.21	19.42	1.91
1.500	1.43	7.500	2.87	13.500	6.21	19.50	1.91
1.583	0.96	7.583	2.39	13.583	5.26	19.58	2.39
1.667	0.96	7.667	2.39	13.667	5.26	19.67	2.39
1.750	0.96	7.750	2.39	13.750	5.26	19.75	2.39
1.833	1.43	7.833	2.87	13.833	4.78	19.83	1.91
1.917	1.43	7.917	2.87	13.917	4.78	19.92	1.91
2.000	1.43	8.000	2.87	14.000	4.78	20.00	1.91
2.083	1.43	8.083	2.87	14.083	3.82	20.08	1.43
2.167	1.43	8.167	2.87	14.167	3.82	20.17	1.43
2.250	1.43	8.250	2.87	14.250	3.82	20.25	1.43
2.333	1.91	8.333	3.35	14.333	3.35	20.33	1.43
2.417	1.91	8.417	3.35	14.417	3.35	20.42	1.43

2.500	1.91	8.500	3.35	14.500	3.35	20.50	1.43
2.583	1.43	8.583	3.35	14.583	3.82	20.58	1.43
2.667	1.43	8.667	3.35	14.667	3.82	20.67	1.43
2.750	1.43	8.750	3.35	14.750	3.82	20.75	1.43
2.833	1.43	8.833	3.35	14.833	3.35	20.83	1.43
2.917	1.43	8.917	3.35	14.917	3.35	20.92	1.43
3.000	1.43	9.000	3.35	15.000	3.35	21.00	1.43
3.083	1.43	9.083	3.82	15.083	3.82	21.08	1.43
3.167	1.43	9.167	3.82	15.167	3.82	21.17	1.43
3.250	1.43	9.250	3.82	15.250	3.82	21.25	1.43
3.333	1.91	9.333	3.82	15.333	3.35	21.33	1.43
3.417	1.91	9.417	3.82	15.417	3.35	21.42	1.43
3.500	1.91	9.500	3.82	15.500	3.35	21.50	1.43
3.583	1.43	9.583	4.30	15.583	3.82	21.58	1.43
3.667	1.43	9.667	4.30	15.667	3.82	21.67	1.43
3.750	1.43	9.750	4.30	15.750	3.82	21.75	1.43
3.833	1.43	9.833	4.30	15.833	3.35	21.83	1.43
3.917	1.43	9.917	4.30	15.917	3.35	21.92	1.43
4.000	1.43	10.000	4.30	16.000	3.35	22.00	1.43
4.083	1.91	10.083	5.26	16.083	2.39	22.08	1.43
4.167	1.91	10.167	5.26	16.167	2.39	22.17	1.43
4.250	1.91	10.250	5.26	16.250	2.39	22.25	1.43
4.333	1.91	10.333	5.74	16.333	1.91	22.33	1.43
4.417	1.91	10.417	5.74	16.417	1.91	22.42	1.43
4.500	1.91	10.500	5.74	16.500	1.91	22.50	1.43
4.583	1.91	10.583	7.17	16.583	2.39	22.58	1.43
4.667	1.91	10.667	7.17	16.667	2.39	22.67	1.43
4.750	1.91	10.750	7.17	16.750	2.39	22.75	1.43
4.833	1.91	10.833	7.65	16.833	1.91	22.83	1.43
4.917	1.91	10.917	7.65	16.917	1.91	22.92	1.43
5.000	1.91	11.000	7.65	17.000	1.91	23.00	1.43
5.083	1.91	11.083	11.47	17.083	2.39	23.08	1.43
5.167	1.91	11.167	11.47	17.167	2.39	23.17	1.43
5.250	1.91	11.250	11.47	17.250	2.39	23.25	1.43
5.333	1.91	11.333	11.47	17.333	1.91	23.33	1.43
5.417	1.91	11.417	11.47	17.417	1.91	23.42	1.43
5.500	1.91	11.500	11.47	17.500	1.91	23.50	1.43
5.583	1.91	11.583	35.37	17.583	2.39	23.58	1.43
5.667	1.91	11.667	35.37	17.667	2.39	23.67	1.43
5.750	1.91	11.750	35.37	17.750	2.39	23.75	1.43
5.833	1.91	11.833	146.26	17.833	1.91	23.83	1.43
5.917	1.91	11.917	146.27	17.917	1.91	23.92	1.43
6.000	1.91	12.000	146.27	18.000	1.91	24.00	1.43

Unit Hyd Qpeak (cms)= 0.312

PEAK FLOW (cms)= 0.327 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 60.470
TOTAL RAINFALL (mm)= 119.142

RUNOFF COEFFICIENT = 0.508

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

```
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.61   Curve Number   (CN)= 71.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.63   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.68
```

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.083	1.91	12.083	17.22	18.08	2.39
0.167	0.00	6.167	1.91	12.167	17.21	18.17	2.39
0.250	0.00	6.250	1.91	12.250	17.21	18.25	2.39
0.333	1.43	6.333	2.39	12.333	17.21	18.33	1.91
0.417	1.43	6.417	2.39	12.417	17.21	18.42	1.91
0.500	1.43	6.500	2.39	12.500	17.21	18.50	1.91
0.583	0.96	6.583	1.91	12.583	9.08	18.58	2.39
0.667	0.96	6.667	1.91	12.667	9.08	18.67	2.39
0.750	0.96	6.750	1.91	12.750	9.08	18.75	2.39
0.833	1.43	6.833	2.39	12.833	8.60	18.83	1.91
0.917	1.43	6.917	2.39	12.917	8.60	18.92	1.91
1.000	1.43	7.000	2.39	13.000	8.60	19.00	1.91
1.083	1.43	7.083	2.39	13.083	6.69	19.08	2.39
1.167	1.43	7.167	2.39	13.167	6.69	19.17	2.39
1.250	1.43	7.250	2.39	13.250	6.69	19.25	2.39
1.333	1.43	7.333	2.87	13.333	6.21	19.33	1.91
1.417	1.43	7.417	2.87	13.417	6.21	19.42	1.91
1.500	1.43	7.500	2.87	13.500	6.21	19.50	1.91
1.583	0.96	7.583	2.39	13.583	5.26	19.58	2.39
1.667	0.96	7.667	2.39	13.667	5.26	19.67	2.39
1.750	0.96	7.750	2.39	13.750	5.26	19.75	2.39
1.833	1.43	7.833	2.87	13.833	4.78	19.83	1.91
1.917	1.43	7.917	2.87	13.917	4.78	19.92	1.91
2.000	1.43	8.000	2.87	14.000	4.78	20.00	1.91
2.083	1.43	8.083	2.87	14.083	3.82	20.08	1.43
2.167	1.43	8.167	2.87	14.167	3.82	20.17	1.43
2.250	1.43	8.250	2.87	14.250	3.82	20.25	1.43
2.333	1.91	8.333	3.35	14.333	3.35	20.33	1.43
2.417	1.91	8.417	3.35	14.417	3.35	20.42	1.43
2.500	1.91	8.500	3.35	14.500	3.35	20.50	1.43
2.583	1.43	8.583	3.35	14.583	3.82	20.58	1.43
2.667	1.43	8.667	3.35	14.667	3.82	20.67	1.43
2.750	1.43	8.750	3.35	14.750	3.82	20.75	1.43

2.833	1.43	8.833	3.35	14.833	3.35	20.83	1.43
2.917	1.43	8.917	3.35	14.917	3.35	20.92	1.43
3.000	1.43	9.000	3.35	15.000	3.35	21.00	1.43
3.083	1.43	9.083	3.82	15.083	3.82	21.08	1.43
3.167	1.43	9.167	3.82	15.167	3.82	21.17	1.43
3.250	1.43	9.250	3.82	15.250	3.82	21.25	1.43
3.333	1.91	9.333	3.82	15.333	3.35	21.33	1.43
3.417	1.91	9.417	3.82	15.417	3.35	21.42	1.43
3.500	1.91	9.500	3.82	15.500	3.35	21.50	1.43
3.583	1.43	9.583	4.30	15.583	3.82	21.58	1.43
3.667	1.43	9.667	4.30	15.667	3.82	21.67	1.43
3.750	1.43	9.750	4.30	15.750	3.82	21.75	1.43
3.833	1.43	9.833	4.30	15.833	3.35	21.83	1.43
3.917	1.43	9.917	4.30	15.917	3.35	21.92	1.43
4.000	1.43	10.000	4.30	16.000	3.35	22.00	1.43
4.083	1.91	10.083	5.26	16.083	2.39	22.08	1.43
4.167	1.91	10.167	5.26	16.167	2.39	22.17	1.43
4.250	1.91	10.250	5.26	16.250	2.39	22.25	1.43
4.333	1.91	10.333	5.74	16.333	1.91	22.33	1.43
4.417	1.91	10.417	5.74	16.417	1.91	22.42	1.43
4.500	1.91	10.500	5.74	16.500	1.91	22.50	1.43
4.583	1.91	10.583	7.17	16.583	2.39	22.58	1.43
4.667	1.91	10.667	7.17	16.667	2.39	22.67	1.43
4.750	1.91	10.750	7.17	16.750	2.39	22.75	1.43
4.833	1.91	10.833	7.65	16.833	1.91	22.83	1.43
4.917	1.91	10.917	7.65	16.917	1.91	22.92	1.43
5.000	1.91	11.000	7.65	17.000	1.91	23.00	1.43
5.083	1.91	11.083	11.47	17.083	2.39	23.08	1.43
5.167	1.91	11.167	11.47	17.167	2.39	23.17	1.43
5.250	1.91	11.250	11.47	17.250	2.39	23.25	1.43
5.333	1.91	11.333	11.47	17.333	1.91	23.33	1.43
5.417	1.91	11.417	11.47	17.417	1.91	23.42	1.43
5.500	1.91	11.500	11.47	17.500	1.91	23.50	1.43
5.583	1.91	11.583	35.37	17.583	2.39	23.58	1.43
5.667	1.91	11.667	35.37	17.667	2.39	23.67	1.43
5.750	1.91	11.750	35.37	17.750	2.39	23.75	1.43
5.833	1.91	11.833	146.26	17.833	1.91	23.83	1.43
5.917	1.91	11.917	146.27	17.917	1.91	23.92	1.43
6.000	1.91	12.000	146.27	18.000	1.91	24.00	1.43

Unit Hyd Qpeak (cms)= 0.034

PEAK FLOW (cms)= 0.039 (i)
TIME TO PEAK (hrs)= 12.583
RUNOFF VOLUME (mm)= 58.717
TOTAL RAINFALL (mm)= 119.142
RUNOFF COEFFICIENT = 0.493

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

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--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     3.68   0.327    12.33    60.47
      + ID2= 2 (  0102):     0.61   0.039    12.58    58.72
        ================================================
        ID = 3 (  0901):     4.29   0.361    12.33    60.22

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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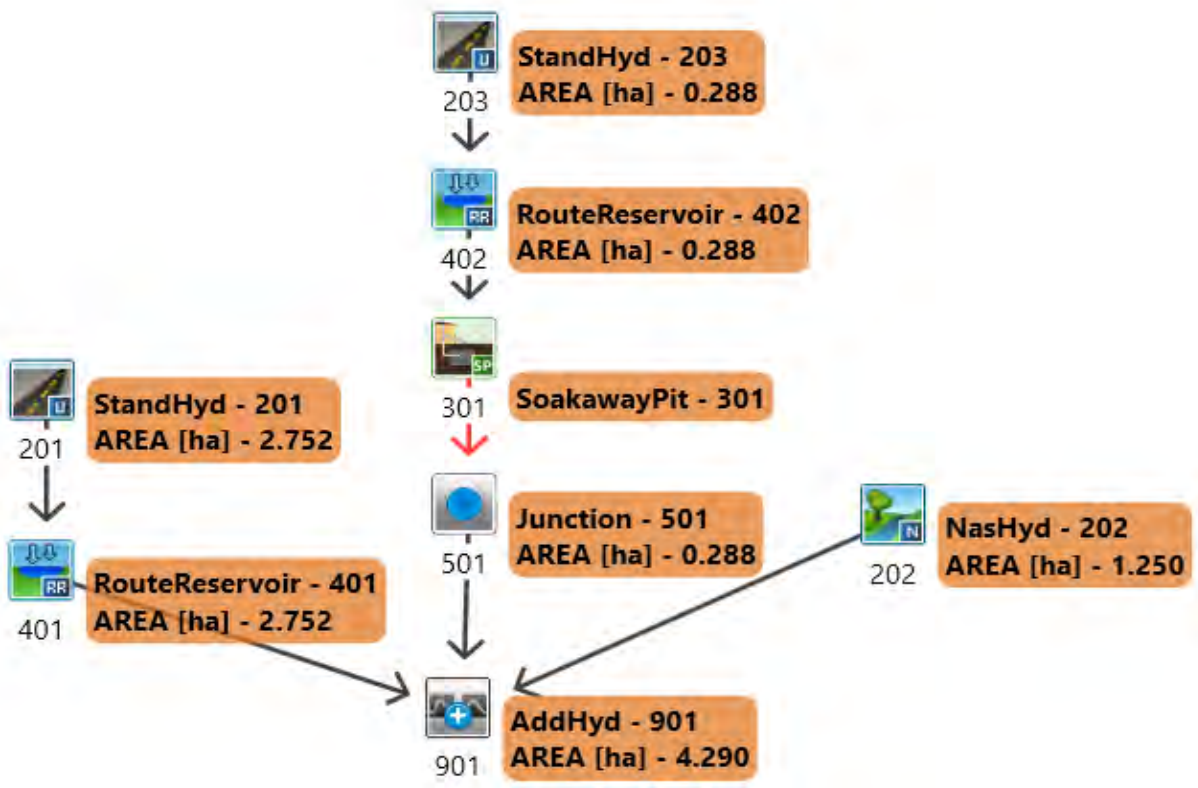
Appendix B: Post-Development SWM Calculations

The Gateway Centre
PROPOSED CONDITIONS



Nashyd		SoakawayPit	
Standhyd		Junction	
Addhyd		Route Reservoir	

TATHAM ENGINEERING

Project:	THE GATEWAY CENTRE
File No.:	120119
Subject:	Otthymo Flow Schematic
Date:	Jun-25

TATHAM ENGINEERING

Visual OTTHYMO Model Parameter Calculations (StandHYD)

Project Details

The Gateway Centre	120119

Prepared By

John Birchard	June 24, 2025

Data Sources

Detailed Soil Survey Reports for Ontario, NVCA Stormwater Technical Guide (2013), MTO Drainage Management Manual (1997)

Post Development Condition

Watershed:	NVCA
Catchment ID:	201
Catchment Area (ha):	2.75
Impervious %:	93%
Pervious Area (ha):	0.19

Average Curve Number (CN) and Initial Abstraction (IA) for Pervious Area

Soil Symbol		**Bef**							
Soil Series		Berrien							
Hydrologic Soils Group		BC							
Soil Texture		Silt Loam							
Runoff Coefficient Type		2							
Area (ha)		0.19							
Percentage of Catchment		100%							
Land Cover Category	**IA**	**A (ha)**	**CN**	**A (ha)**	**CN**	**A (ha)**	**CN**	**A (ha)**	**CN**
Impervious	2		100						
Gravel	3		89						
Woodland	10		67						
Pasture/Lawns	5	0.19	74						
Meadows	8		71						
Cultivated	7		78						
Waterbody	12		50						
Average CN		74.00							
Average IA		5.00							

Notes

CN and IA values have been calculated for the pervious area of the catchment only.

Summary

Catchment CN:	74.0
Catchment IA (mm):	5.00

TATHAM ENGINEERING

Visual OTTHYMO Model Parameter Calculations (NasHYD)

Project Details

The Gateway Centre	120119

Prepared By

Julia Suen	May 17, 2024

Data Sources

Detailed Soil Survey Reports for Ontario, NVCA Stormwater Technical Guide (2013), MTO Drainage Management Manual (1997)

Post Development Condition

Watershed:	NVCA
Catchment ID:	202
Catchment Area (ha):	1.25
Impervious %:	15%

Average Curve Number (CN), Runoff Coefficient (C) and Initial Abstraction (IA)

Soil Symbol		**Bef**											
Soil Series		Berrien											
Hydrologic Soils Group		BC											
Soil Texture		Silt Loam											
Runoff Coefficient Type		2											
Area (ha)		1.25											
Percentage of Catchment		100%											
Land Cover Category	**IA**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**	**A (ha)**	**CN**	**C**
Impervious	2	0.19	100	0.95									
Gravel	3		89	0.27									
Woodland	10	0.09	67	0.25									
Pasture/Lawns	5	0.97	74	0.28									
Meadows	8		71	0.27									
Cultivated	7		78	0.35									
Waterbody	12		50	0.05									
Average CN		77.40											
Average C		0.38											
Average IA		4.91											

Time to Peak Calculations

Max. Catchment Elev. (m):	195.40
Min. Catchment Elev. (m):	194.90
Catchment Length (m):	150
Catchment Slope (%):	0.33%
Method: Airport Method	
Time of Concentration (mins):	41.40

Summary

Catchment CN:		77.4
Catchment C:		0.38
Catchment IA (mm):		4.91
Time of Concentration	(hrs incl. 12.90min sewer travel time)	0.91
Catchment Time to Peak (hrs):		0.60
Catchment Time Step (mins):		7.24

Visual OTTHYMO Model Parameter Calculations (StandHYD)

TATHAM ENGINEERING

Project Details

The Gateway Centre	120119

Prepared By

John Birchard	June 23, 2025

Data Sources

Detailed Soil Survey Reports for Ontario, NVCA Stormwater Technical Guide (2013), MTO Drainage Management Manual (1997)

Post Development Condition

Watershed:	NVCA
Catchment ID:	203
Catchment Area (ha):	0.29
Impervious %:	100%
Pervious Area (ha):	0.00

Average Curve Number (CN) and Initial Abstraction (IA) for Pervious Area

Soil Symbol		**Bef**							
Soil Series		Berrien							
Hydrologic Soils Group		BC							
Soil Texture		Silt Loam							
Runoff Coefficient Type		2							
Area (ha)		0.00							
Percentage of Catchment		100%							
Land Cover Category	**IA**	**A (ha)**	**CN**	**A (ha)**	**CN**	**A (ha)**	**CN**	**A (ha)**	**CN**
Impervious	2	0.28	100						
Gravel	3		89						
Woodland	10		67						
Pasture/Lawns	5		74						
Meadows	8		71						
Cultivated	7		78						
Waterbody	12		50						
Average CN		100.00							
Average IA		0.28							

Notes

CN and IA values have been calculated for the pervious area of the catchment only.

Summary

Catchment CN:	100.0
Catchment IA (mm):	0.28

Project:	Gateway Centre
Date:	6/24/2025
File No.:	120119
Designed By:	John birchard
Checked By:	
Subject:	Pond Discharge Table

ORIFICE CONTROL

	Orifice	Standpipe	Outlet Pipe
Orifice/Pipe Size (mm)	85	250	450
Cross-sectional Area (sq.m)	0.006	0.049	0.159
Orifice Coefficient	0.63	0.63	0.80
Invert Elevation (m)	193.64	194.40	193.59

WEIR CONTROL

	Overflow
Weir Width (m)	1.5
Sill elevation (m)	195.44
Weir Coefficient	1.65
Weir Side Slopes (H:V)	1
Downstream Weir Length (m)	1.5

CONTROL STRUCTURE CONFIGURATION

Water Level	Outlet Structure						Overflow Weir		Total Discharge	Total Live Storage
	Orifice		Standpipe		Outlet Pipe					
	Head	Discharge	Head	Discharge	Head	Capacity	Head	Discharge		
(m)	(m)	(cms)	(m)	(cms)	(m)	(cms)	(m)	(cms)	(cms)	(ha-m)
193.64	0.004	0.0000	0.000	0.0000	0.054	0.0042	0.000	0.0000	**0.0000**	**0.000**
193.67	0.030	0.0005	0.000	0.0000	0.080	0.0088	0.000	0.0000	**0.0005**	**0.000**
193.70	0.013	0.0018	0.000	0.0000	0.105	0.0151	0.000	0.0000	**0.0018**	**0.000**
193.72	0.038	0.0031	0.000	0.0000	0.130	0.0228	0.000	0.0000	**0.0031**	**0.002**
193.75	0.063	0.0040	0.000	0.0000	0.156	0.0318	0.000	0.0000	**0.0040**	**0.003**
193.77	0.089	0.0047	0.000	0.0000	0.181	0.0421	0.000	0.0000	**0.0047**	**0.005**
193.80	0.114	0.0053	0.000	0.0000	0.207	0.0534	0.000	0.0000	**0.0053**	**0.006**
193.82	0.140	0.0059	0.000	0.0000	0.007	0.0472	0.000	0.0000	**0.0059**	**0.008**
193.85	0.165	0.0064	0.000	0.0000	0.032	0.1014	0.000	0.0000	**0.0064**	**0.009**
193.87	0.190	0.0069	0.000	0.0000	0.058	0.1355	0.000	0.0000	**0.0069**	**0.011**
193.90	0.216	0.0074	0.000	0.0000	0.083	0.1626	0.000	0.0000	**0.0074**	**0.013**
193.92	0.241	0.0078	0.000	0.0000	0.109	0.1857	0.000	0.0000	**0.0078**	**0.014**
193.95	0.266	0.0082	0.000	0.0000	0.134	0.2063	0.000	0.0000	**0.0082**	**0.016**
193.97	0.292	0.0086	0.000	0.0000	0.159	0.2250	0.000	0.0000	**0.0086**	**0.017**
194.00	0.317	0.0089	0.000	0.0000	0.185	0.2423	0.000	0.0000	**0.0089**	**0.019**
194.03	0.343	0.0093	0.000	0.0000	0.210	0.2584	0.000	0.0000	**0.0093**	**0.022**
194.05	0.368	0.0096	0.000	0.0000	0.236	0.2736	0.000	0.0000	**0.0096**	**0.026**
194.08	0.394	0.0099	0.000	0.0000	0.261	0.2879	0.000	0.0000	**0.0099**	**0.029**
194.10	0.419	0.0102	0.000	0.0000	0.286	0.3016	0.000	0.0000	**0.0102**	**0.033**
194.13	0.444	0.0106	0.000	0.0000	0.312	0.3147	0.000	0.0000	**0.0106**	**0.036**
194.15	0.470	0.0109	0.000	0.0000	0.337	0.3273	0.000	0.0000	**0.0109**	**0.039**
194.18	0.495	0.0111	0.000	0.0000	0.363	0.3394	0.000	0.0000	**0.0111**	**0.043**
194.20	0.521	0.0114	0.000	0.0000	0.388	0.3511	0.000	0.0000	**0.0114**	**0.046**
194.23	0.546	0.0117	0.000	0.0000	0.413	0.3624	0.000	0.0000	**0.0117**	**0.050**
194.25	0.571	0.0120	0.000	0.0000	0.439	0.3733	0.000	0.0000	**0.0120**	**0.053**
194.28	0.597	0.0122	0.000	0.0000	0.464	0.3840	0.000	0.0000	**0.0122**	**0.056**
194.30	0.622	0.0125	0.000	0.0000	0.490	0.3943	0.000	0.0000	**0.0125**	**0.060**
194.33	0.647	0.0127	0.000	0.0000	0.515	0.4044	0.000	0.0000	**0.0127**	**0.063**
194.36	0.673	0.0130	0.000	0.0000	0.540	0.4143	0.000	0.0000	**0.0130**	**0.066**
194.38	0.698	0.0132	0.000	0.0000	0.566	0.4239	0.000	0.0000	**0.0132**	**0.069**
194.41	0.724	0.0135	0.006	0.0108	0.591	0.4333	0.000	0.0000	**0.0243**	**0.073**
194.43	0.749	0.0137	0.032	0.0244	0.617	0.4425	0.000	0.0000	**0.0381**	**0.076**
194.46	0.775	0.0139	0.057	0.0327	0.642	0.4516	0.000	0.0000	**0.0466**	**0.079**
194.48	0.800	0.0142	0.082	0.0393	0.667	0.4604	0.000	0.0000	**0.0535**	**0.082**
194.51	0.825	0.0144	0.108	0.0450	0.693	0.4691	0.000	0.0000	**0.0594**	**0.085**
194.53	0.851	0.0146	0.133	0.0500	0.718	0.4776	0.000	0.0000	**0.0646**	**0.088**
194.56	0.876	0.0148	0.159	0.0546	0.744	0.4860	0.000	0.0000	**0.0694**	**0.091**
194.58	0.902	0.0150	0.184	0.0588	0.769	0.4942	0.000	0.0000	**0.0738**	**0.095**
194.61	0.927	0.0152	0.209	0.0627	0.794	0.5023	0.000	0.0000	**0.0779**	**0.098**
194.63	0.952	0.0155	0.235	0.0664	0.820	0.5103	0.000	0.0000	**0.0818**	**0.101**
194.66	0.978	0.0157	0.260	0.0699	0.845	0.5181	0.000	0.0000	**0.0855**	**0.104**
194.69	1.003	0.0159	0.286	0.0732	0.871	0.5259	0.000	0.0000	**0.0891**	**0.106**
194.71	1.029	0.0161	0.311	0.0764	0.896	0.5335	0.000	0.0000	**0.0924**	**0.109**
194.74	1.054	0.0163	0.336	0.0794	0.921	0.5410	0.000	0.0000	**0.0957**	**0.112**
194.76	1.079	0.0165	0.362	0.0824	0.947	0.5484	0.000	0.0000	**0.0988**	**0.115**
194.79	1.105	0.0166	0.387	0.0852	0.972	0.5557	0.000	0.0000	**0.1019**	**0.118**
194.81	1.130	0.0168	0.413	0.0880	0.998	0.5629	0.000	0.0000	**0.1048**	**0.120**
194.84	1.156	0.0170	0.438	0.0907	1.023	0.5700	0.000	0.0000	**0.1077**	**0.123**

Project:	Gateway Centre
Date:	6/24/2025
File No.:	120119
Designed By:	John birchard
Checked By:	
Subject:	Pond Discharge Table

ORIFICE CONTROL

	Orifice	Standpipe	Outlet Pipe
Orifice/Pipe Size (mm)	85	250	450
Cross-sectional Area (sq.m)	0.006	0.049	0.159
Orifice Coefficient	0.63	0.63	0.80
Invert Elevation (m)	193.64	194.40	193.59

WEIR CONTROL

	Overflow
Weir Width (m)	1.5
Sill elevation (m)	195.44
Weir Coefficient	1.65
Weir Side Slopes (H:V)	1
Downstream Weir Length (m)	1.5

CONTROL STRUCTURE CONFIGURATION

Water Level	Outlet Structure						Overflow Weir		Total Discharge	Total Live Storage
	Orifice		Standpipe		Outlet Pipe					
	Head	Discharge	Head	Discharge	Head	Capacity	Head	Discharge		
(m)	(m)	(cms)	(m)	(cms)	(m)	(cms)	(m)	(cms)	(cms)	(ha-m)
194.86	1.181	0.0172	0.463	0.0932	1.048	0.5771	0.000	0.0000	**0.1105**	**0.126**
194.89	1.206	0.0174	0.489	0.0958	1.074	0.5840	0.000	0.0000	**0.1132**	**0.128**
194.91	1.232	0.0176	0.514	0.0982	1.099	0.5909	0.000	0.0000	**0.1158**	**0.131**
194.94	1.257	0.0178	0.540	0.1006	1.125	0.5977	0.000	0.0000	**0.1184**	**0.133**
194.97	1.283	0.0179	0.565	0.1030	1.150	0.6044	0.000	0.0000	**0.1209**	**0.136**
194.99	1.308	0.0181	0.590	0.1053	1.175	0.6110	0.000	0.0000	**0.1234**	**0.138**
195.02	1.333	0.0183	0.616	0.1075	1.201	0.6176	0.000	0.0000	**0.1258**	**0.140**
195.04	1.359	0.0185	0.641	0.1097	1.226	0.6241	0.000	0.0000	**0.1281**	**0.142**
195.07	1.384	0.0186	0.667	0.1118	1.252	0.6305	0.000	0.0000	**0.1305**	**0.144**
195.09	1.410	0.0188	0.692	0.1139	1.277	0.6369	0.000	0.0000	**0.1327**	**0.145**
195.12	1.435	0.0190	0.717	0.1160	1.302	0.6432	0.000	0.0000	**0.1350**	**0.147**
195.14	1.460	0.0191	0.743	0.1181	1.328	0.6494	0.000	0.0000	**0.1372**	**0.149**
195.17	1.486	0.0193	0.768	0.1201	1.353	0.6556	0.000	0.0000	**0.1394**	**0.150**
195.19	1.511	0.0195	0.794	0.1220	1.379	0.6617	0.000	0.0000	**0.1415**	**0.152**
195.22	1.537	0.0196	0.819	0.1240	1.404	0.6678	0.000	0.0000	**0.1436**	**0.153**
195.24	1.562	0.0198	0.844	0.1259	1.429	0.6738	0.000	0.0000	**0.1457**	**0.155**
195.27	1.587	0.0200	0.870	0.1278	1.455	0.6798	0.000	0.0000	**0.1477**	**0.157**
195.30	1.613	0.0201	0.895	0.1296	1.480	0.6857	0.000	0.0000	**0.1497**	**0.158**
195.32	1.638	0.0203	0.921	0.1314	1.506	0.6915	0.000	0.0000	**0.1517**	**0.160**
195.35	1.664	0.0204	0.946	0.1332	1.531	0.6973	0.000	0.0000	**0.1537**	**0.161**
195.37	1.689	0.0206	0.971	0.1350	1.556	0.7031	0.000	0.0000	**0.1556**	**0.163**
195.40	1.714	0.0207	0.997	0.1368	1.582	0.7088	0.000	0.0000	**0.1575**	**0.164**
195.42	1.740	0.0209	1.022	0.1385	1.607	0.7145	0.000	0.0000	**0.1594**	**0.166**
195.45	1.765	0.0210	1.048	0.1402	1.633	0.7201	0.008	0.0016	**0.1629**	**0.168**

Additional Notes:

NVCA Weir Flow Calculation Applied For Weir Flow Below Circular Orifice Centroid

$Q_w = 1.65([(pi*(D^2)/4)(2*\cos^{-1}[(((D/2)-d)/(D/2))*(180/pi)]/360)-((D/2-d)(Dd-d^2)^{0.5})]/d)d^{1.5}$

Where:
Q_w is weir flow (m^3/s)
D is orifice diameter (m)
d is depth of flow above the invert (m)

PROJECT	The Gateway Center	FILE	121119
		DATE	May 17, 2024
SUBJECT	Grocery Building Rooftop Storage Calculation	NAME	JS
		PAGE	1 OF 1

ZURN Z-105 'CONTROL-FLO' ROOF DRAIN

Roof Top Area = 2880 m^2

Zurn Z-105 'Control-Flo' Roof Drain for dead-level (flat) roof

Notch Area Rating	=	232	m^2	per "Selecta-Drain" for Toronto, ON
Roof Load Factor	=	5.7	kg	per "Selecta-Drain" for Toronto, ON
Weir Discharge	=	54.5	L/min	per "Selecta-Drain" for Toronto, ON
Draindown Time	=	8	hrs	per "Selecta-Drain" for Toronto, ON
Minimum # of Notches	=	12.41	notches	per Zurn Control-Flo Roof Drainage Design Manual
	=	Round to	15	
Maximum rooftop ponding depth	=	0.102	mm	per building design
# of Drains	=	8	(provide 2 notches per drain)	
Notch Discharge	=	23	L/min/25mm of head	per Zurn Control-Flo Roof Drainage Design Manual
Drain Discharge	=	46	L/min/25mm of head	per Zurn Control-Flo Roof Drainage Design Manual

Rooftop Storage		
Stage (m)	**Drain Discharge (m^3/s)**	**Storage (ha-m)**
0.000	0.0000	0.0000
0.0254	0.0058	0.0073
0.0508	0.0115	0.0146
0.0762	0.0173	0.0219
0.1016	0.0230	0.0293

Rooftop Storage			
Design Storm	**Storage Used (ha-m)**	**Water Depth (m)**	**Actual Discharge (m^3/s)**
25mm	0.0051	0.018	0.0040
2-year	0.0083	0.029	0.0065
5-year	0.0111	0.039	0.0087
10-year	0.0129	0.045	0.0101
25-year	0.0152	0.053	0.0119
50-year	0.0169	0.059	0.0133
100-year	0.0186	0.065	0.0146
Regional	0.0252	0.088	0.0198

Provide 125 mm dia. vertical storm drain (as per Table 3 in Zurn Control-Flo Design Manual) as connected to a 200 mm dia. horizontal storm drain to convey stormwater to the west edge of the roof.

Scuppers to be provided 102mm above the bottom of the roof.

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

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


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

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\df7
d4202-3f8b-4b4f-aba3-16d2d95dc8eb\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\df7
d4202-3f8b-4b4f-aba3-16d2d95dc8eb\sc


DATE: 06/24/2025                          TIME: 01:13:25

USER:



COMMENTS: ____________________________________________________________


--------------------------------------------------------------------------------
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  ************************************************
  ** SIMULATION : A) Chicago 25 mm              **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\JBirchard\AppD
|                  |              ata\Local\Temp\
|                  |              cf704575-eea3-458f-ac95-fac799ddbcfc\66adf0b8
| Ptotal= 24.97 mm |    Comments: OWEN SOUND CHIC25MM
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	1.29	1.00	2.81	2.00	13.05	3.00	2.04
0.10	1.36	1.10	3.22	2.10	8.44	3.10	1.89
0.20	1.44	1.20	3.77	2.20	6.21	3.20	1.76
0.30	1.53	1.30	4.55	2.30	4.91	3.30	1.65
0.40	1.63	1.40	5.77	2.40	4.06	3.40	1.55
0.50	1.75	1.50	7.86	2.50	3.47	3.50	1.46
0.60	1.89	1.60	12.27	2.60	3.03	3.60	1.39
0.70	2.06	1.70	26.17	2.70	2.70	3.70	1.32
0.80	2.26	1.80	72.58	2.80	2.43	3.80	1.26
0.90	2.50	1.90	26.96	2.90	2.22	3.90	1.20

```
--------------------------------------------------------------------------------

--------------------
| CALIB            |
| NASHYD   (  0202)|   Area    (ha)=   1.25   Curve Number   (CN)= 77.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.91   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.60

         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	1.29	1.083	2.81	2.083	13.05	3.08	2.04
0.167	1.35	1.167	3.14	2.167	9.36	3.17	1.92
0.250	1.41	1.250	3.55	2.250	7.10	3.25	1.81
0.333	1.48	1.333	4.08	2.333	5.69	3.33	1.72
0.417	1.55	1.417	4.79	2.417	4.74	3.42	1.63
0.500	1.63	1.500	5.77	2.500	4.06	3.50	1.55
0.583	1.75	1.583	7.86	2.583	3.47	3.58	1.46
0.667	1.86	1.667	11.39	2.667	3.12	3.67	1.40
0.750	1.99	1.750	20.61	2.750	2.83	3.75	1.35
0.833	2.14	1.833	44.73	2.833	2.59	3.83	1.30
0.917	2.31	1.917	63.46	2.917	2.39	3.92	1.25
1.000	2.50	2.000	26.96	3.000	2.22	4.00	1.20

```
     Unit Hyd Qpeak  (cms)=   0.080

     PEAK FLOW       (cms)=   0.009 (i)
     TIME TO PEAK    (hrs)=   2.667
     RUNOFF VOLUME    (mm)=   4.270
     TOTAL RAINFALL   (mm)=  24.971
     RUNOFF COEFFICIENT   =   0.171
```

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

```
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   2.75
|ID= 1 DT= 5.0 min |   Total Imp(%)=  93.20   Dir. Conn.(%)=  93.20
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.56         0.19
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.50         2.00
     Length            (m)=     135.45         5.00
     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    1.29 | 1.083    2.81 | 2.083   13.05 |  3.08    2.04
               0.167    1.35 | 1.167    3.14 | 2.167    9.36 |  3.17    1.92
               0.250    1.41 | 1.250    3.55 | 2.250    7.10 |  3.25    1.81
               0.333    1.48 | 1.333    4.08 | 2.333    5.69 |  3.33    1.72
               0.417    1.55 | 1.417    4.79 | 2.417    4.74 |  3.42    1.63
               0.500    1.63 | 1.500    5.77 | 2.500    4.06 |  3.50    1.55
               0.583    1.75 | 1.583    7.86 | 2.583    3.47 |  3.58    1.46
               0.667    1.86 | 1.667   11.39 | 2.667    3.12 |  3.67    1.40
               0.750    1.99 | 1.750   20.61 | 2.750    2.83 |  3.75    1.35
               0.833    2.14 | 1.833   44.73 | 2.833    2.59 |  3.83    1.30
               0.917    2.31 | 1.917   63.46 | 2.917    2.39 |  3.92    1.25
               1.000    2.50 | 2.000   26.96 | 3.000    2.22 |  4.00    1.20

     Max.Eff.Inten.(mm/hr)=      63.46         8.30
                over (min)        5.00         5.00
     Storage Coeff.  (min)=       3.26 (ii)    4.11 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.27         0.24
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.41         0.00          0.419 (iii)
     TIME TO PEAK    (hrs)=       1.92         1.92           1.92
     RUNOFF VOLUME    (mm)=      22.97         3.65          21.66
     TOTAL RAINFALL   (mm)=      24.97        24.97          24.97
     RUNOFF COEFFICIENT   =       0.92         0.15           0.87

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
```

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 74.0 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.

```
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0401)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0818      0.1006
                          0.0031     0.0016   |   0.0957      0.1122
                          0.0059     0.0079   |   0.1077      0.1232
                          0.0078     0.0142   |   0.1184      0.1332
                          0.0093     0.0223   |   0.1305      0.1436
                          0.0106     0.0361   |   0.1394      0.1502
                          0.0117     0.0496   |   0.1477      0.1565
                          0.0127     0.0628   |   0.1537      0.1612
                          0.0381     0.0758   |   0.1629      0.1675
                          0.0646     0.0884   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0201)      2.752      0.419      1.92      21.66
   OUTFLOW: ID= 1 (  0401)      2.752      0.012      3.50      21.61

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  2.80
                  TIME SHIFT OF PEAK FLOW         (min)= 95.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0498

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=   0.29
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.29         0.00
     Dep. Storage     (mm)=       2.00         2.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      43.82        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    1.29 | 1.083    2.81 | 2.083   13.05 |  3.08    2.04
                0.167    1.35 | 1.167    3.14 | 2.167    9.36 |  3.17    1.92
                0.250    1.41 | 1.250    3.55 | 2.250    7.10 |  3.25    1.81
                0.333    1.48 | 1.333    4.08 | 2.333    5.69 |  3.33    1.72
                0.417    1.55 | 1.417    4.79 | 2.417    4.74 |  3.42    1.63
                0.500    1.63 | 1.500    5.77 | 2.500    4.06 |  3.50    1.55
                0.583    1.75 | 1.583    7.86 | 2.583    3.47 |  3.58    1.46
                0.667    1.86 | 1.667   11.39 | 2.667    3.12 |  3.67    1.40
                0.750    1.99 | 1.750   20.61 | 2.750    2.83 |  3.75    1.35
                0.833    2.14 | 1.833   44.73 | 2.833    2.59 |  3.83    1.30
                0.917    2.31 | 1.917   63.46 | 2.917    2.39 |  3.92    1.25
                1.000    2.50 | 2.000   26.96 | 3.000    2.22 |  4.00    1.20

     Max.Eff.Inten.(mm/hr)=      63.46        54.09
                over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.87 (ii)    3.53 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.26
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.05         0.00          0.050 (iii)
     TIME TO PEAK    (hrs)=       1.92         1.92           1.92
     RUNOFF VOLUME    (mm)=      22.97        22.97          22.96
     TOTAL RAINFALL   (mm)=      24.97        24.97          24.97
     RUNOFF COEFFICIENT   =       0.92         0.92           0.92

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  = 100.0    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.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0402)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0173      0.0336
                          0.0058     0.0112   |   0.0230      0.0448
                          0.0115     0.0224   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0203)      0.288      0.050      1.92      22.96
   OUTFLOW: ID= 1 (  0402)      0.288      0.003      2.67      21.29

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.33
                   TIME SHIFT OF PEAK FLOW         (min)= 45.00

                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.0051

--------------------------------------------------------------------------------
------------------
|SOAKAWAY(  0301)|  UNDERDRAIN: OFF
|IN= 2--> OUT= 3 |
|DT=  5.0 MIN    |  STORAGE LAYER:
------------------  Length          (m)=  35.00   Height                  (m)=
0.60
                    Porosity           =   0.30   Initial Water Level     (m)=
0.00
                    Width           (m)=   4.50   Min. Drawdown          (hr)=
24.00
                    Max. Drawdown  (hr)=   7.20   Available Storage   (cu.m.)=
28.35

                    NATIVE SOIL LAYER:
                    Infiltration (m/hr) = 0.0250

                       AREA         QPEAK            TPEAK         R.V.
                       (ha)         (cms)            (hrs)         (mm)
      INFLOW:ID= 2     0.29         0.003             2.67        21.29
    OVERFLOW:ID= 3     0.00         0.000             0.00         0.00

               Volume Reduction Rate[(RVin-RVout)/RVin](%):
                         If RVout= (Overflow             )=      100.00
               Time to reach Max storage              (Hr)=        8.17
               Volume of water for drawdown in LID (cu.m.)=        4.03
               Volume of maximum water storage     (cu.m.)=       19.27
               Calculated Drawdown Time               (Hr)=        1.00

  --------------------------
  | Junction Command(0501) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 3(  0301)    0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0501)    0.00     0.00    0.00     0.00

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

--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0202):     1.25   0.009     2.67     4.27
      + ID2= 2 (  0401):     2.75   0.012     3.50    21.61
        ==================================================
        ID = 3 (  0901):     4.00   0.021     2.67    16.19
```

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

--------------------
| ADD HYD  (  0901)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0501 <ID= 2> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0001 = HYDROGRAPH 0003
        ID1= 3 (  0901):     4.00   0.021     2.67    16.19
      + ID2= 2 (  0501):     0.00   0.000     0.00     0.00
        ================================================
        ID = 1 (  0901):     4.00   0.021     2.67    16.19

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

 FINISH
================================================================================
=======================
```

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

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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


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

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\df7
d4202-3f8b-4b4f-aba3-16d2d95dc8eb\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\df7
d4202-3f8b-4b4f-aba3-16d2d95dc8eb\sc


DATE: 06/24/2025                           TIME: 01:13:25

USER:


COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : A) Chicago 25 mm              **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 6.0
    [ Ptot= 24.97 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\66adf0b8-
ce07-46df-b42c-1
    remark: OWEN SOUND CHIC25MM

*
 ** CALIB NASHYD         0202  1  5.0    1.25    0.01  2.67   4.27 0.17   0.000
    [CN=77.4         ]
    [ N = 3.0:Tp 0.60]
*
    READ STORM                 6.0
    [ Ptot= 24.97 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\66adf0b8-
ce07-46df-b42c-1
    remark: OWEN SOUND CHIC25MM

*
 *  CALIB STANDHYD       0201  1  5.0    2.75    0.42  1.92  21.66 0.87   0.000
    [I%=93.2:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0401  1  5.0    2.75    0.01  3.50  21.61  n/a   0.000
*
    READ STORM                 6.0
    [ Ptot= 24.97 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\66adf0b8-
ce07-46df-b42c-1
    remark: OWEN SOUND CHIC25MM

*
 *  CALIB STANDHYD       0203  1  5.0    0.29    0.05  1.92  22.96 0.92   0.000
    [I%=99.0:S%= 1.00]
*
 ** Reservoir
    OUTFLOW:             0402  1  5.0    0.29    0.00  2.67  21.29  n/a   0.000
*
 ** Soakaway
    OVERFLOW  :          0301  3  5.0    0.00    0.00  0.00   0.00  n/a   0.000
    UNDERDRAIN:          0301  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0202+  0401]  0901  3  5.0    4.00    0.02  2.67  16.19  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0    4.00    0.02  2.67  16.19  n/a   0.000
*
 FINISH

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

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

================================================================================
=======================


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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


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

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\d52
aa911-046b-4716-95d2-92c537051647\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\d52
aa911-046b-4716-95d2-92c537051647\sc


DATE: 06/24/2025                          TIME: 01:13:25

USER:


COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : B) 2yr (Chicago)              **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 10.0
    [ Ptot= 31.56 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\3ac851e3-
fb6e-48bf-b510-e
    remark: Modified Chicago Storm

*
 ** CALIB NASHYD         0202  1  5.0    1.25    0.01  2.08   7.04 0.22   0.000
    [CN=77.4         ]
    [ N = 3.0:Tp 0.60]
*
    READ STORM                 10.0
    [ Ptot= 31.56 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\3ac851e3-
fb6e-48bf-b510-e
    remark: Modified Chicago Storm

*
 *  CALIB STANDHYD       0201  1  5.0    2.75    0.51  1.33  27.96 0.89   0.000
    [I%=93.2:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0401  1  5.0    2.75    0.01  4.00  27.92  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 31.56 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\3ac851e3-
fb6e-48bf-b510-e
    remark: Modified Chicago Storm

*
 *  CALIB STANDHYD       0203  1  5.0    0.29    0.06  1.33  29.56 0.94   0.000
    [I%=99.0:S%= 1.00]
*
 ** Reservoir
    OUTFLOW:             0402  1  5.0    0.29    0.00  2.67  27.87  n/a   0.000
*
 ** Soakaway
    OVERFLOW  :          0301  3  5.0    0.29    0.00  6.42   1.26  n/a   0.000
    UNDERDRAIN:          0301  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0202+  0401]  0901  3  5.0    4.00    0.02  2.17  21.40  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0    4.29    0.02  2.17  20.05  n/a   0.000
*
================================================================================
```

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

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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


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

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\066
dc267-046c-45d4-8ec5-bc75a0c27ee4\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\066
dc267-046c-45d4-8ec5-bc75a0c27ee4\sc


DATE: 06/24/2025                          TIME: 01:13:24

USER:


COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : C) 5yr (Chicago)              **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 10.0
    [ Ptot= 41.72 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\ef00e4f0-
d772-4745-a3cf-4
    remark: Modified Chicago Storm

*
 ** CALIB NASHYD         0202  1  5.0    1.25    0.02  2.08  12.21 0.29   0.000
    [CN=77.4         ]
    [ N = 3.0:Tp 0.60]
*
    READ STORM                 10.0
    [ Ptot= 41.72 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\ef00e4f0-
d772-4745-a3cf-4
    remark: Modified Chicago Storm

*
 *  CALIB STANDHYD       0201  1  5.0    2.75    0.68  1.33  37.75 0.90   0.000
    [I%=93.2:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0401  1  5.0    2.75    0.04  2.67  37.71  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 41.72 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\ef00e4f0-
d772-4745-a3cf-4
    remark: Modified Chicago Storm

*
 *  CALIB STANDHYD       0203  1  5.0    0.29    0.08  1.33  39.72 0.95   0.000
    [I%=99.0:S%= 1.00]
*
 ** Reservoir
    OUTFLOW:             0402  1  5.0    0.29    0.00  2.58  38.05  n/a   0.000
*
 ** Soakaway
    OVERFLOW  :          0301  3  5.0    0.29    0.00  4.17   9.16  n/a   0.000
    UNDERDRAIN:          0301  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0202+  0401]  0901  3  5.0    4.00    0.05  2.33  29.74  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0    4.29    0.05  2.33  28.36  n/a   0.000
*
================================================================================
=======================
```

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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                    *****  S U M M A R Y   O U T P U T  *****


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

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\214
ef2b8-d24a-4ef5-be05-9f049c2e56f7\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\214
ef2b8-d24a-4ef5-be05-9f049c2e56f7\sc


DATE: 06/24/2025                          TIME: 01:13:24

USER:


COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : D) 10yr (Chicago)             **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 10.0
    [ Ptot= 48.40 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\a7659700-
8c53-40d0-b53f-d
    remark: Modified Chicago Storm

*
 ** CALIB NASHYD         0202  1  5.0    1.25    0.03  2.08  16.07 0.33   0.000
    [CN=77.4         ]
    [ N = 3.0:Tp 0.60]
*
    READ STORM                 10.0
    [ Ptot= 48.40 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\a7659700-
8c53-40d0-b53f-d
    remark: Modified Chicago Storm

*
 *  CALIB STANDHYD       0201  1  5.0    2.75    0.80  1.33  44.21 0.91   0.000
    [I%=93.2:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0401  1  5.0    2.75    0.05  2.33  44.17  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 48.40 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\a7659700-
8c53-40d0-b53f-d
    remark: Modified Chicago Storm

*
 *  CALIB STANDHYD       0203  1  5.0    0.29    0.09  1.33  46.40 0.96   0.000
    [I%=99.0:S%= 1.00]
*
 ** Reservoir
    OUTFLOW:             0402  1  5.0    0.29    0.00  2.58  44.72  n/a   0.000
*
 ** Soakaway
    OVERFLOW  :          0301  3  5.0    0.29    0.00  3.67  14.62  n/a   0.000
    UNDERDRAIN:          0301  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0202+  0401]  0901  3  5.0    4.00    0.08  2.17  35.39  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0    4.29    0.08  2.17  34.00  n/a   0.000
*
================================================================================
=======================


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

```
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


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

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\0bd
34f51-a7cf-4687-8d6c-ee776a4c37bd\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\0bd
34f51-a7cf-4687-8d6c-ee776a4c37bd\sc


DATE: 06/24/2025                          TIME: 01:13:24

USER:


COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : E) 25yr (Chicago)             **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 10.0
    [ Ptot= 57.05 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\27d0e6bc-
e445-4984-8630-d
    remark: Modified Chicago Storm

*
 ** CALIB NASHYD         0202  1  5.0    1.25    0.04  2.00  21.52 0.38   0.000
    [CN=77.4          ]
    [ N = 3.0:Tp 0.60]
*
    READ STORM                 10.0
    [ Ptot= 57.05 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\27d0e6bc-
e445-4984-8630-d
    remark: Modified Chicago Storm

*
 *  CALIB STANDHYD       0201  1  5.0    2.75    0.95  1.33  52.61 0.92   0.000
    [I%=93.2:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0401  1  5.0    2.75    0.07  2.08  52.56  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 57.05 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\27d0e6bc-
e445-4984-8630-d
    remark: Modified Chicago Storm

*
 *  CALIB STANDHYD       0203  1  5.0    0.29    0.11  1.33  55.04 0.96   0.000
    [I%=99.0:S%= 1.00]
*
 ** Reservoir
    OUTFLOW:             0402  1  5.0    0.29    0.01  2.58  53.37  n/a   0.000
*
 ** Soakaway
    OVERFLOW  :          0301  3  5.0    0.29    0.00  3.17  21.91  n/a   0.000
    UNDERDRAIN:          0301  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0202+  0401]  0901  3  5.0    4.00    0.11  2.08  42.87  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0    4.29    0.11  2.08  41.46  n/a   0.000
*
================================================================================
======================


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

```
        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


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

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\07a
1db69-9cc5-4a4a-b8d7-5173e77d0725\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\07a
1db69-9cc5-4a4a-b8d7-5173e77d0725\sc


DATE: 06/24/2025                          TIME: 01:13:24

USER:


COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : F) 50yr (Chicago)             **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 10.0
    [ Ptot= 63.42 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\4f140c2b-
46e6-4876-af19-8
    remark: Modified Chicago Storm

*
 ** CALIB NASHYD         0202  1  5.0    1.25    0.05  2.00  25.80 0.41   0.000
    [CN=77.4         ]
    [ N = 3.0:Tp 0.60]
*
    READ STORM                 10.0
    [ Ptot= 63.42 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\4f140c2b-
46e6-4876-af19-8
    remark: Modified Chicago Storm

*
 *  CALIB STANDHYD       0201  1  5.0    2.75    1.06  1.33  58.82 0.93   0.000
    [I%=93.2:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0401  1  5.0    2.75    0.08  2.08  58.77  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 63.42 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\4f140c2b-
46e6-4876-af19-8
    remark: Modified Chicago Storm

*
 *  CALIB STANDHYD       0203  1  5.0    0.29    0.12  1.33  61.41 0.97   0.000
    [I%=99.0:S%= 1.00]
*
 ** Reservoir
    OUTFLOW:             0402  1  5.0    0.29    0.01  2.58  59.74  n/a   0.000
*
 ** Soakaway
    OVERFLOW  :          0301  3  5.0    0.29    0.01  3.00  27.42  n/a   0.000
    UNDERDRAIN:          0301  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0202+  0401]  0901  3  5.0    4.00    0.13  2.00  48.47  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0    4.29    0.13  2.00  47.06  n/a   0.000
*
================================================================================
======================


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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
```

```
        OOO     T      T    H   H    Y    M   M   OOO
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                    *****  S U M M A R Y   O U T P U T  *****


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

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\d58
0f2f3-42e7-41d3-bcbf-0118ce81d6f0\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\d58
0f2f3-42e7-41d3-bcbf-0118ce81d6f0\sc


DATE: 06/24/2025                          TIME: 01:13:25

USER:


COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : G) 100yr (Chicago)            **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 10.0
    [ Ptot= 69.64 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\4e6b4d51-
6859-40f5-9b13-7
    remark: Modified Chicago Storm

*
 ** CALIB NASHYD         0202  1  5.0    1.25    0.05  2.00  30.17 0.43   0.000
    [CN=77.4         ]
    [ N = 3.0:Tp 0.60]
*
    READ STORM                 10.0
    [ Ptot= 69.64 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\4e6b4d51-
6859-40f5-9b13-7
    remark: Modified Chicago Storm

*
 *  CALIB STANDHYD       0201  1  5.0    2.75    1.17  1.33  64.89 0.93   0.000
    [I%=93.2:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0401  1  5.0    2.75    0.10  2.00  64.84  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 69.64 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\4e6b4d51-
6859-40f5-9b13-7
    remark: Modified Chicago Storm

*
 *  CALIB STANDHYD       0203  1  5.0    0.29    0.13  1.33  67.63 0.97   0.000
    [I%=99.0:S%= 1.00]
*
 ** Reservoir
    OUTFLOW:             0402  1  5.0    0.29    0.01  2.58  65.95  n/a   0.000
*
 ** Soakaway
    OVERFLOW  :          0301  3  5.0    0.29    0.01  2.83  32.87  n/a   0.000
    UNDERDRAIN:          0301  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0202+  0401]  0901  3  5.0    4.00    0.15  2.00  54.01  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0    4.29    0.15  2.00  52.59  n/a   0.000
*
================================================================================
=======================


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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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```

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```
                    *****  S U M M A R Y   O U T P U T  *****


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

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\2f2
47fa8-aea4-45e2-9761-f6be61b3ae3b\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\2f2
47fa8-aea4-45e2-9761-f6be61b3ae3b\sc


DATE: 06/24/2025                          TIME: 01:13:24

USER:


COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : H) TIMMINS                    **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\8ddbf0b1-
8e57-4fad-92f1-5
    remark: TIMMINS

*
 ** CALIB NASHYD         0202  1  5.0    1.25    0.10  7.25 134.89 0.70   0.000
    [CN=77.4         ]
    [ N = 3.0:Tp 0.60]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\8ddbf0b1-
8e57-4fad-92f1-5
    remark: TIMMINS

*
 *  CALIB STANDHYD       0201  1  5.0    2.75    0.32  7.00 186.68 0.97   0.000
    [I%=93.2:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0401  1  5.0    2.75    0.17  7.17 186.64  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\8ddbf0b1-
8e57-4fad-92f1-5
    remark: TIMMINS

*
 *  CALIB STANDHYD       0203  1  5.0    0.29    0.03  6.75 190.99 0.99   0.000
    [I%=99.0:S%= 1.00]
*
 ** Reservoir
    OUTFLOW:             0402  1  5.0    0.29    0.01  9.08 189.30  n/a   0.000
*
 ** Soakaway
    OVERFLOW  :          0301  3  5.0    0.29    0.01  9.08 140.79  n/a   0.000
    UNDERDRAIN:          0301  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0202+  0401]  0901  3  5.0    4.00    0.27  7.25 170.47  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0    4.29    0.28  7.25 168.48  n/a   0.000
*
================================================================================
======================


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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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```

```
                  *****  S U M M A R Y   O U T P U T  *****


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

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\73f
2bc27-9d43-4c66-92a8-7b13cc2db470\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\73f
2bc27-9d43-4c66-92a8-7b13cc2db470\sc


DATE: 06/24/2025                          TIME: 01:13:25

USER:


COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : I) 2yr (SCS)                  **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 15.0
    [ Ptot= 53.94 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\cc9bf36a-
5487-494b-af18-7
    remark: SCS Type II 24 HR MASS CURVE

*
 ** CALIB NASHYD         0202  1  5.0    1.25    0.03 12.50  19.51 0.36   0.000
    [CN=77.4         ]
    [ N = 3.0:Tp 0.60]
*
    READ STORM                 15.0
    [ Ptot= 53.94 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\cc9bf36a-
5487-494b-af18-7
    remark: SCS Type II 24 HR MASS CURVE

*
 *  CALIB STANDHYD       0201  1  5.0    2.75    0.48 12.00  49.58 0.92   0.000
    [I%=93.2:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0401  1  5.0    2.75    0.04 12.58  49.54  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 53.94 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\cc9bf36a-
5487-494b-af18-7
    remark: SCS Type II 24 HR MASS CURVE

*
 *  CALIB STANDHYD       0203  1  5.0    0.29    0.05 12.00  51.93 0.96   0.000
    [I%=99.0:S%= 1.00]
*
 ** Reservoir
    OUTFLOW:             0402  1  5.0    0.29    0.00 12.58  50.24  n/a   0.000
*
 ** Soakaway
    OVERFLOW  :          0301  3  5.0    0.29    0.00 14.58  12.77  n/a   0.000
    UNDERDRAIN:          0301  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0202+  0401]  0901  3  5.0    4.00    0.07 12.58  40.16  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0    4.29    0.07 12.58  38.32  n/a   0.000
*
================================================================================
======================


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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****
```

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

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\365
0fa20-777c-4a32-b851-fc2b65dd71c6\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\365
0fa20-777c-4a32-b851-fc2b65dd71c6\sc


DATE: 06/24/2025                          TIME: 01:13:24

USER:


COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : J) 5yr (SCS)                  **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 15.0
    [ Ptot= 71.39 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\c1f31b71-
337e-442a-8670-3
    remark: SCS Type II 24 HR MASS CURVE

*
 ** CALIB NASHYD         0202  1  5.0    1.25    0.05 12.50  31.42 0.44   0.000
    [CN=77.4         ]
    [ N = 3.0:Tp 0.60]
*
    READ STORM                 15.0
    [ Ptot= 71.39 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\c1f31b71-
337e-442a-8670-3
    remark: SCS Type II 24 HR MASS CURVE

*
 *  CALIB STANDHYD       0201  1  5.0    2.75    0.64 12.00  66.59 0.93   0.000
    [I%=93.2:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0401  1  5.0    2.75    0.08 12.33  66.55  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 71.39 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\c1f31b71-
337e-442a-8670-3
    remark: SCS Type II 24 HR MASS CURVE

*
 *  CALIB STANDHYD       0203  1  5.0    0.29    0.07 12.00  69.38 0.97   0.000
    [I%=99.0:S%= 1.00]
*
 ** Reservoir
    OUTFLOW:             0402  1  5.0    0.29    0.01 12.58  67.69  n/a   0.000
*
 ** Soakaway
    OVERFLOW  :          0301  3  5.0    0.29    0.00 13.58  26.50  n/a   0.000
    UNDERDRAIN:          0301  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0202+  0401]  0901  3  5.0    4.00    0.12 12.50  55.57  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0    4.29    0.12 12.50  53.62  n/a   0.000
*
================================================================================
======================


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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


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

  Output  filename:
```

```
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\da7
70d50-4684-4c8b-99de-057aac755c14\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\da7
70d50-4684-4c8b-99de-057aac755c14\sc


DATE: 06/24/2025                          TIME: 01:13:25

USER:


COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : K) 10yr (SCS)                 **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 82.75 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\40329db0-
447e-4b35-a9a3-a
    remark: SCS Type II 24 HR MASS CURVE

*
 ** CALIB NASHYD         0202  1  5.0    1.25    0.06 12.50  39.86 0.48   0.000
    [CN=77.4         ]
    [ N = 3.0:Tp 0.60]
*
    READ STORM                15.0
    [ Ptot= 82.75 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\40329db0-
447e-4b35-a9a3-a
    remark: SCS Type II 24 HR MASS CURVE

*
 *  CALIB STANDHYD       0201  1  5.0    2.75    0.75 12.00  77.72 0.94   0.000
    [I%=93.2:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0401  1  5.0    2.75    0.10 12.25  77.68  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 82.75 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\40329db0-
447e-4b35-a9a3-a
    remark: SCS Type II 24 HR MASS CURVE

*
 *  CALIB STANDHYD       0203  1  5.0    0.29    0.08 12.00  80.75 0.98   0.000
    [I%=99.0:S%= 1.00]
*
 ** Reservoir
    OUTFLOW:             0402  1  5.0    0.29    0.01 12.58  79.07  n/a   0.000
*
 ** Soakaway
    OVERFLOW  :          0301  3  5.0    0.29    0.01 13.25  35.87  n/a   0.000
    UNDERDRAIN:          0301  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0202+  0401]  0901  3  5.0    4.00    0.15 12.50  65.86  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0    4.29    0.15 12.50  63.85  n/a   0.000
*
================================================================================
======================


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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


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

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\cc1
85e4d-afa1-4569-8918-2b6094566a8c\sc
  Summary filename:
```

```
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\cc1
85e4d-afa1-4569-8918-2b6094566a8c\sc


DATE: 06/24/2025                          TIME: 01:13:25

USER:


COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : L) 25yr (SCS)                 **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 15.0
    [ Ptot= 97.61 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\b8ac5d2b-
b3b9-44db-a579-1
    remark: SCS Type II 24 HR MASS CURVE

*
 ** CALIB NASHYD         0202  1  5.0    1.25    0.08 12.50  51.49 0.53   0.000
    [CN=77.4         ]
    [ N = 3.0:Tp 0.60]
*
    READ STORM                 15.0
    [ Ptot= 97.61 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\b8ac5d2b-
b3b9-44db-a579-1
    remark: SCS Type II 24 HR MASS CURVE

*
 *  CALIB STANDHYD       0201  1  5.0    2.75    0.89 12.00  92.31 0.95   0.000
    [I%=93.2:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0401  1  5.0    2.75    0.12 12.17  92.27  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 97.61 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\b8ac5d2b-
b3b9-44db-a579-1
    remark: SCS Type II 24 HR MASS CURVE

*
 *  CALIB STANDHYD       0203  1  5.0    0.29    0.10 12.00  95.60 0.98   0.000
    [I%=99.0:S%= 1.00]
*
 ** Reservoir
    OUTFLOW:             0402  1  5.0    0.29    0.01 12.58  93.93  n/a   0.000
*
 ** Soakaway
    OVERFLOW  :          0301  3  5.0    0.29    0.01 12.92  48.50  n/a   0.000
    UNDERDRAIN:          0301  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0202+  0401]  0901  3  5.0    4.00    0.19 12.50  79.53  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0    4.29    0.19 12.50  77.45  n/a   0.000
*
================================================================================
======================


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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


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

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\99d
434c8-6a53-4602-86fc-6b7a2606ecdc\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\99d
434c8-6a53-4602-86fc-6b7a2606ecdc\sc
```

```
DATE: 06/24/2025                          TIME: 01:13:25

USER:


COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : M) 50yr (SCS)                 **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 15.0
    [ Ptot=108.47 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\93a3a212-
08da-4839-9723-5
    remark: SCS Type II 24 HR MASS CURVE

*
 ** CALIB NASHYD         0202  1  5.0    1.25    0.09 12.50  60.34 0.56   0.000
    [CN=77.4         ]
    [ N = 3.0:Tp 0.60]
*
    READ STORM                 15.0
    [ Ptot=108.47 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\93a3a212-
08da-4839-9723-5
    remark: SCS Type II 24 HR MASS CURVE

*
 *  CALIB STANDHYD       0201  1  5.0    2.75    0.99 12.00 103.01 0.95   0.000
    [I%=93.2:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0401  1  5.0    2.75    0.14 12.17 102.97  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=108.47 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\93a3a212-
08da-4839-9723-5
    remark: SCS Type II 24 HR MASS CURVE
*
 *  CALIB STANDHYD       0203  1  5.0    0.29    0.11 12.00 106.47 0.98   0.000
    [I%=99.0:S%= 1.00]
*
 ** Reservoir
    OUTFLOW:             0402  1  5.0    0.29    0.01 12.58 104.80  n/a   0.000
*
 ** Soakaway
    OVERFLOW  :          0301  3  5.0    0.29    0.01 12.75  57.97  n/a   0.000
    UNDERDRAIN:          0301  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0202+  0401]  0901  3  5.0    4.00    0.23 12.50  89.65  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0    4.29    0.23 12.50  87.53  n/a   0.000
*
================================================================================
======================


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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


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

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\059
71773-67d1-4b3a-b033-6d5d66f9fd45\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\db087677-d2dd-46ce-8964-f33feda22920\059
71773-67d1-4b3a-b033-6d5d66f9fd45\sc


DATE: 06/24/2025                          TIME: 01:13:24
```

```
USER:


COMMENTS: ____________________________________________________________


  ************************************************
  ** SIMULATION : N) 100yr (SCS)                **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot=119.14 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\fd73645d-
d430-46bf-b3ff-4
    remark: SCS Type II 24 HR MASS CURVE

*
 ** CALIB NASHYD         0202  1  5.0    1.25    0.10 12.50  69.26 0.58   0.000
    [CN=77.4         ]
    [ N = 3.0:Tp 0.60]
*
    READ STORM                15.0
    [ Ptot=119.14 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\fd73645d-
d430-46bf-b3ff-4
    remark: SCS Type II 24 HR MASS CURVE

*
 *  CALIB STANDHYD       0201  1  5.0    2.75    1.09 12.00 113.53 0.95   0.000
    [I%=93.2:S%= 2.00]
*
 ** Reservoir
    OUTFLOW:             0401  1  5.0    2.75    0.16 12.17 113.49  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=119.14 mm ]
    fname :
C:\Users\JBirchard\AppData\Local\Temp\cf704575-eea3-458f-ac95-fac799ddbcfc\fd73645d-
d430-46bf-b3ff-4
    remark: SCS Type II 24 HR MASS CURVE

*
 *  CALIB STANDHYD       0203  1  5.0    0.29    0.12 12.00 117.14 0.98   0.000
    [I%=99.0:S%= 1.00]
*
 ** Reservoir
    OUTFLOW:             0402  1  5.0    0.29    0.01 12.58 115.47  n/a   0.000
*
 ** Soakaway
    OVERFLOW  :          0301  3  5.0    0.29    0.01 12.58  67.41  n/a   0.000
    UNDERDRAIN:          0301  4  5.0    0.00    0.00  0.00   0.00  n/a   0.000
*
    ADD [  0202+  0401]  0901  3  5.0    4.00    0.26 12.50  99.67  n/a   0.000
*
    ADD [  0901+  0501]  0901  1  5.0    4.29    0.26 12.50  97.51  n/a   0.000
*
```

PROJECT	Gateway Development	FILE	120119
		DATE	3-Dec-2025
SUBJECT	Emergency Overland Flow Weir	NAME	J. Nemisz
		PAGE	1 OF 1

Overflow Weir Parameters

			Left Flank	Right Flank
Overflow Weir Base Elevation (m):	195.62	Grade (%):	5.1%	5.1%
Overflow Weir Width, B (m):	8.5	Width (m):	3.4	3.4
Weir Crest Length, L (m):	0.3			
Overflow Weir Material:	Concrete, Finished			
ϵ (mm):	1			
δ/L :	0.01255			

$$\delta/L \approx 0.001 + 0.2 \times (\epsilon/L)^{0.5}$$

100 Year Storm Ponding Depth and Overflow Elevation

1:100-Year Uncontrolled Flow (L/s):	1,300.00
Overflow Weir Base Elevation (m):	195.62
Structure T/G Elevation (m):	195.55
Required Weir Head (m):	0.174
C_d:	0.53
Qweir, (L/s):	1300.00
Max Ponding Over T/G (m):	0.244
Weir Overflow Elevation (m):	195.79

$$C_d \approx 0.544 \times (1 - \frac{\delta/L}{H/L})^{3/2}$$

$$Q_{Weir} = C_d B g^{0.5} H^{3/2}$$

Note: for flow over flanks, H in Q_{weir} formula is "Required Weir Head" divided by 2.

Detailed Weir Flow Table

Elevation (m)	h_{weir} (m)	Weir C_d	Q_{Weir} (L/s)
195.62	0.00		0.00
195.63	0.01	0.27	11.10
195.64	0.02	0.40	41.18
195.65	0.03	0.44	82.16
195.66	0.04	0.47	131.63
195.67	0.05	0.48	188.34
195.68	0.06	0.49	251.44
195.69	0.07	0.50	320.35
195.70	0.08	0.51	394.61
195.71	0.09	0.51	473.87
195.72	0.10	0.51	557.82
195.74	0.12	0.52	738.84
195.76	0.14	0.52	936.07
195.78	0.16	0.52	1148.27
195.80	0.18	0.53	1374.46
195.82	0.20	0.53	1613.81

TATHAM ENGINEERING

Manning's Equation Flow Calculations

Project Details	
Gateway Development	120119

Prepared By	
JN	12/3/2025

Manning's Equation: $$Q = \frac{1}{n} \cdot A \cdot R^{\frac{2}{3}} \cdot S^{\frac{1}{2}}$$

Where:

Q = flow (m^3/s)

n = Manning's roughness coefficient

A = area of flow (m^2)

R = hydraulic radius (m) equal to flow area divided by wetted perimeter

S = channel slope (m/m)

Emergency Overflow Outlet - Channel Capacity

Manning's n =	0.013		Area =	0.409	m^2
Slope =	0.033	m/m	Wetted Perimeter =	3.769	m
Right Side Slope =	3.0	:1 (H:V)	Hydraulic Radius =	0.109	m
Left Side Slope =	3.0	:1 (H:V)	Calculated Flow =	1.300	m^3/s
Depth =	0.122	m	Velocity =	3.179	m/s
Bottom Width =	3.00	m	Design Flow =	1.300	m^3/s

.

Appendix C: Conveyance Calculations

PROJECT	The Gateway Centre	FILE	120119
		DATE	May 21, 2024
SUBJECT	Culvert Calculations - Manning's Equation	NAME	JS
		PAGE	1 of 1

853 Hurontario Street Existing Driveway Culvert

Flow From External Catchments

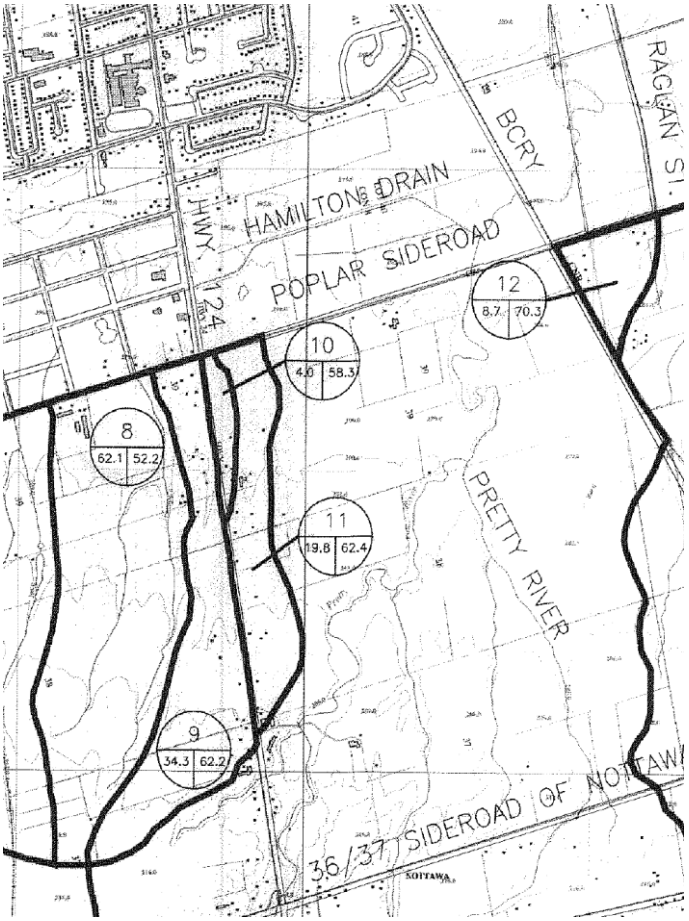
(from 109064-Collingwood Road Improvements)

CATCHMENT	100 YEAR PEAK FLOW CHI	SCS	
Ex. Catch. 10 =	0.10	0.16	cms
Ex. Catch. 11 =	0.43	0.43	cms
Catch. 202 =	0.095	0.100	cms
TOTAL	**0.625**	**0.690**	**cms**

Circular Pipe, Full Flow

Manning's n	0.022	
Slope (assumed min.)	0.005	m/m
Diameter	0.95	m
Area	0.709	m2
Perimeter	2.985	m
Hydraulic Radius	0.2375	m
Capacity	0.874	cms

$$Q = \frac{1}{n} \cdot A \cdot R^{2/3} \cdot S^{1/2}$$



Regional Flow	0.690	cms	<	Capacity	0.874	cms

Appendix D: Underground Storage System & OGS Details

Project: **Gateway Centre**

StormTech
Detention • Retention • Water Quality
A division of ADS

Chamber Model -	MC-3500	
Units -	**Metric**	Click Here for Imperial
Number of Chambers -	310	
Number of End Caps -	40	
Voids in the stone (porosity) -	40	%
Base of Stone Elevation -	193.70	m
Amount of Stone Above Chambers -	305	mm
Amount of Stone Below Chambers -	305	mm
Amount of Stone Between Chambers -	229	mm
	1550	sq.meters

☑ Include Perimeter Stone in Calculations

Min. Area - 1548.641 sq.meters

StormTech MC-3500 Cumulative Storage Volumes

Height of System *(mm)*	Incremental Single Chamber *(cubic meters)*	Incremental Single End Cap *(cubic meters)*	Incremental Chambers *(cubic meters)*	Incremental End Cap *(cubic meters)*	Incremental Stone *(cubic meters)*	Incremental Chamber, End Cap and Stone *(cubic meters)*	Cumulative System *(cubic meters)*	Elevation *(meters)*
1753	0.00	0.00	0.00	0.00	15.740	15.74	1675.32	195.45
1727	0.00	0.00	0.00	0.00	15.740	15.74	1659.58	195.42
1702	0.00	0.00	0.00	0.00	15.740	15.74	1643.84	195.40
1676	0.00	0.00	0.00	0.00	15.740	15.74	1628.10	195.37
1651	0.00	0.00	0.00	0.00	15.740	15.74	1612.36	195.35
1626	0.00	0.00	0.00	0.00	15.740	15.74	1596.62	195.32
1600	0.00	0.00	0.00	0.00	15.740	15.74	1580.88	195.30
1575	0.00	0.00	0.00	0.00	15.740	15.74	1565.14	195.27
1549	0.00	0.00	0.00	0.00	15.740	15.74	1549.40	195.24
1524	0.00	0.00	0.00	0.00	15.740	15.74	1533.66	195.22
1499	0.00	0.00	0.00	0.00	15.740	15.74	1517.92	195.19
1473	0.00	0.00	0.00	0.00	15.740	15.74	1502.18	195.17
1448	0.00	0.00	0.51	0.00	15.536	16.05	1486.44	195.14
1422	0.01	0.00	1.70	0.03	15.048	16.78	1470.39	195.12
1397	0.01	0.00	2.58	0.04	14.691	17.31	1453.61	195.09
1372	0.01	0.00	3.54	0.06	14.299	17.90	1436.30	195.07
1346	0.02	0.00	6.03	0.08	13.297	19.41	1418.40	195.04
1321	0.03	0.00	9.03	0.10	12.089	21.22	1398.99	195.02
1295	0.04	0.00	10.97	0.12	11.304	22.39	1377.78	194.99
1270	0.04	0.00	12.48	0.14	10.689	23.32	1355.38	194.97
1245	0.04	0.00	13.81	0.16	10.151	24.12	1332.07	194.94
1219	0.05	0.00	14.99	0.18	9.672	24.84	1307.94	194.91
1194	0.05	0.01	16.05	0.21	9.237	25.49	1283.10	194.89
1168	0.05	0.01	17.01	0.23	8.845	26.08	1257.61	194.86
1143	0.06	0.01	17.91	0.25	8.475	26.64	1231.52	194.84
1118	0.06	0.01	18.74	0.27	8.138	27.14	1204.89	194.81
1092	0.06	0.01	19.52	0.28	7.817	27.63	1177.74	194.79
1067	0.07	0.01	20.25	0.30	7.520	28.07	1150.12	194.76
1041	0.07	0.01	20.93	0.32	7.240	28.49	1122.05	194.74
1016	0.07	0.01	21.59	0.33	6.972	28.89	1093.56	194.71
991	0.07	0.01	22.19	0.35	6.723	29.27	1064.66	194.69
965	0.07	0.01	22.77	0.36	6.487	29.62	1035.40	194.66
940	0.08	0.01	23.32	0.38	6.262	29.96	1005.78	194.63
914	0.08	0.01	23.83	0.39	6.049	30.28	975.82	194.61
889	0.08	0.01	24.33	0.41	5.846	30.58	945.55	194.58
864	0.08	0.01	24.80	0.42	5.653	30.87	914.97	194.56
838	0.08	0.01	25.24	0.44	5.469	31.15	884.10	194.53
813	0.08	0.01	25.67	0.45	5.293	31.41	852.95	194.51
787	0.08	0.01	26.07	0.46	5.127	31.66	821.54	194.48
762	0.09	0.01	26.44	0.47	4.973	31.89	789.88	194.46
737	0.09	0.01	26.80	0.49	4.824	32.11	757.99	194.43
711	0.09	0.01	27.16	0.50	4.676	32.34	725.87	194.41
686	0.09	0.01	27.48	0.51	4.543	32.54	693.54	194.38
660	0.09	0.01	27.79	0.52	4.416	32.73	661.00	194.36
635	0.09	0.01	28.09	0.53	4.293	32.91	628.28	194.33
610	0.09	0.01	28.36	0.54	4.177	33.08	595.36	194.30

584	0.09	0.01	28.63	0.55	4.067	33.25	562.28	194.28
559	0.09	0.01	28.88	0.56	3.961	33.41	529.03	194.25
533	0.09	0.01	29.13	0.57	3.860	33.56	495.62	194.23
508	0.09	0.01	29.36	0.58	3.765	33.70	462.06	194.20
483	0.10	0.01	29.57	0.59	3.675	33.84	428.36	194.18
457	0.10	0.01	29.78	0.60	3.588	33.97	394.52	194.15
432	0.10	0.02	29.97	0.61	3.507	34.09	360.55	194.13
406	0.10	0.02	30.17	0.62	3.426	34.21	326.46	194.10
381	0.10	0.02	30.35	0.62	3.350	34.33	292.25	194.08
356	0.10	0.02	30.54	0.63	3.274	34.44	257.93	194.05
330	0.10	0.02	30.77	0.67	3.163	34.61	223.49	194.03
305	0.00	0.00	0.00	0.00	15.740	15.74	188.88	194.00
279	0.00	0.00	0.00	0.00	15.740	15.74	173.14	193.97
254	0.00	0.00	0.00	0.00	15.740	15.74	157.40	193.95
229	0.00	0.00	0.00	0.00	15.740	15.74	141.66	193.92
203	0.00	0.00	0.00	0.00	15.740	15.74	125.92	193.90
178	0.00	0.00	0.00	0.00	15.740	15.74	110.18	193.87
152	0.00	0.00	0.00	0.00	15.740	15.74	94.44	193.85
127	0.00	0.00	0.00	0.00	15.740	15.74	78.70	193.82
102	0.00	0.00	0.00	0.00	15.740	15.74	62.96	193.80
76	0.00	0.00	0.00	0.00	15.740	15.74	47.22	193.77
51	0.00	0.00	0.00	0.00	15.740	15.74	31.48	193.75
25	0.00	0.00	0.00	0.00	15.740	15.74	15.74	193.72

StormTech® MC-3500 Chamber

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots, thus maximizing land usage for private (commercial) and public applications. StormTech chambers can also be used in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.

Nominal Chamber Specifications
(not to scale)

Size (L x W x H)
90” x 77” x 45”
2286 mm x 1956 mm x 1143 mm

Chamber Storage
109.9 ft³ (3.11 m³)

Min. Installed Storage*
175.0 ft³ (4.96 m³)

Weight
134 lbs (60.8 kg)

Shipping
15 chambers/pallet
7 end caps/pallet
7 pallets/truck

*Assumes a minimum of 12” (300 mm) of stone above, 9” (230 mm) of stone below chambers, 6” (150 mm) of stone between chambers/ end caps and 40% stone porosity.

Nominal End Cap Specifications
(not to scale)

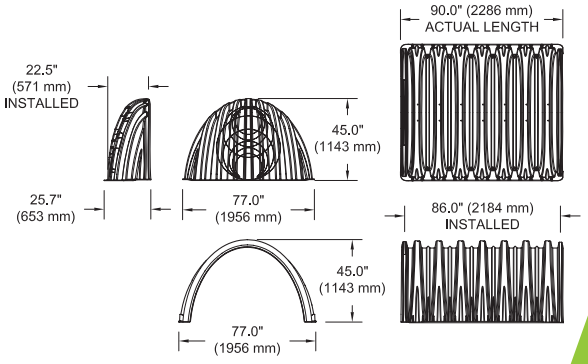
Size (L x W x H)
26.5” x 71” x 45.1”
673 mm x 1803 mm x 1145 mm

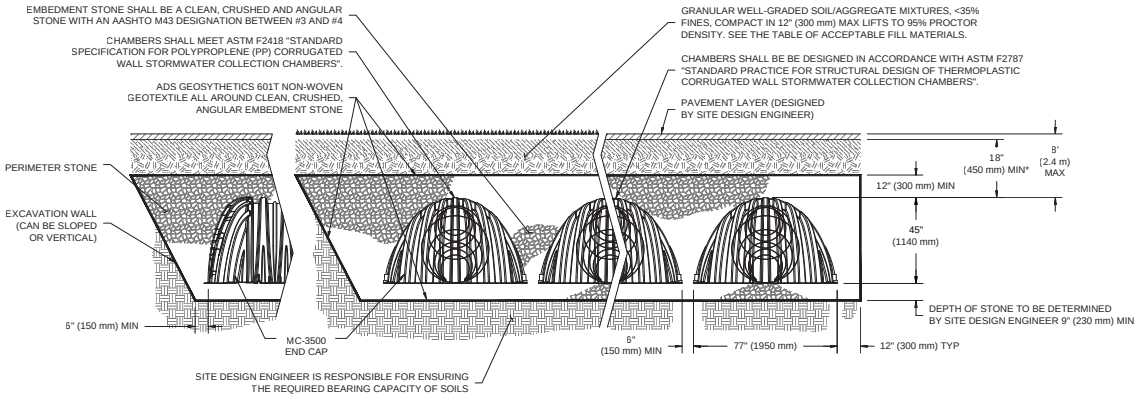
End Cap Storage
14.9 ft³ (0.42 m³)

Min. Installed Storage*
45.1 ft³ (1.28 m³)

Weight
49 lbs (22.2 kg)

*Assumes a minimum of 12” (300 mm) of stone above, 9” (230 mm) of stone below, 6” (150 mm) of stone perimeter, 6” (150 mm) of stone between chambers/ end caps and 40% stone porosity.





*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 24" (600 mm).

ADS StormTech™

StormTech MC-3500 Specifications

Storage Volume Per Chamber

	Bare Chamber Storage ft³ (m³)	Chamber and Stone Foundation Depth in. (mm)			
		9 in (230 mm)	12 in (300 mm)	15 in (375 mm)	18 in (450 mm)
Chamber	109.9 (3.11)	175.0 (4.96)	179.9 (5.09)	184.9 (5.24)	189.9 (5.38)
End Cap	14.9 (0.42)	45.1 (1.28)	46.6 (1.32)	48.3 (1.37)	49.9 (1.41)

Note: Assumes 6" (150 mm) row spacing, 40% stone porosity, 12" (300 mm) stone above and includes the bare chamber/end cap volume.

Amount of Stone Per Chamber

English Tons (yds³)	Stone Foundation Depth			
	9 in	12 in	15 in	18 in
Chamber	8.5 (6.0)	9.1 (6.5)	9.7 (6.9)	10.4 (7.4)
End Cap	3.9 (2.8)	4.1 (2.9)	4.3 (3.1)	4.5 (3.2)
Metric Kilograms (m³)	**230 mm**	**300 mm**	**375 mm**	**450 mm**
Chamber	7711 (4.6)	8255 (5.0)	8800 (5.3)	9435 (5.7)
End Cap	3538 (2.1)	3719 (2.2)	3901 (2.4)	4082 (2.5)

Note: Assumes 12" (300 mm) of stone above and 6" (150 mm) row spacing and 6" (150 mm) of perimeter stone in front of end caps.

Volume Excavation Per Chamber yd³ (m³)

	Stone Foundation Depth			
	9 in (230 mm)	12 in (300 mm)	15 in (375mm)	18 in (450 mm)
Chamber	11.9 (9.1)	12.4 (9.5)	12.8 (9.8)	13.3 (10.2)
End Cap	4.0 (3.1)	4.1 (3.3)	4.3 (3.3)	4.4 (3.4)

Note: Assumes 6" (150 mm) of separation between chamber rows and 24" (600 mm) of cover. The volume of excavation will vary as depth of cover increases.

ADS StormTech products, manufactured in accordance with ASTM F2418 or ASTMF2922, comply with all requirements in the Build America, Buy America (BABA) Act.

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Hydroworks Sizing Summary

The Gateway Centre
Collingwood, ON

06-24-2025

Recommended Size: HydroStorm HS 10

Hydroworks Sizing Program Version 5.8.5

A HydroStorm HS 10 is recommended to provide 80 % annual TSS removal based on a drainage area of 2.752 (ha) with an imperviousness of 93 % and Collingwood, Ontario rainfall for the 20 um to 2000 um particle size distribution.

The recommended HydroStorm HS 10 treats 99 % of the annual runoff and provides 84 % annual TSS removal for the Collingwood rainfall records and 20 um to 2000 um particle size distribution.

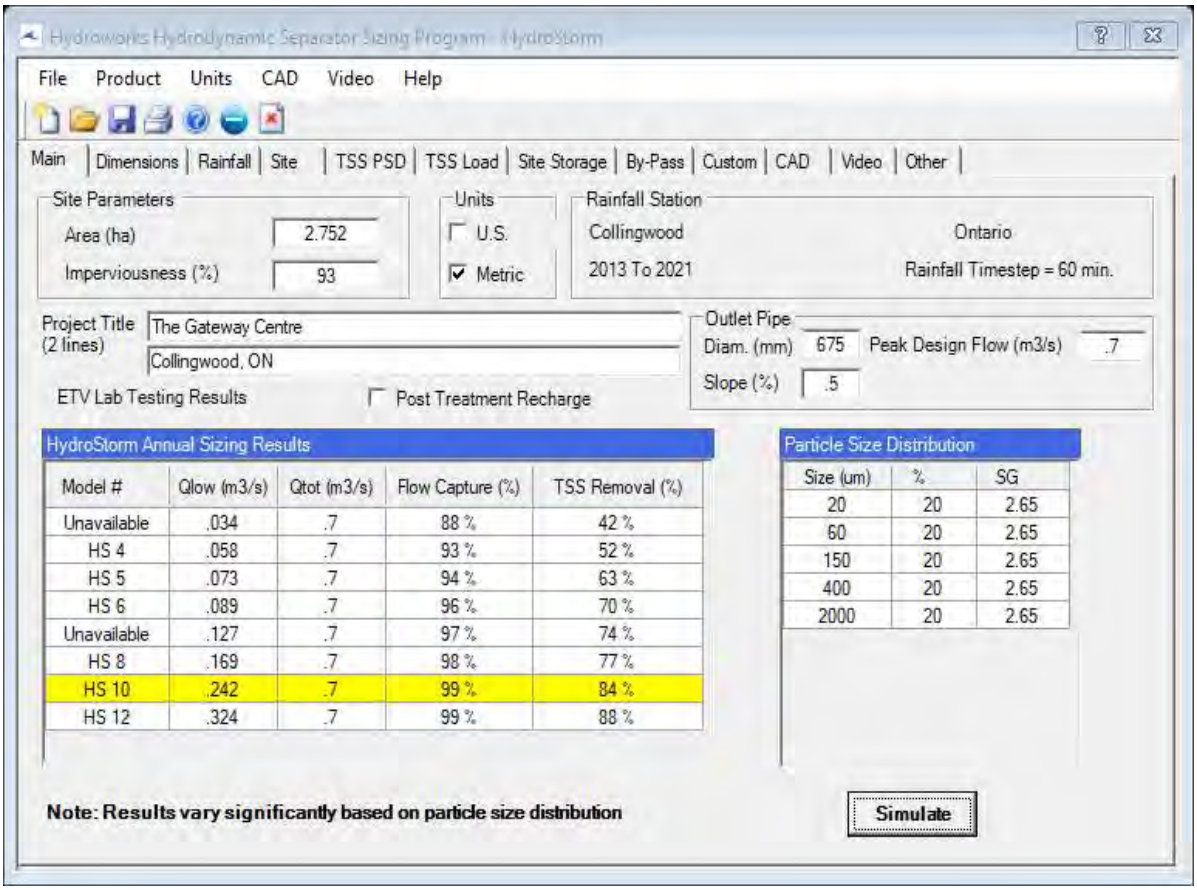
The HydroStorm has a headloss coefficient (K) of 1.04. The given peak flow of .7 (m3/s) Is greater than the full pipe flow of .59 (m3/s) indicating the pipe will be surcharged during the peak flow. Full pipe flow was assumed For the headloss calculations. The pressure head in the pipe was Not evaluated since this would require a hydraulic gradeline analysis. The headloss was calculated to be 203 (mm) based on a flow depth of 675 (mm) (full pipe flow).

This summary report provides the main parameters that were used for sizing. These parameters are shown on the summary tables and graphs provided in this report.

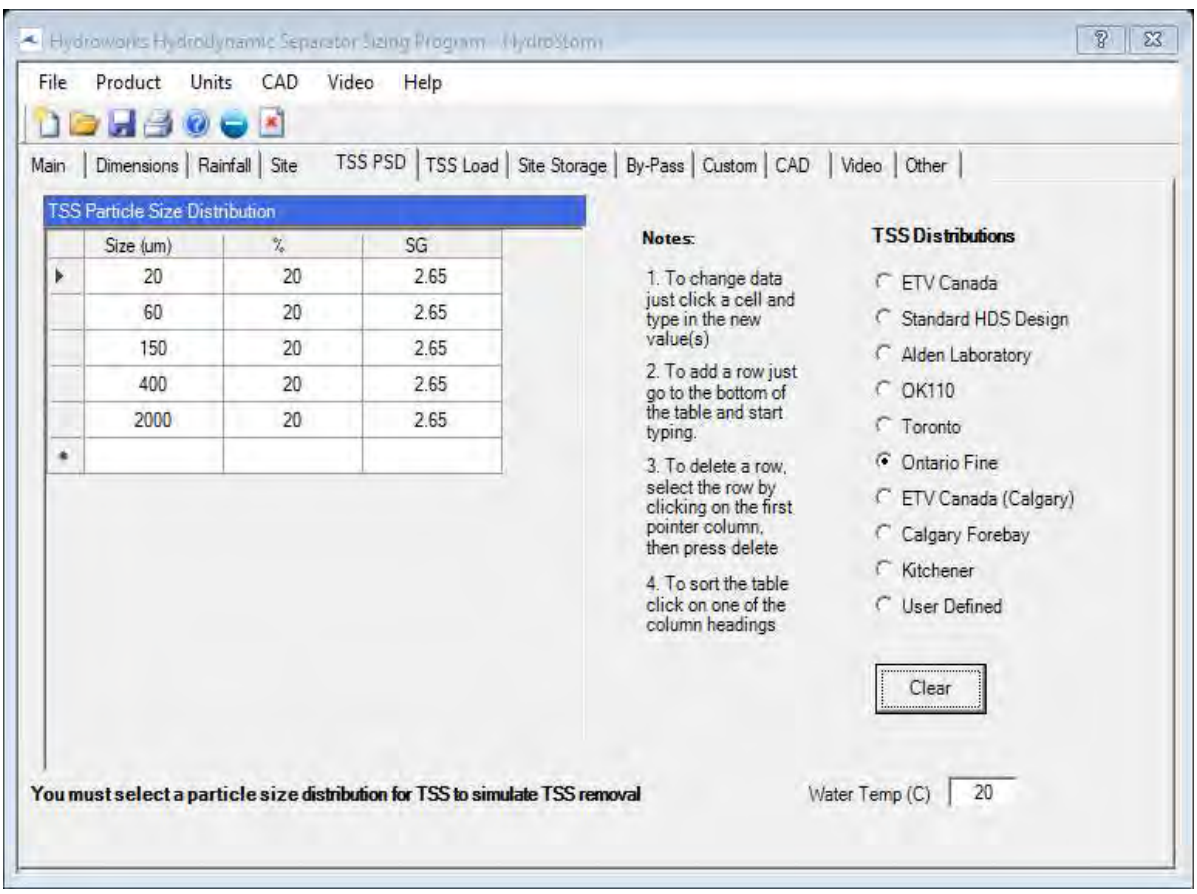
If you have any questions regarding this sizing summary please do not hesitate to contact Hydroworks at 888-290-7900 or email us at support@hydroworks.com.

The sizing program is for sizing purposes only and does not address any site specific parameters such as hydraulic gradeline, tailwater submergence, groundwater, soils bearing capacity, etc. Headloss calculations are not a hydraulic gradeline calculation since this requires a starting water level and an analysis of the entire system downstream of the HydroStorm .

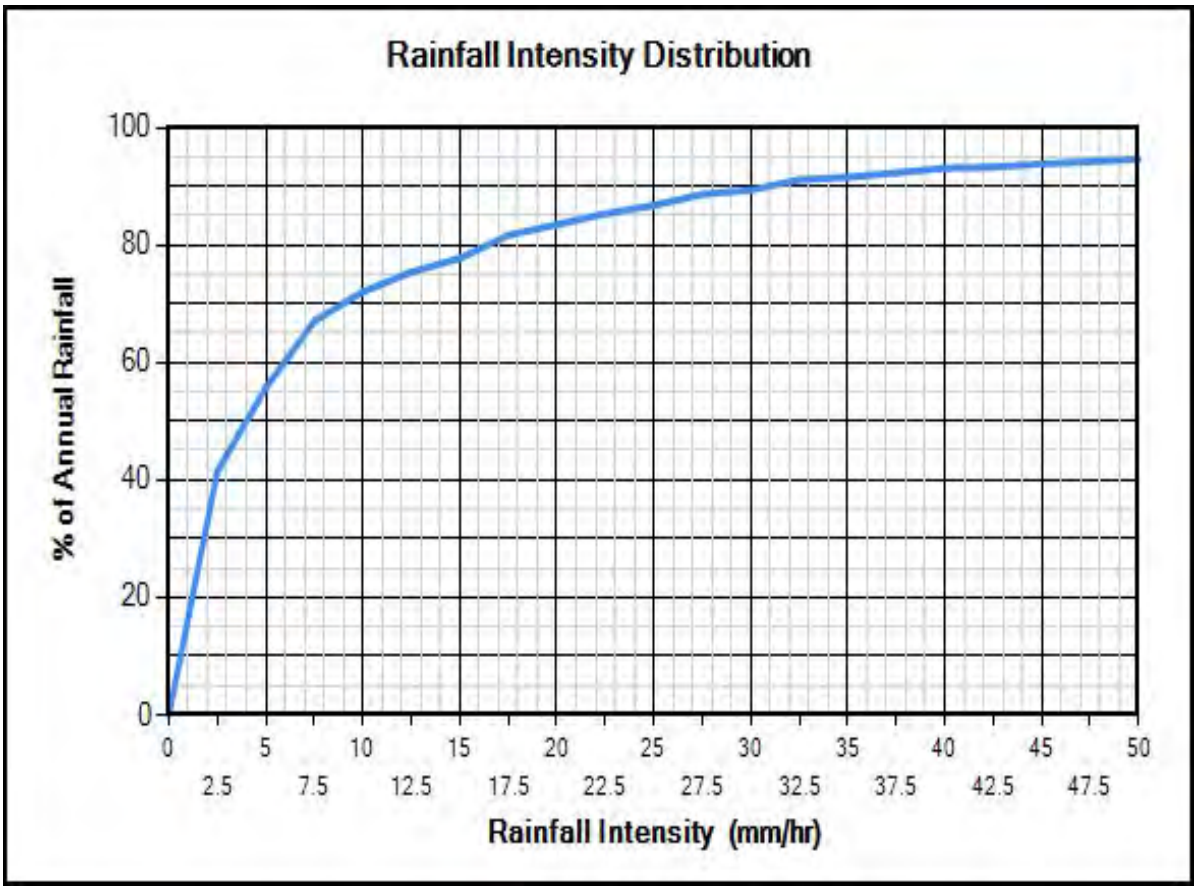
TSS Removal Sizing Summary



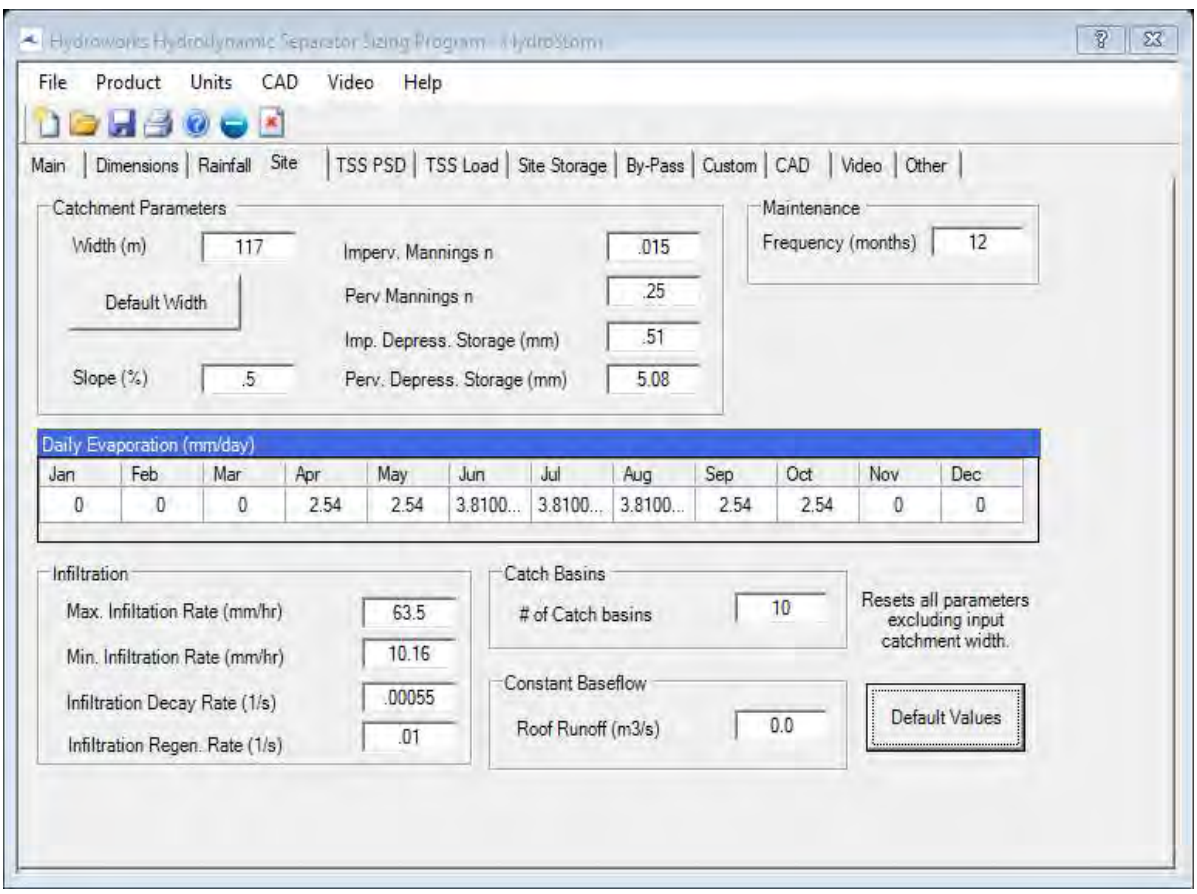
TSS Particle Size Distribution



Rainfall Station - Collingwood, Ontario(2013 To 2021)



Site Physical Characteristics



Dimensions And Capacities

Hydroworks Hydrodynamic Separator Sizing Program - HydroStorm

File Product Units CAD Video Help

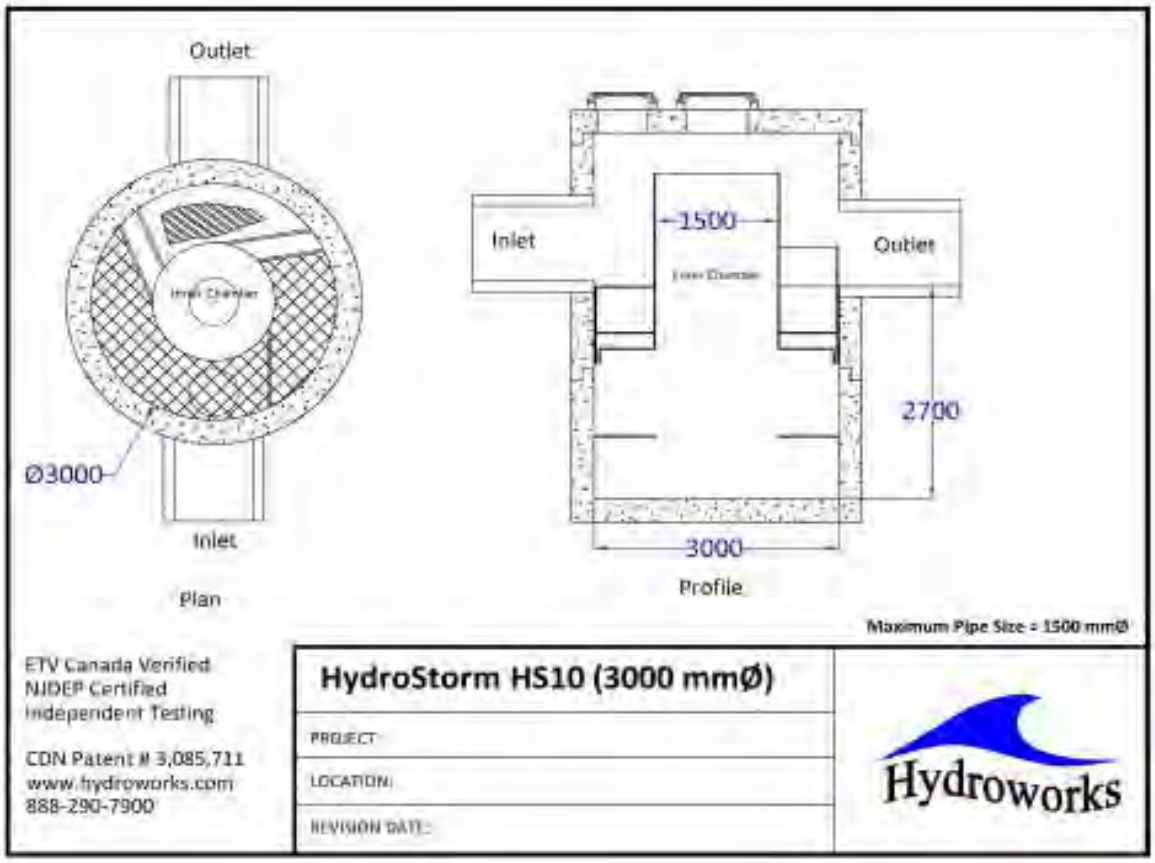
Main | Dimensions | Rainfall | Site | TSS PSD | TSS Load | Site Storage | By-Pass | Custom | CAD | Video | Other

Dimensions and Capacities

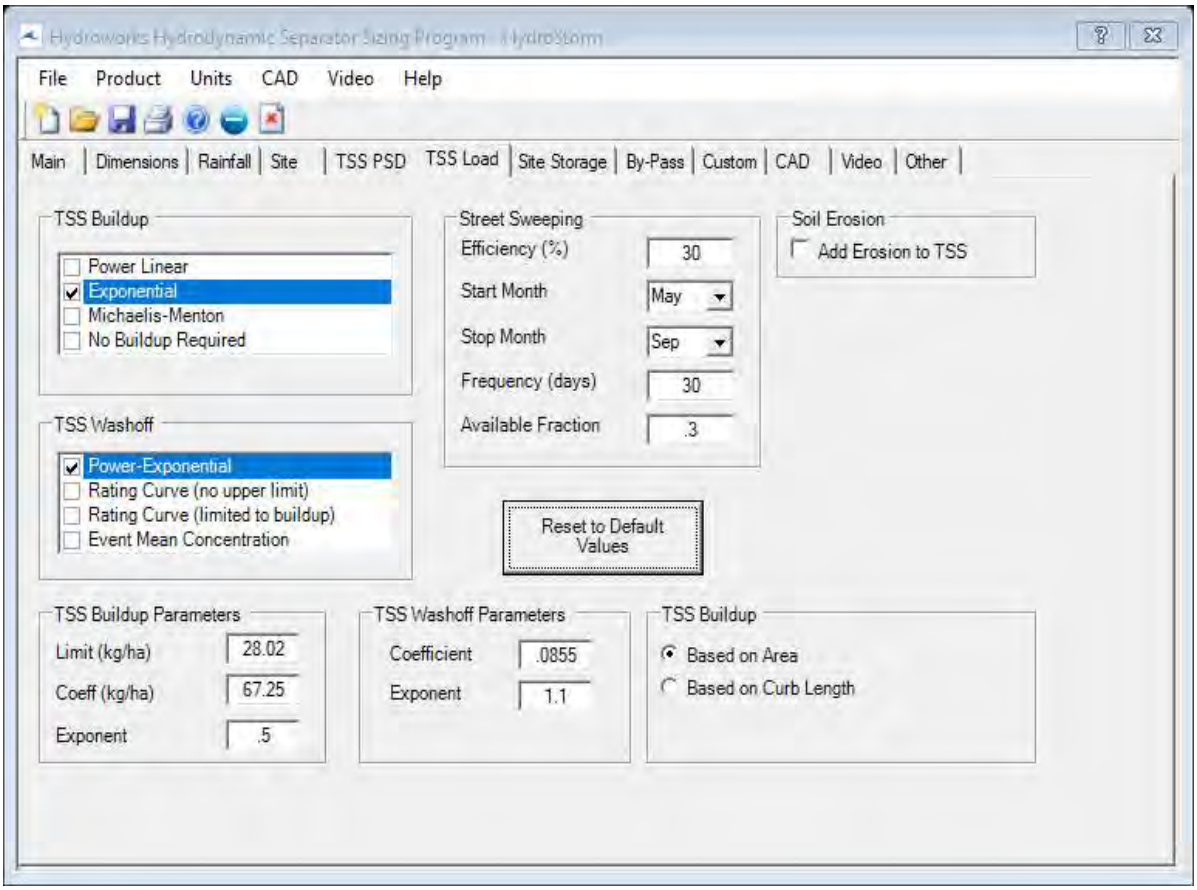
Model	Diam. (m)	Depth (m)	Float. Vol. (L)	Sediment Vol. (m3)	Total Vol. (m3)
Unavailable	0.91	1.07	185	0.4	0.7
HS 4	1.22	1.22	381	0.9	1.4
HS 5	1.52	1.52	642	1.8	2.8
HS 6	1.83	1.83	1041	3.2	4.8
HS 7	2.13	1.98	1576	4.6	7.1
HS 8	2.44	2.13	2354	6.3	10
HS 10	3.05	2.74	4328	13.2	20
HS 12	3.66	3.35	7166	23.8	35.2

Depth = Depth from outlet invert to inside bottom of tank

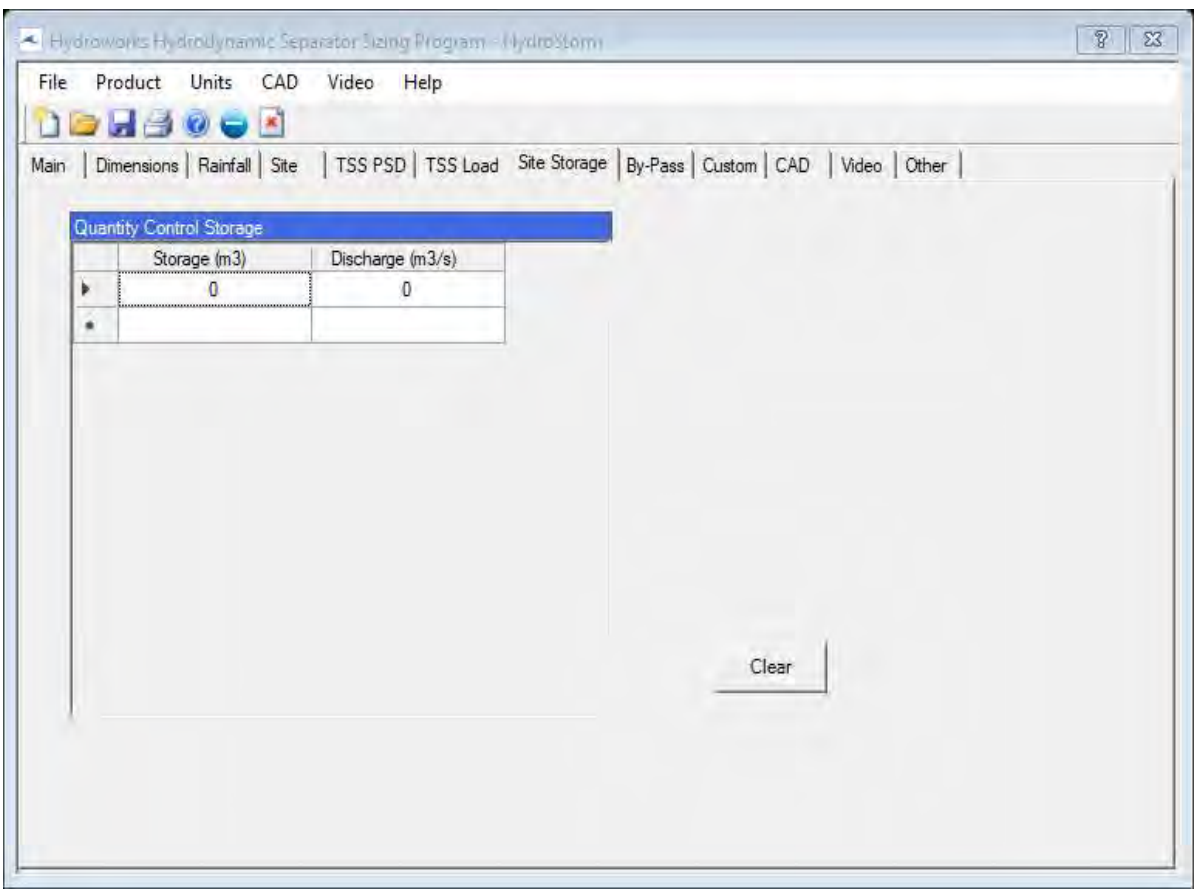
Generic HS 10 CAD Drawing



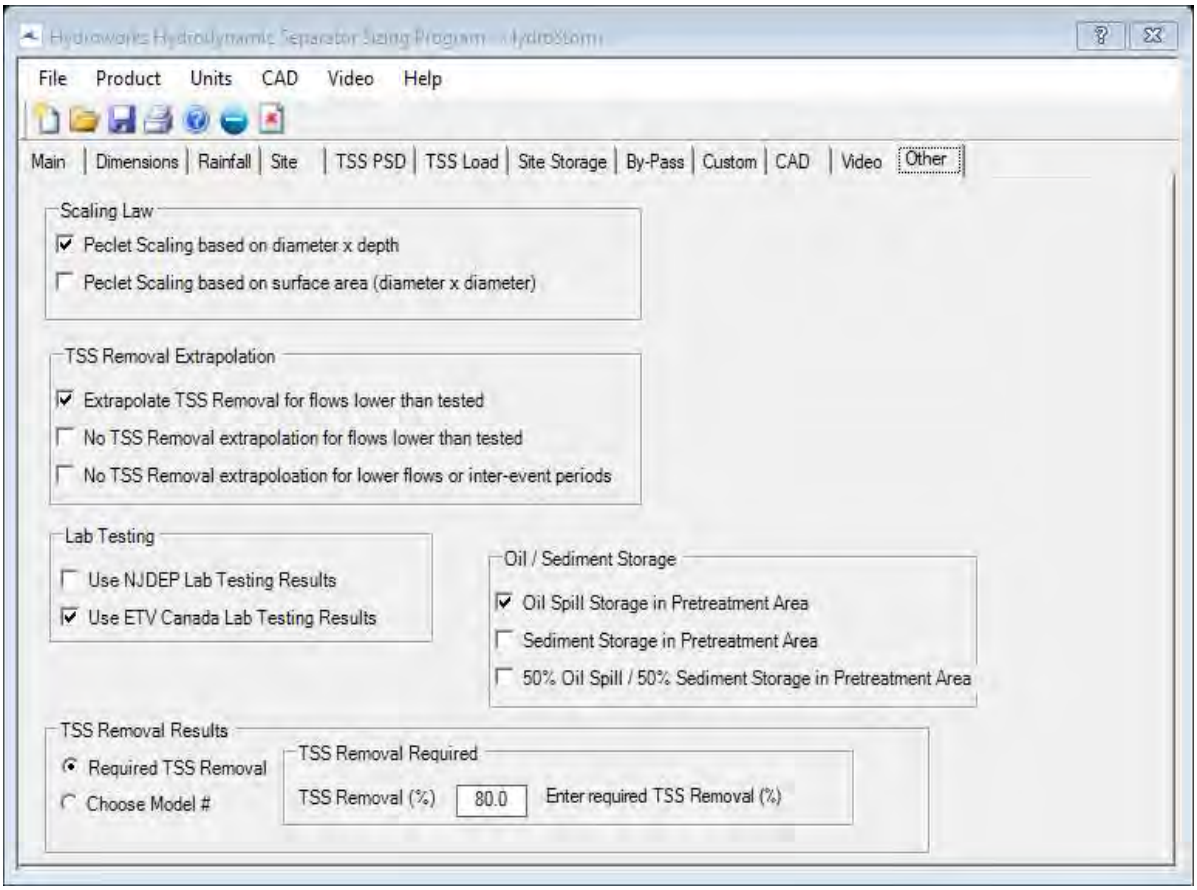
TSS Buildup And Washoff



Upstream Quantity Storage



Other Parameters



Flagged Issues

None

Hydroworks Sizing Program - Version 5.8.5
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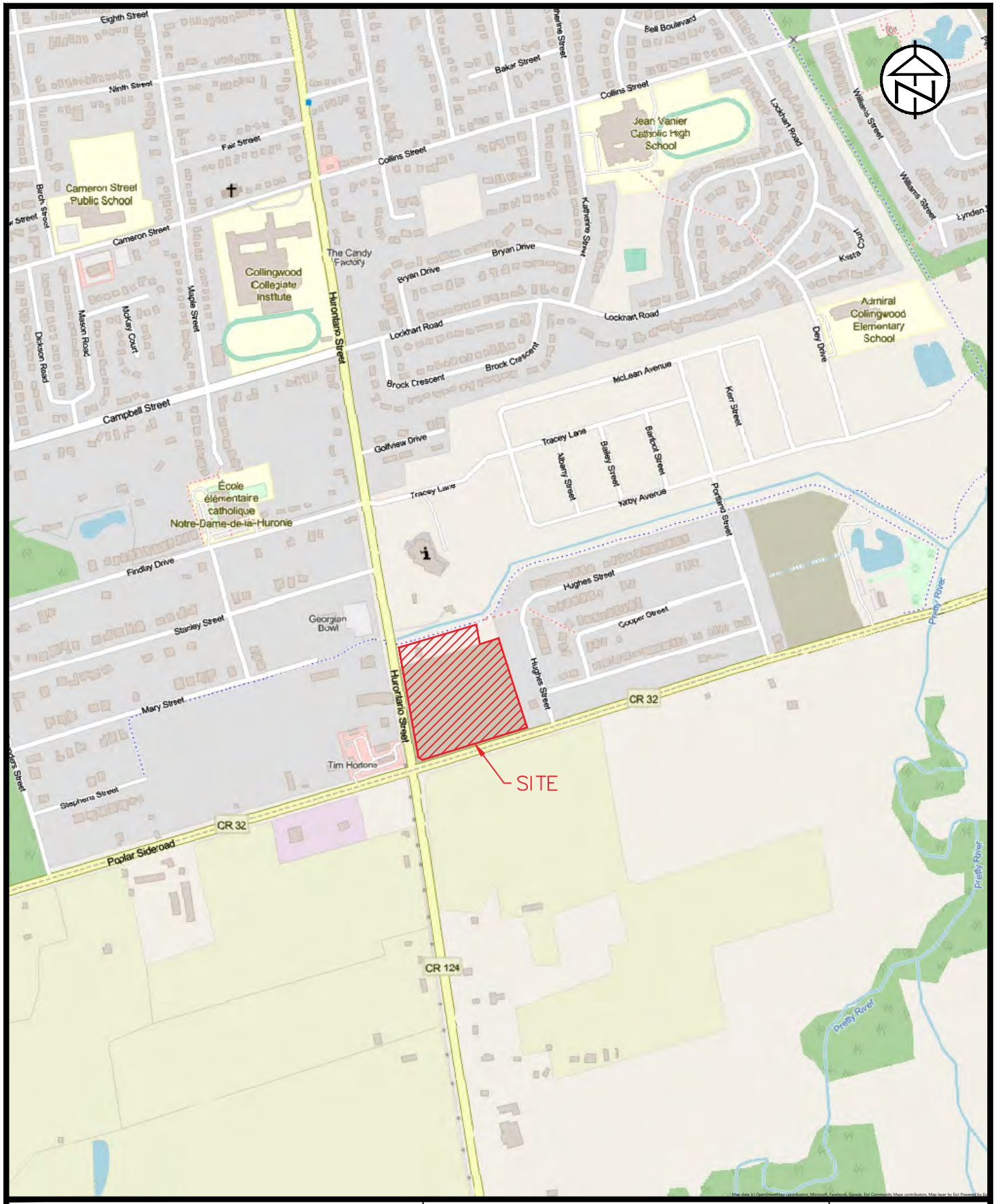
www.hydroworks.com



TATHAM ENGINEERING

THE GATEWAY CENTRE

KEYPLAN

DWG. No. **FIG. 1**

SCALE: NTS	DRAWN: KH	DATE: JUN 2025	JOB NO. 120119

Drawing Name: 120119–FIG01.dwg, Plotted: Jun 27, 2025

KEY PLAN

LEGEND

- AREA BOUNDARY
- AREA IDENTIFICATION NUMBER — 101
- AREA IN HECTARES — 1.40
- PERCENT IMPERVIOUS/CN VALUE — 53.2
- EXISTING MAJOR OVERLAND FLOW DIRECTION
- EXISTING SWALE FLOW DIRECTION

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ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM BENCH MARK NO. 0011965U9504 HAVING A PUBLISHED ELEVATION OF 177.873 METRES.

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No.	REVISION DESCRIPTION	DATE
1.	FOR CIRCULATION	JUN 2025

ENGINEER STAMP

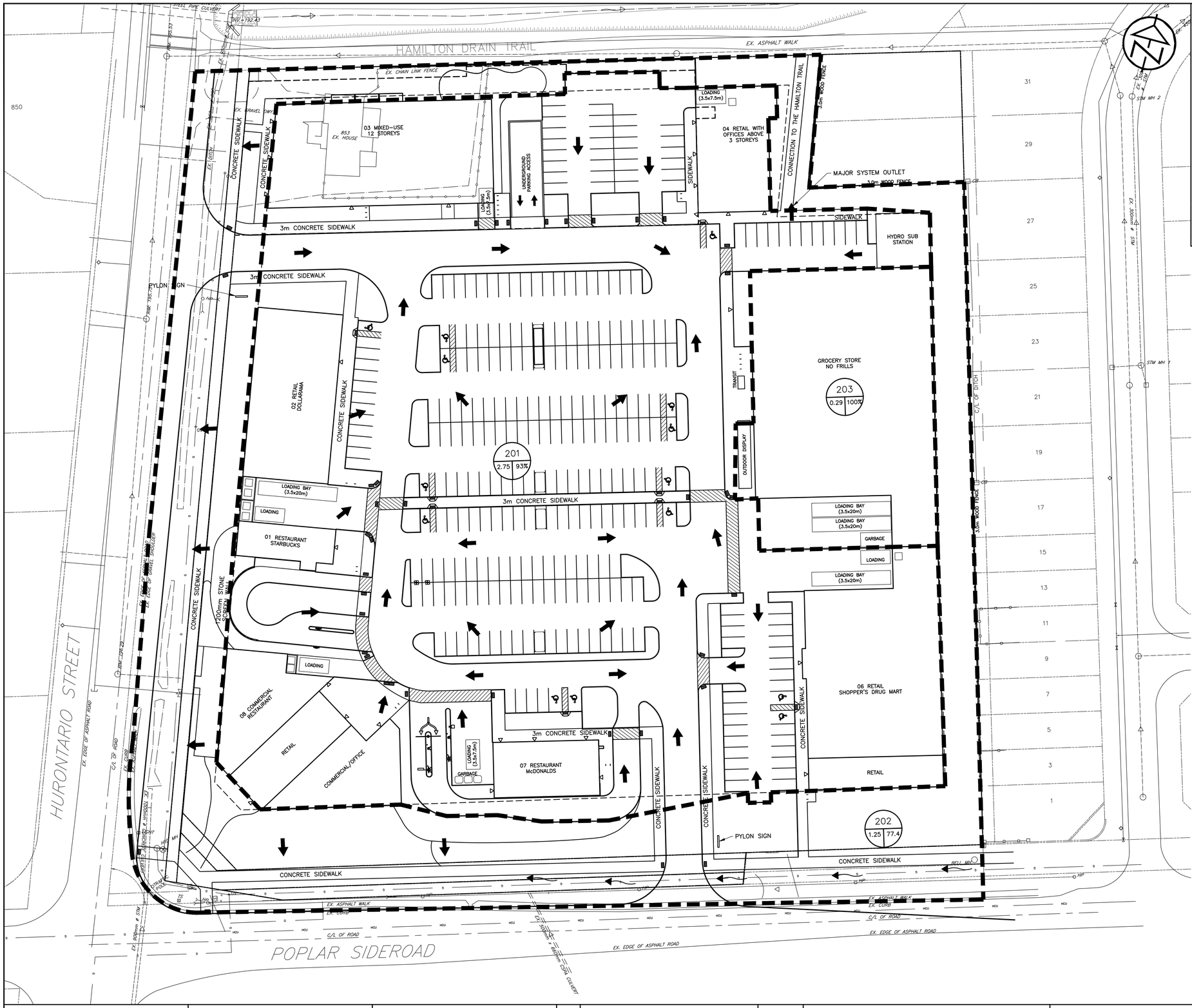
THE GATEWAY CENTRE
COLLINGWOOD, ON

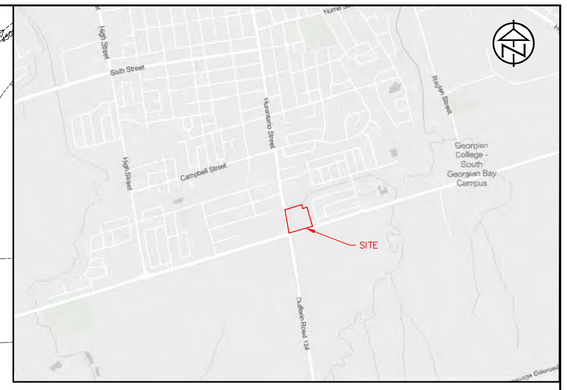
PRE-DEVELOPMENT DRAINAGE PLAN

TATHAM ENGINEERING

DESIGN: AS	FILE: 120119	DWG:
DRAWN: KH	DATE: MAY 2025	**DP.1**
CHECK: JPA/RS	SCALE: 1:500	

Drawing Name: 120119 – DP01.dwg, Plotted: Dec 16, 2025





KEY PLAN

LEGEND

- AREA BOUNDARY
- AREA IDENTIFICATION NUMBER — 201
- AREA IN HECTARES — 1.40
- CN VALUE/PERCENT IMPERVIOUS — 65%
- PROPOSED MAJOR OVERLAND FLOW DIRECTION
- PROPOSED SWALE FLOW DIRECTION

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No.	REVISION DESCRIPTION	DATE
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ENGINEER STAMP

THE GATEWAY CENTRE
COLLINGWOOD, ON

TATHAM ENGINEERING

POST–DEVELOPMENT DRAINAGE PLAN

DESIGN: AS	FILE: 120119	DWG: DP.2
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CHECK: JPA/RS	SCALE: 1:500	

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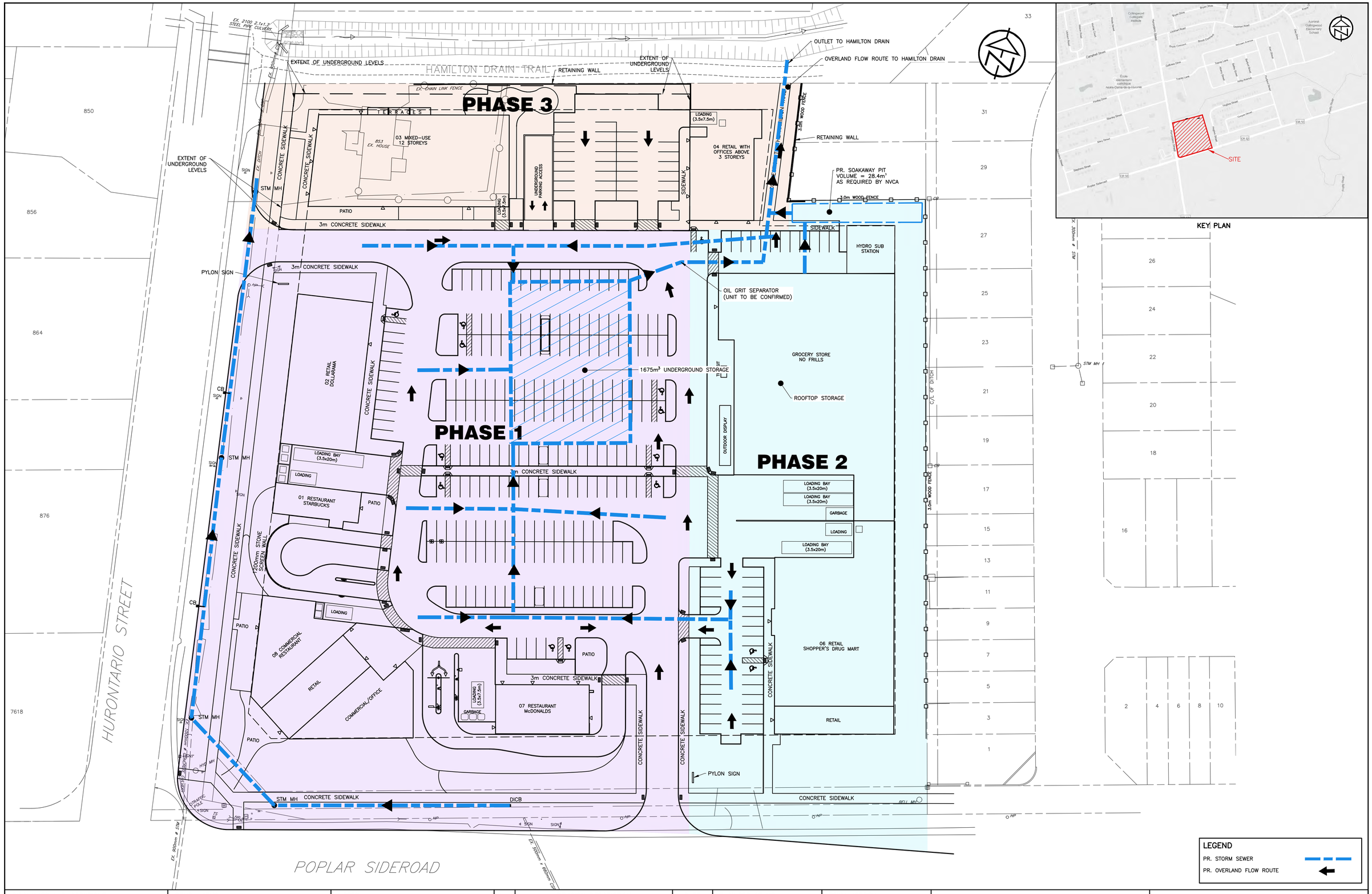

LEGEND

PR. STORM SEWER

PR. OVERLAND FLOW ROUTE

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No.	REVISION DESCRIPTION	DATE
1.	FOR CIRCULATION	JUN 2025

ENGINEER STAMP

TOWN APPROVAL

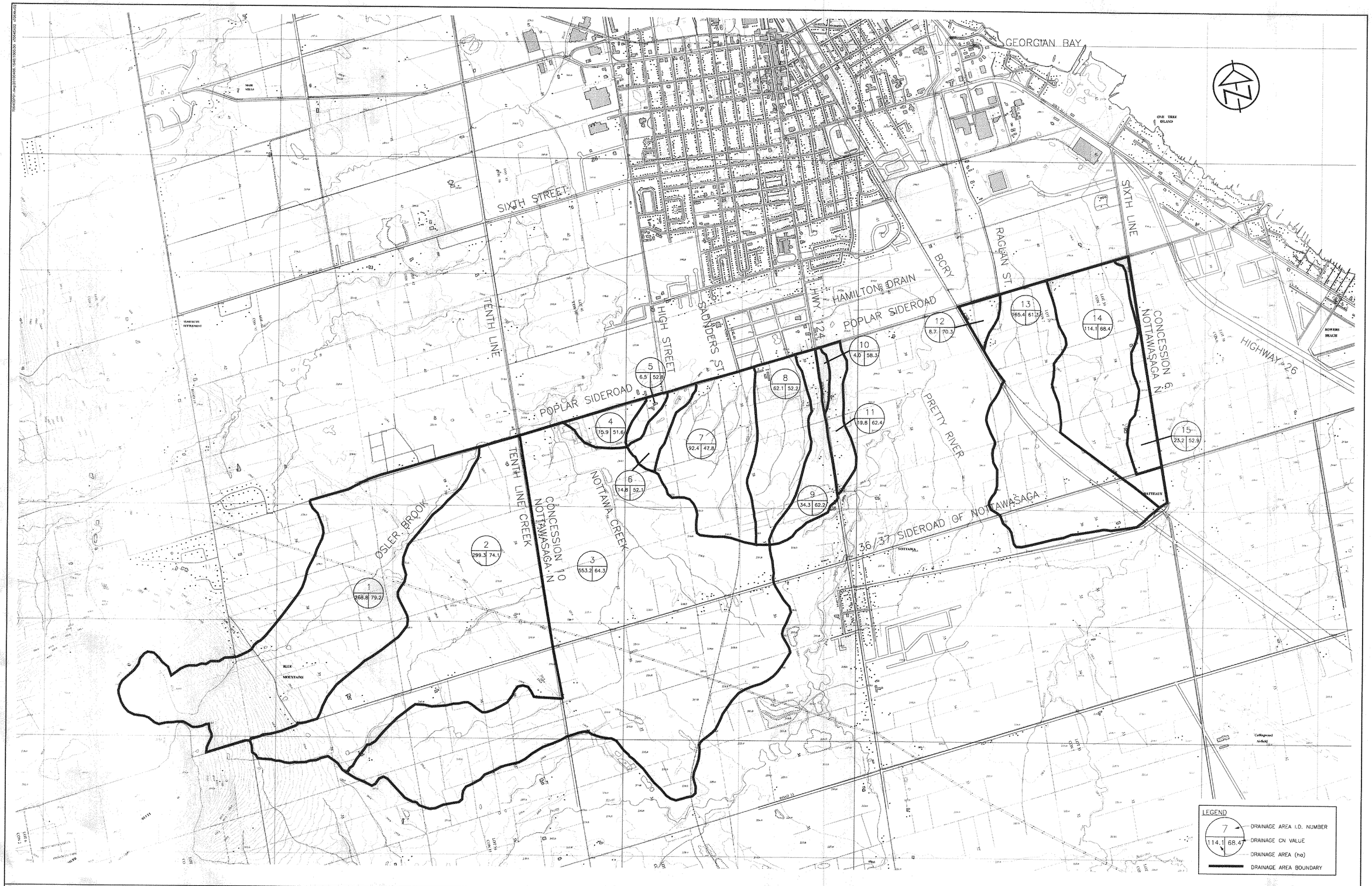
THE GATEWAY CENTRE
COLLINGWOOD, ON

TATHAM ENGINEERING

STORM LAYOUT PLAN

DESIGN: AS	FILE: 120119	DWG: **STM.1**
DRAWN: KH	DATE: MAY 2025	
CHECK: JPA/RS	SCALE: 1:500	

Drawing Name: 120119-FSR FIGURES.dwg, Plotted: Dec 16, 2025



LEGEND

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NO.	REVISIONS	DATE	INITIAL

APPROVED

MICHAEL DAVID JOHN LEGAL, PROVINCE OF ONTARIO, D.B.W. TRIGGER, 100437-42, Apr. 9/2010

TOWN OF COLLINGWOOD
RECONSTRUCTION OF POPLAR SIDEROAD

OVERALL DRAINAGE PLAN

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie

SCALE: 1:15,000		JOB NO. 109064-2	
DESIGN: DRT	CHECKED: DJH	DWG.	ODP-1
DRAWN: DEP	DATE: FEB/2010		