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The Gateway Centre

PRELIMINARY STORMWATER MANAGEMENT REPORT

Charis Developments

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Issue	Date	Description
1	April 6, 2022	OPA/ZBA 1 st Submission
2	September 16, 2024	Revised Site Plan

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Drawings

Richard Ziegler Architect Inc.

A101: Site Plan – Option C

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



1 Introduction

Tatham Engineering has prepared this Preliminary Stormwater Management (SWM) Report in support of the zoning by-law amendment and official plan amendment application for a proposed development located 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 (2007); 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 and 869 Hurontario Street (March 2022) by G2S Consulting Inc.;*
- *Additional Geotechnical Investigation - 839, 853 and 869 Hurontario Street & 7564 Poplar Sideroad (September 2024) by G2S Consulting Inc.;*
- *Draft Hydrogeological Investigation - 839 and 869 Hurontario Street (May 2022) by G2S Consulting Inc.;*
- *Hydrogeological Investigation - 839, 853 and 869 Hurontario Street & 7564 Poplar Sideroad (September 2024) by G2S Consulting Inc.;*
- *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.

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 mainly vacant, and primarily grass covered with a vegetated fill pad in the center portion of the site. 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 March 2022 and an additional investigation was completed dated September 2024. 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 three phases, as summarized below.

Phase 1

- Building 1 – Starbucks
- Building 2 – Dollarama
- Building 7 – McDonald's



- 210 parking Spaces (including 11 barrier free spaces and 4 electric charging stations)

Phase 2

- Building 5 – Grocery Store
- Building 6 – Retail/Pet Valu
- 40 parking spaces (including 1 barrier free space)
- 2 loading bays

Phase 3

- Building 3 – 12-storey mixed-used building including 165 two-bedroom apartment units, rooftop amenity space and commercial area
- Building 4 – Retail building with offices above
- 38 parking spaces
- 207 underground parking spaces (including 6 barrier free spaces)



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%. Stormwater in low areas in the northwest and northeast corners of the site before outletting north into the Hamilton Drain via overland flow. The remainder of the site flow 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 borders 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 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 is a combination of roof top storage on the grocery store and an underground storage system as the end-of-pipe quantity control with an isolator row and an oil and grit separator (OGS) downstream of the storage system to provide water quality treatment for the parking lot runoff before it discharges into the Hamilton Drain.

Most of the runoff generated by the site (Catchments 201 and 203) 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. The underground storage system design details are included in Appendix B.



Rooftop stormwater collected by the grocery store will be retained via ten 2-notch Zurn Z-105 Control-Flo roof drains prior to discharging into the internal storm sewer network upstream of the underground storage control structure. The maximum allowable rooftop storage depth is 102 mm.

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 and their associated parking lots, except for the grocery store. The entire catchment drains to the underground storage system via a network of storm sewers and catchbasins.
- 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. The catchment will drain at a controlled rate 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 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 300 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 101 & 102 CHICAGO DESIGN STORM (m ³ /s)	CATCHMENTS 101 & 102 SCS 24-HOUR STORM (m ³ /s)
25 mm	0.022 (0.023)	-
2-year	0.024 (0.029)	0.067 (0.087)
5-year	0.055 (0.057)	0.123 (0.150)
10-year	0.079 (0.079)	0.154 (0.196)
25-year	0.109 (0.112)	0.194 (0.260)
50-year	0.129 (0.139)	0.225 (0.310)
100-year	0.149 (0.167)	0.257 (0.361)
Timmins	0.273 (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 1119 m³ and 1633 m³ respectively. The system provides 1675 m³ of storage. The storage volume required for the Timmins storm (1781 m³) 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	500	0.013	194.22	-	-	-
2-year	645	0.018	194.39	758	0.040	194.46
5-year	755	0.039	194.43	968	0.078	194.60
10-year	828	0.054	194.48	1119	0.097	194.73
25-year	935	0.074	194.57	1328	0.120	194.93
50-year	1026	0.086	194.65	1483	0.139	195.14
100-year	1119	0.097	194.73	1633	0.159	195.38
Timmins	1675	0.181	195.45	-	-	-

1. Maximum available underground storage volume is 1675 m³

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 invert of 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 90 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.

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;
- 10 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	75	17	-	-
2-year	85	19	119	27
5-year	114	26	158	36
10-year	133	30	184	42
25-year	158	36	217	49
50-year	177	40	241	55
100-year	195	44	265	60
Timmins	331	75	-	-

1. Maximum allowable depth of 102 mm



4.3.3 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 convey runoff overland safely which will outlet to the Hamilton Drain. Ponding in the parking lot will occur to a maximum depth of 300 mm prior to discharging into the Hamilton Drain. The proposed drainage patterns are illustrated in DP.2 – Post-Development Drainage Plan.

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 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 81% 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.

4.5 GROUNDWATER

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.



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.

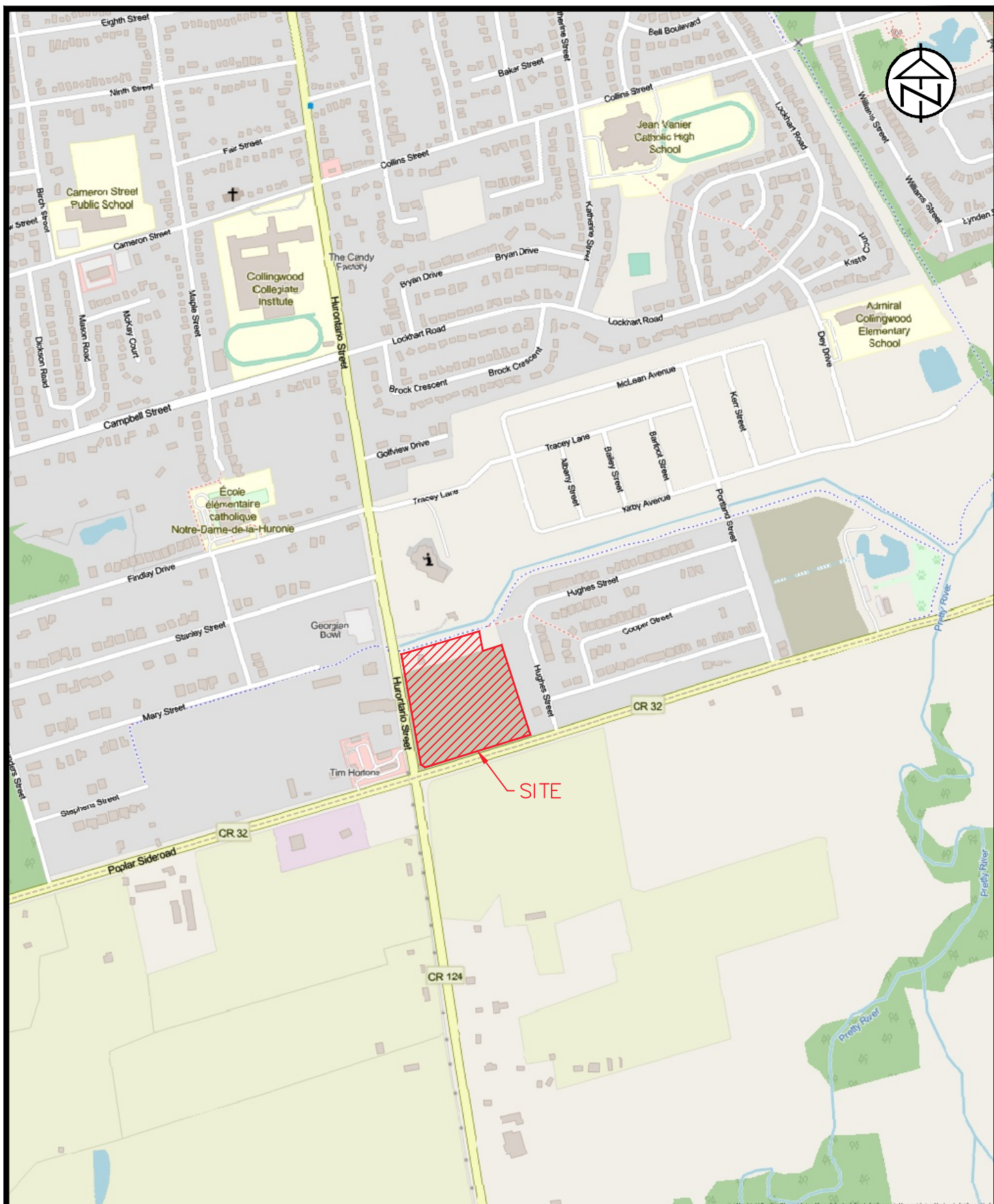


6 Summary

The proposed commercial development will consist of 7 buildings constructed over 3 phases. Stormwater runoff will be directed via an internal storm sewer to a proposed underground storage facility to provide quantity control for the site. Roof top storage on the grocery store building will provide additional quantity control. Water quality control will be provided by an OGS system downstream of the underground storage facility. 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.



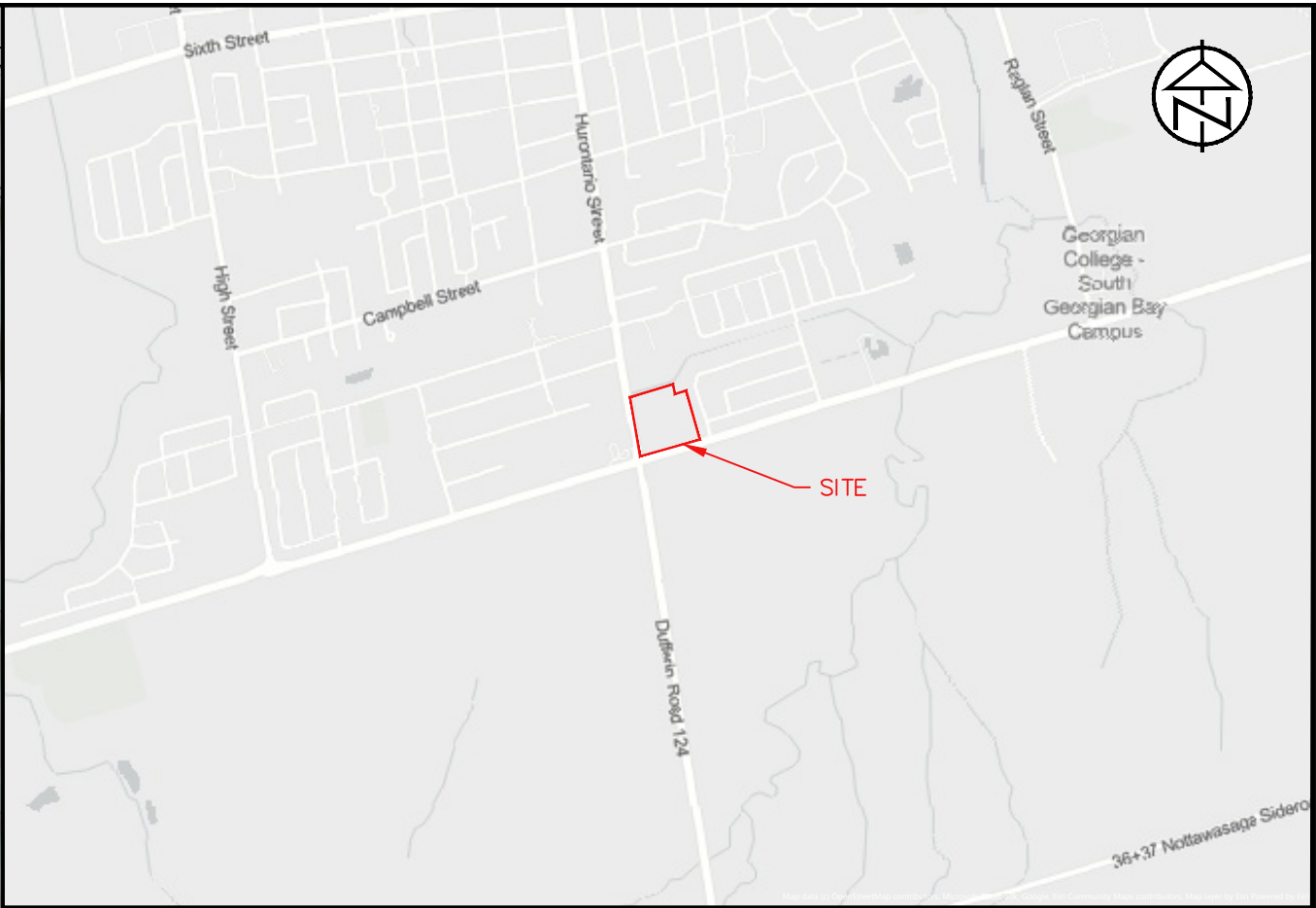


THE GATEWAY CENTRE KEYPLAN

DWG. No.

FIG. 1

SCALE: NTS	DRAWN: KH	DATE: SEP 2024	JOB NO. 120119
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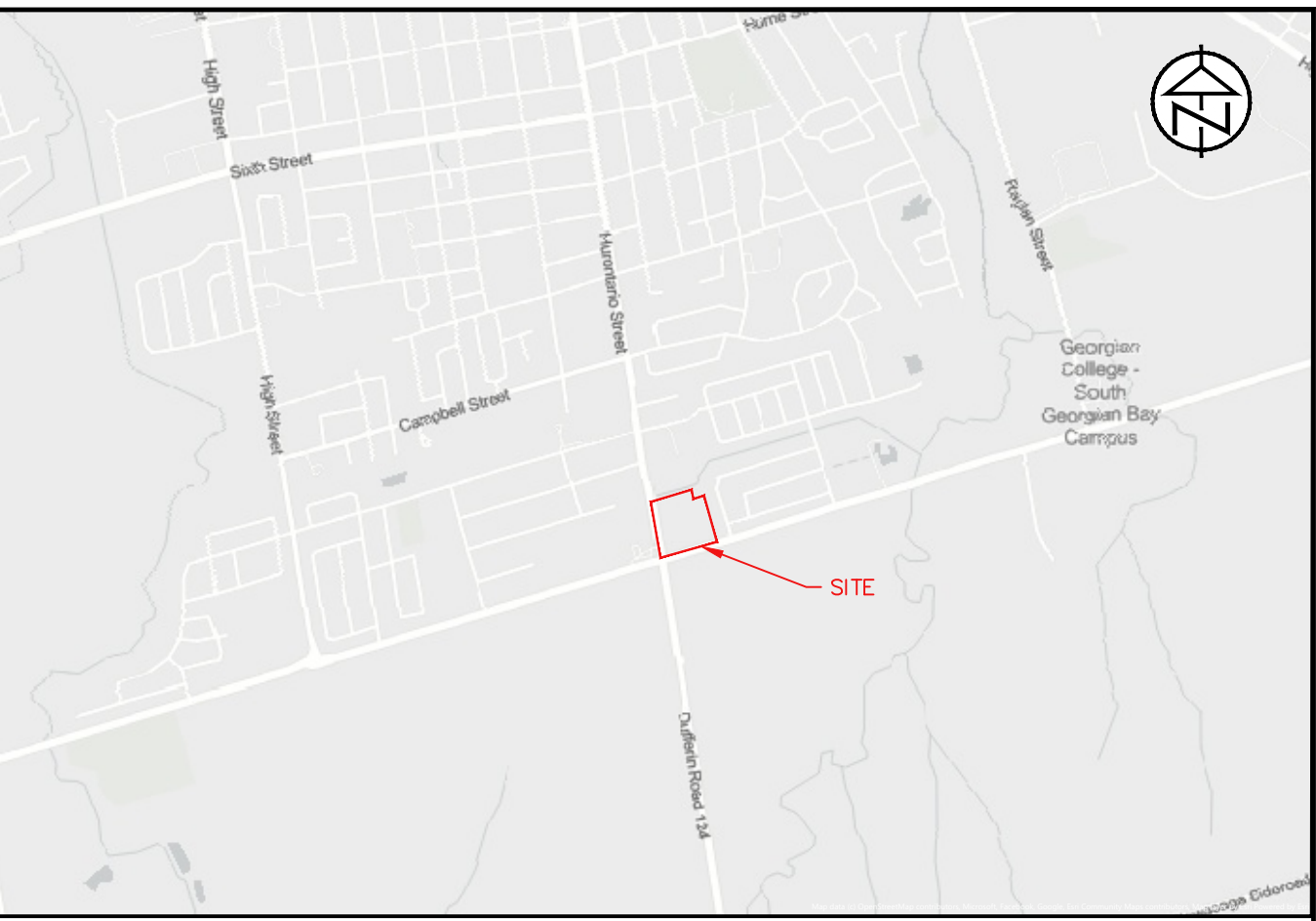
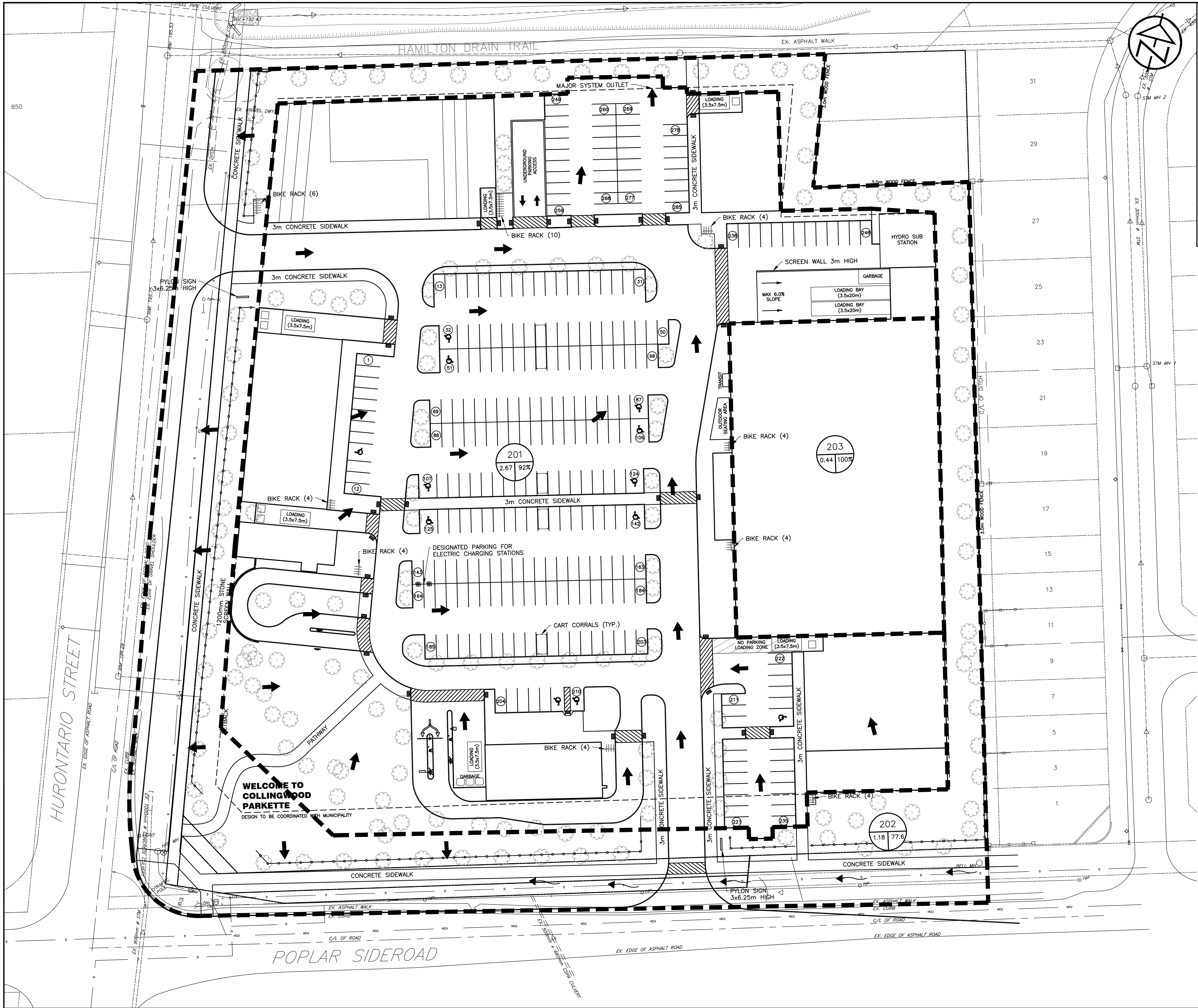


KEY PLAN

LEGEND

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

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			1.	FOR CIRCULATION	SEPT 2024						
								DESIGN: AS	FILE: 120119	DWG: DP.1	
								DRAWN: KH	DATE: SEPT 2024		
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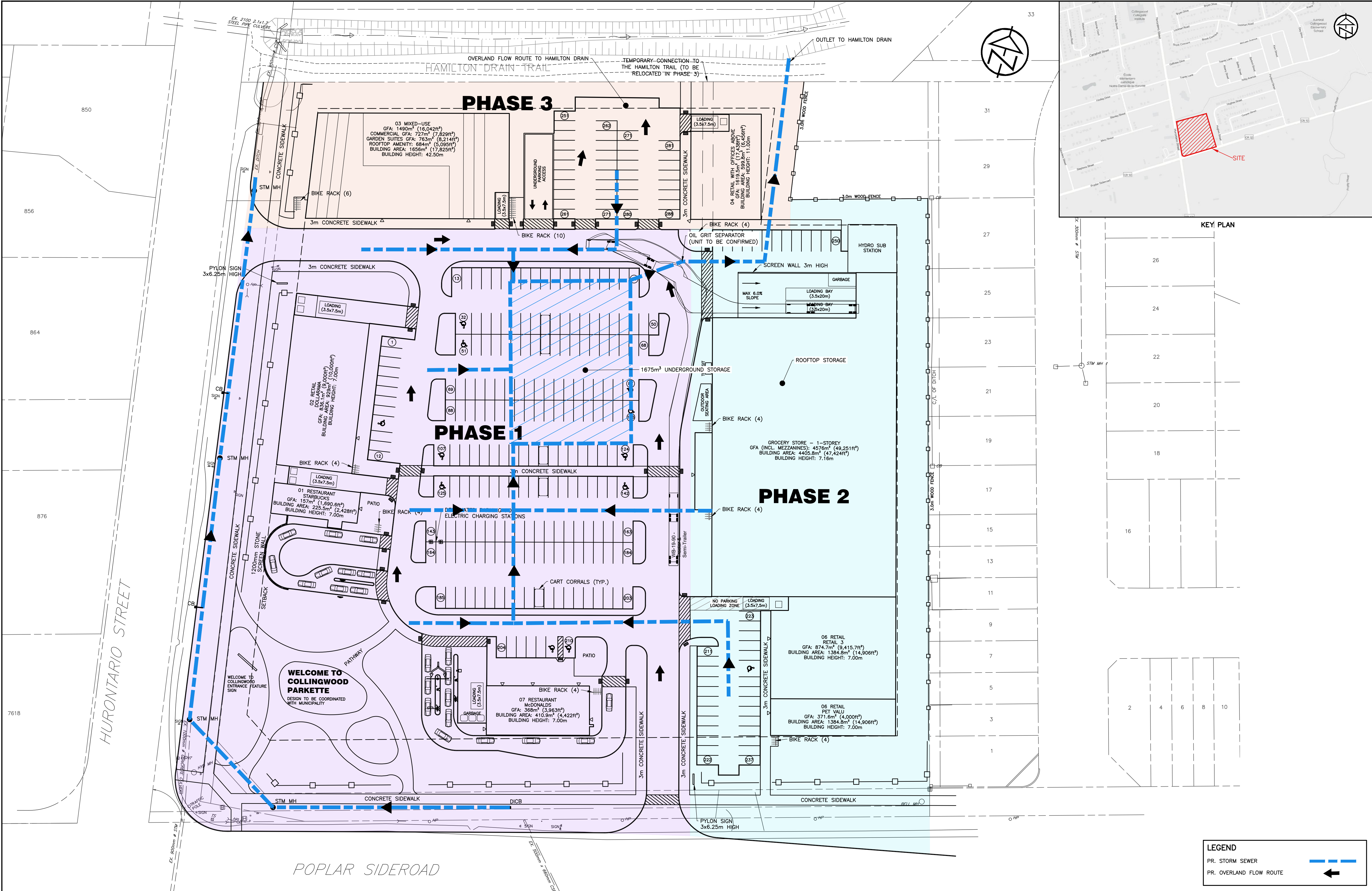


KEY PLAN

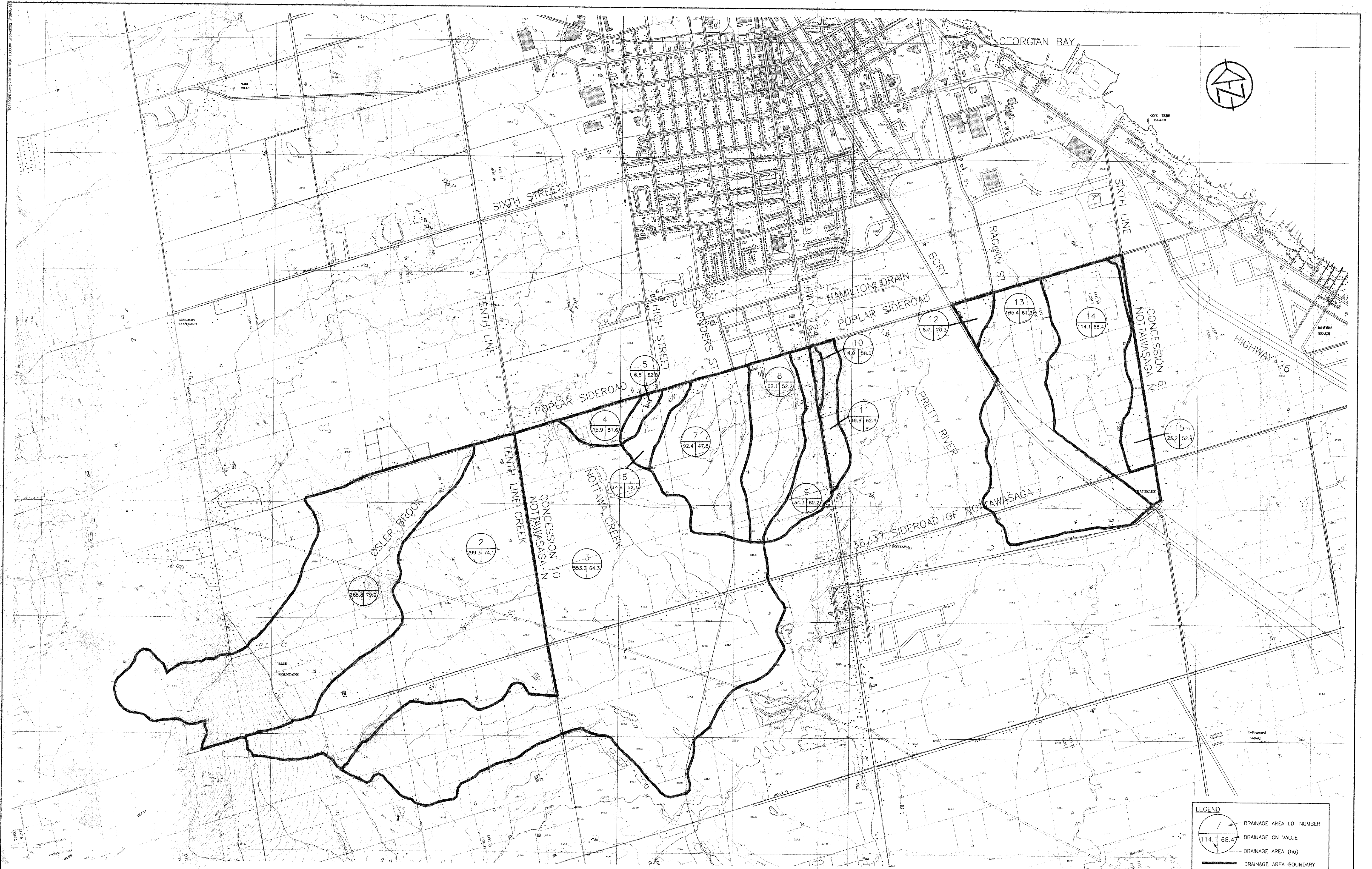
LEGEND

- AREA BOUNDARY
- AREA IDENTIFICATION NUMBER
- AREA IN HECTARES
- ON VALUE/PERCENT IMPERVIOUS
- PROPOSED MAJOR OVERLAND FLOW DIRECTION
- PROPOSED SWALE FLOW DIRECTION

DISCLAIMER AND COPYRIGHT CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED. TATHAM ENGINEERING LIMITED CLAIMS COPYRIGHT TO THIS DRAWING WHICH MAY NOT BE USED FOR ANY PURPOSE OTHER THAN THAT PROVIDED IN THE CONTRACT BETWEEN THE OWNER/CLIENT AND THE ENGINEER WITHOUT THE EXPRESS CONSENT OF TATHAM ENGINEERING LIMITED.	BENCHMARKS ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM BENCH MARK NO. 0011969/9504 HAVING A PUBLISHED ELEVATION OF 177.873 METRES.	NOTES LEGAL SURVEY INFORMATION AND LOT DIMENSIONS SHOWN ON THIS PLAN ARE TAKEN FROM A SURVEY PLAN PREPARED BY J.D. BARNES LIMITED, DATED SEPTEMBER 22, 2021 WHICH MAY NOT BE FINAL AND ARE NOT GUARANTEED. THE FINAL REGISTERED PLAN OF SUBDIVISION SHALL BE REFERRED TO FOR CONFIRMATION OF THE DATA. TOPOGRAPHIC INFORMATION SHOWN ON THIS PLAN FROM SURVEY PREPARED BY J.D. BARNES LIMITED DATED SEPTEMBER 22, 2021.	No.	REVISION DESCRIPTION	DATE	ENGINEER STAMP	THE GATEWAY CENTRE COLLINGWOOD, ON		<table><tr><td>DESIGN: AS</td><td>FILE: 120119</td><td>DWG:</td></tr><tr><td>DRAWN: KH</td><td>DATE: SEPT 2024</td><td rowspan="2">DP.2</td></tr><tr><td>CHECK: JPA/RS</td><td>SCALE: 1:500</td></tr></table>	DESIGN: AS	FILE: 120119	DWG:	DRAWN: KH	DATE: SEPT 2024	DP.2	CHECK: JPA/RS	SCALE: 1:500
			DESIGN: AS	FILE: 120119	DWG:												
			DRAWN: KH	DATE: SEPT 2024	DP.2												
			CHECK: JPA/RS	SCALE: 1:500													
			1.	FOR CIRCULATION	SEPT 2024												



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			1.	FOR CIRCULATION	SEPT 2024						STM.1
STORM LAYOUT PLAN											
CHECK: JPA/RS SCALE: 1:500											



LEGEND

7 — DRAINAGE AREA I.D. NUMBER
 114.1 68.4 — DRAINAGE CN VALUE
 — DRAINAGE AREA (ha)
 — DRAINAGE AREA BOUNDARY

LEGEND

CONTRACT DRAWINGS
 CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.
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NO.	REVISIONS	DATE	INITIAL

APPROVED

David Taylor
 D. R. W. TAYLOR
 10617752
 Apr. 9/2010
 PROFESSIONAL ENGINEER
 PROVINCE OF ONTARIO

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
 DESIGN: DRT CHECKED: DJH
 DRAWN: DEP DATE: FEB/2010

JOB NO. 109064-2
 DWG. **ODP-1**

Appendix A: Pre-Development SWM Calculations

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

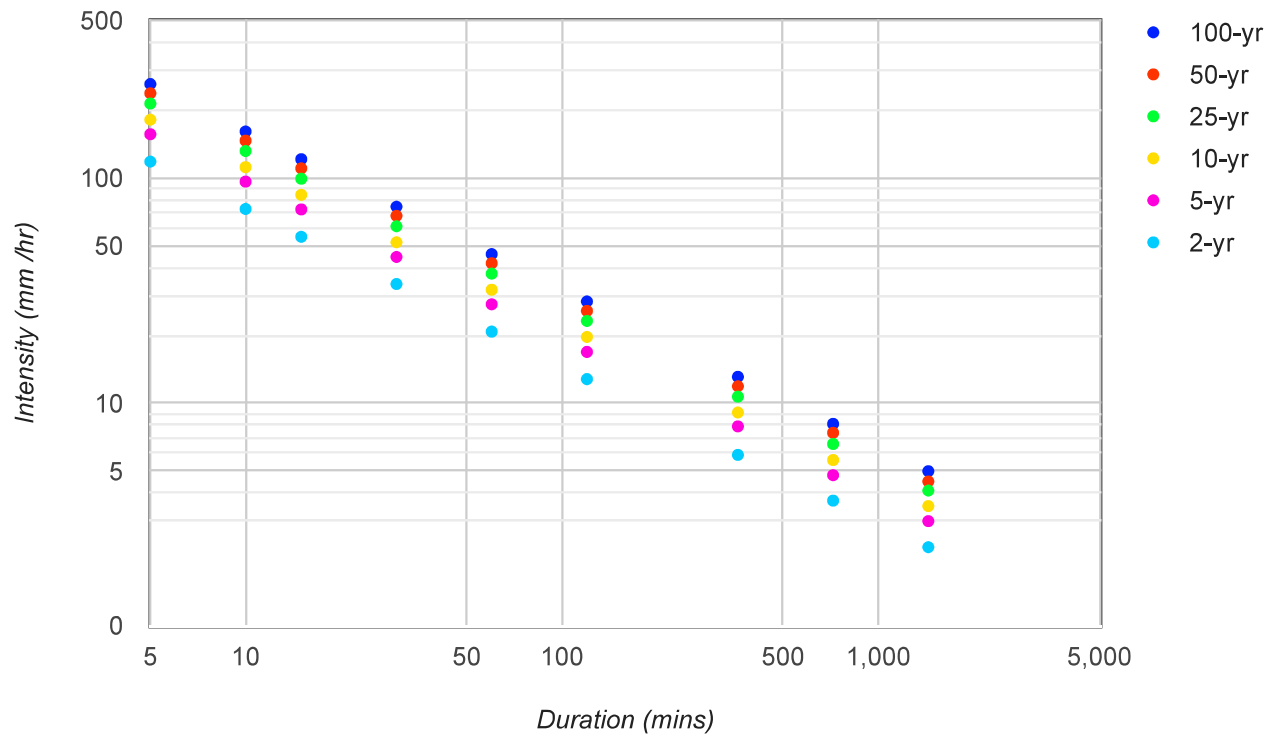
These are the locations in the selection.

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

Results

An IDF curve was found.

Coordinate: 44.479167, -80.212500
IDF curve year: 2010



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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Last Modified: September 2016

	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:

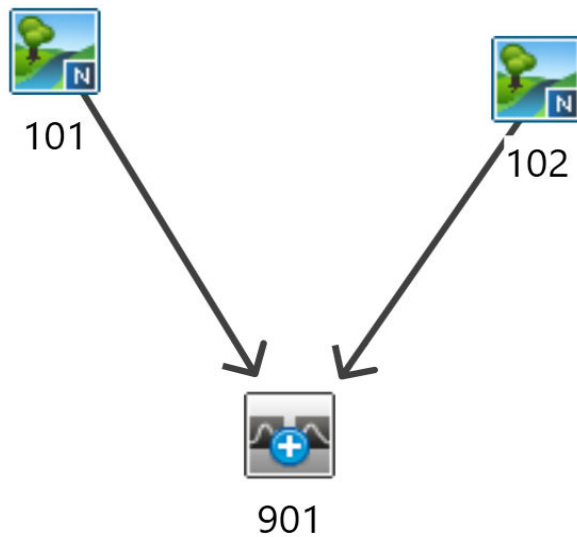
$$A' = A \cdot 60^{-B}$$

$$B' = 0$$

$$C' = -B$$

	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



Route Pipe



Duhyd



Standhyd



Route Channel



Diverthyd



Addhyd



Route Reservoir

Visual OTTHYMO Model Parameter Calculations (NasHYD)

Project Details

The Gateway Centre	120119
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Data Sources

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

Prepared By

Julia Suen	May 17, 2024
------------	--------------

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)

Project Details

The Gateway Centre	120119
--------------------	--------

Data Sources

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

Prepared By

Julia Suen	May 17, 2024
------------	--------------

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 SSSS U U A L (v 6.2.2015)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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

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766-e9cb-4d92-89f6-7055d1d82f43\scen

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

USER:

COMMENTS: _____

** SIMULATION : a OWEN SOUND CHIC25MM **

| READ STORM | Filename: C:\Users\ASchoof\AppData\Local\Temp\
| |

| 89e37a6c-3e84-4d6f-b14c-084f4f074549\66adf0b8
| 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.

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 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)= 0.034

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 |
|-----|
ID1= 1 ( 0101): AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
+ 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.

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

```
000 TTTT TTTT H H Y Y M M 000 TM
0 0 T T H H Y Y MM MM 0 0
0 0 T T H H Y M M 0 0
000 T T H H Y M M 000
Developed and Distributed by Smart City Water Inc
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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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f01-051d-44f5-aa40-c9706b1c25d5\scen
Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\86631
f01-051d-44f5-aa40-c9706b1c25d5\scen

DATE: 09/16/2024

TIME: 02:16:36

USER:

COMMENTS: _____

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

READ STORM
 Filename: C:\Users\ASchoof\AppData\Local\Temp\89e37a6c-3e84-4d6f-b14c-084f4f074549\3ac851e3
 Ptotal= 31.56 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	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)
 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.

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	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)
 ID= 1 DT= 5.0 min
 Area (ha)= 0.61 Curve Number (CN)= 71.7
 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.

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	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.

=====

V V I SSSS U U A L (v 6.2.2015)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y M M O O
O O T T H H Y Y M M O O
000 T T H H Y M M 000

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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\V02\voin.dat

Output filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\85ec0
9cc-a1cd-4a96-a3e0-4bb76c34df05\scen
Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\85ec0
9cc-a1cd-4a96-a3e0-4bb76c34df05\scen

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

USER:

COMMENTS: _____

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

| READ STORM | Filename: C:\Users\ASchoof\AppData\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.

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	Area (ha)=	0.61	Curve Number (CN)=	71.7
NASHDY (0102)	Ia (mm)=	7.63	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	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)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(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.

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

W I SSSSS UUUUU A A LLLLL

000 TTTT TTTT H H Y Y M M 000 TM

0 0 T T H H Y Y M M M M 0 0

0 0 T T H H Y M M O O

000 T T H H Y M M 000

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***** D E T A I L E D   O U T P U T *****
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Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\V02\voin.dat

Output filename:

C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\639d9270-2cb9-493b-a145-5a1c29e90625\scen

Summary filename:

C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\639d9270-2cb9-493b-a145-5a1c29e90625\scen

DATE: 09/16/2024

TIME: 02:16:36

USER:

COMMENTS: _____

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

READ STORM	Filename: C:\Users\ASchoof\AppData Local\Temp\
Ptotal= 48.40 mm	89e37a6c-3e84-4d6f-b14c-084f4f074549\7659700 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	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.

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	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.

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	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 A A A A L
V V I SS U U A A L
VV I SSSS UUUUU A A LLLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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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 OTTHYM0 6.2\V02\voin.dat

Output filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\9534d
114-b2a6-4b73-b1d8-7eaa6c7d9672\scen
Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\9534d
114-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\AppData\Local\Temp\
| | 89e37a6c-3e84-4d6f-b14c-084f4f074549\27d0e6bc
| Ptotal= 57.05 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	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	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)= 0.312

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

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000
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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\voindat

Output filename:
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6c9-f803-46e1-afd5-c6b3e96ca9b8\scen
Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\fla06
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\AppData\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

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

 | 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

----- 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
 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

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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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\V02\voin.dat

Output filename:
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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\AppData
| | 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.

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	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

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

| 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	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	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

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.

| CALIB
| NASHYD (0102)
ID= 1 DT= 5.0 min

Area (ha)= 0.61 Curve Number (CN)= 71.7
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	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.

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.

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 A A A A L
V V I SS U U A A L
VV I SSSSS UUUU A A LLLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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

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2ec-c9d4-4583-a47e-a858d0ca04e6\scen

DATE: 09/16/2024

TIME: 02:16:36

USER:

COMMENTS:

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

READ STORM	Filename: C:\Users\ASchoof\AppData\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

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

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	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

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	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	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)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(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	V	I	SS	U	U	AA	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			

000	TTTT	TTTT	H	H	Y	Y	M	M	000	TM
0	0	T	T	H	H	YY	MM	MM	0	0
0	0	T	T	H	H	Y	M	M	0	0
000	T	T	H	H	Y	M	M	000		

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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\V02\voin.dat

Output filename:

C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\7c7afcc8-297a-4022-b3cf-c87fc45095ad\scen

Summary filename:

C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\7c7afcc8-297a-4022-b3cf-c87fc45095ad\scen

DATE: 09/16/2024

TIME: 02:16:36

USER:

COMMENTS:

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

READ STORM
Ptotal= 71.39 mm

Filename: C:\Users\ASchoof\AppData\Local\Temp\89e37a6c-3e84-4d6f-b14c-084f4f074549\c1f31b71
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

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

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	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	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

Unit Hyd Qpeak (cms)= 0.312

PEAK FLOW (cms)= 0.136 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 25.880

TOTAL RAINFALL (mm)= 71.385
RUNOFF COEFFICIENT = 0.363

(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 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.

| ADD HYD (0901)|
1 + 2 = 3
ID1= 1 (0101): 3.68 0.136 12.33 25.88
+ ID2= 2 (0102): 0.61 0.016 12.58 24.78
=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

V V I SSSS U U A L (v 6.2.2015)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
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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\V02\voin.dat

Output filename:
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Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\8ec04
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DATE: 09/16/2024

TIME: 02:16:36

USER:

COMMENTS: _____

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

| READ STORM | Filename: C:\Users\ASchoof\AppData
| | ata\Local\Temp\
| | 89e37a6c-3e84-4d6f-b14c-084f4f074549\40329db0
| Ptotal= 82.75 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	1.33	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	

----- 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	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	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	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.

```

-----
| ADD HYD ( 0901) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0101):      AREA   QPEAK   TPEAK   R.V.
                   (ha)   (cms)   (hrs)   (mm)
+ 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.

=====

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

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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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\V02\voin.dat

Output filename:
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Summary filename:
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DATE: 09/16/2024

TIME: 02:16:36

USER:

COMMENTS: _____

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

| READ STORM | Filename: C:\Users\ASchoof\AppData\Local\Temp\
| |

| 89e37a6c-3e84-4d6f-b14c-084f4f074549\b8ac5d2b
| Ptotal= 97.61 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	1.57	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

| 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.

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.083	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.

| 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	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.

```

-----
| ADD HYD ( 0901)|
| 1 + 2 = 3 |
-----
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.

```

V V I SSSS U U A L (v 6.2.2015)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y M M O O
O O T T H H Y M M O O
000 T T H H Y M M 000

```

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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\V02\voin.dat
Output  filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\f5aac
d19-567a-4f0c-8157-ab530f6511cc\scen
Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\f5aac
d19-567a-4f0c-8157-ab530f6511cc\scen
```

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

USER:

COMMENTS: _____

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

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

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

READ STORM	Filename: C:\Users\ASchoof\AppData ata\Local\Temp\
Ptotal=108.47 mm	89e37a6c-3e84-4d6f-b14c-084f4f074549\93a3a212 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	1.74	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

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.083	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.

 | 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	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

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.

```

-----
| 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.

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

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000  TTTT  TTTT  H  H  Y  Y  M  M  000  TM
O  O  T    T  H  H  Y  Y  MM  MM  O  O
O  O  T    T  H  H  Y  Y  M  M  O  O
000  T    T  H  H  Y  Y  M  M  000

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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

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

TIME: 02:16:36

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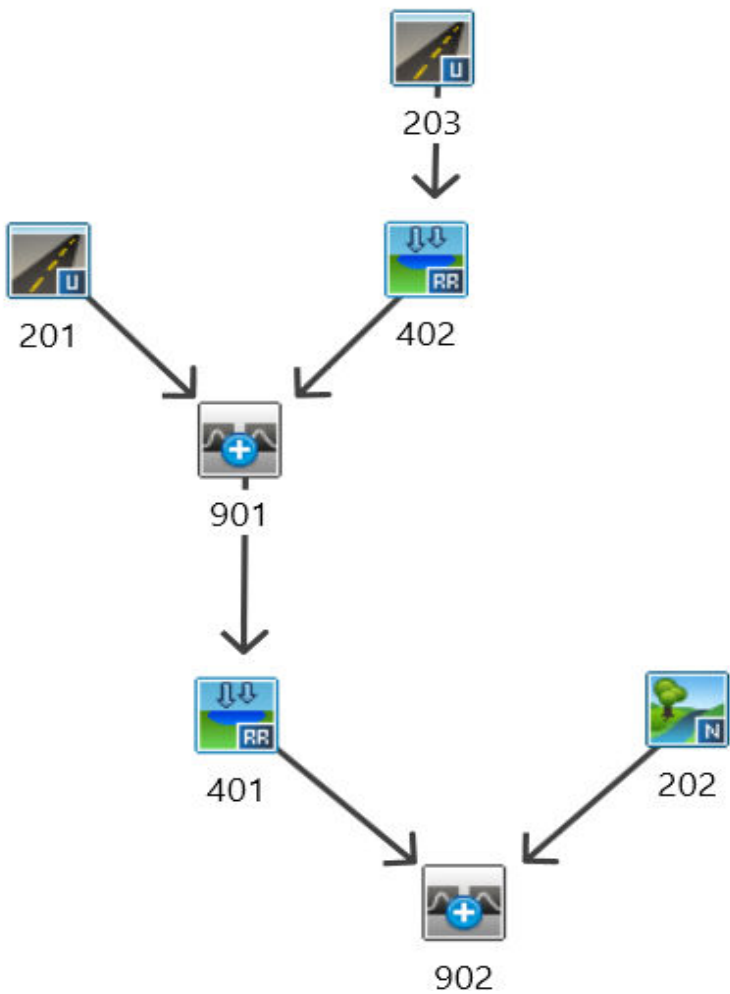
-----
| ADD HYD ( 0901) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0101):    3.68    0.327    12.33    60.47
+ ID2= 2 ( 0102):    0.61    0.039    12.58    58.72
=====
ID = 3 ( 0901):      4.29    0.361    12.33    60.22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

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



Route Pipe



Duhyd



Standhyd



Route Channel



Diverthyd



Addhyd



Route Reservoir



Project:	THE GATEWAY CENTRE
File No.:	120119
Subject:	Otthymo Flow Schematic
Date:	May-24

Visual OTTHYMO Model Parameter Calculations (StandHYD)

Project Details

The Gateway Centre	120119
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Data Sources

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

Prepared By

Julia Suen	May 17, 2024
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Post Development Condition

Watershed:	NVCA
Catchment ID:	201
Catchment Area (ha):	2.67
Impervious %:	92%
Pervious Area (ha):	0.21

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)		0.21							
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	0.21	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.
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Summary

Catchment CN:	74.0
Catchment IA (mm):	5.00

Visual OTTHYMO Model Parameter Calculations (NasHYD)

Project Details

The Gateway Centre	120119
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Data Sources

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

Prepared By

Julia Suen	May 17, 2024
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Post Development Condition

Watershed:	NVCA
Catchment ID:	202
Catchment Area (ha):	1.18
Impervious %:	16%

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)		1.18											
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	0.90	74	0.28									
Meadows	8		71	0.27									
Cultivated	7		78	0.35									
Waterbody	12		50	0.05									
Average CN		77.63											
Average C		0.38											
Average IA		4.90											

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):	41.03

Summary

Catchment CN:	77.6
Catchment C:	0.38
Catchment IA (mm):	4.90
Time of Concentration (hrs incl. 12.90min sewer travel time)	0.90
Catchment Time to Peak (hrs):	0.60
Catchment Time Step (mins):	7.19

Visual OTTHYMO Model Parameter Calculations (StandHYD)

Project Details

The Gateway Centre	120119
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Data Sources

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

Prepared By

Julia Suen	May 17, 2024
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Post Development Condition

Watershed:	NVCA
Catchment ID:	203
Catchment Area (ha):	0.44
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:	5/21/2024
	File No.:	120119
	Designed By:	JS
	Checked By:	
	Subject:	Pond Discharge Table

ORIFICE CONTROL

	Orifice	Standpipe	Outlet Pipe
Orifice/Pipe Size (mm)	90	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	0.010	0.0018	0.000	0.0000	0.105	0.0151	0.000	0.0000	0.0018	0.000
193.72	0.035	0.0033	0.000	0.0000	0.130	0.0228	0.000	0.0000	0.0033	0.002
193.75	0.061	0.0044	0.000	0.0000	0.156	0.0318	0.000	0.0000	0.0044	0.003
193.77	0.086	0.0052	0.000	0.0000	0.181	0.0421	0.000	0.0000	0.0052	0.005
193.80	0.112	0.0059	0.000	0.0000	0.207	0.0534	0.000	0.0000	0.0059	0.006
193.82	0.137	0.0066	0.000	0.0000	0.007	0.0472	0.000	0.0000	0.0066	0.008
193.85	0.162	0.0072	0.000	0.0000	0.032	0.1014	0.000	0.0000	0.0072	0.009
193.87	0.188	0.0077	0.000	0.0000	0.058	0.1355	0.000	0.0000	0.0077	0.011
193.90	0.213	0.0082	0.000	0.0000	0.083	0.1626	0.000	0.0000	0.0082	0.013
193.92	0.239	0.0087	0.000	0.0000	0.109	0.1857	0.000	0.0000	0.0087	0.014
193.95	0.264	0.0091	0.000	0.0000	0.134	0.2063	0.000	0.0000	0.0091	0.016
193.97	0.289	0.0096	0.000	0.0000	0.159	0.2250	0.000	0.0000	0.0096	0.017
194.00	0.315	0.0100	0.000	0.0000	0.185	0.2423	0.000	0.0000	0.0100	0.019
194.03	0.340	0.0104	0.000	0.0000	0.210	0.2584	0.000	0.0000	0.0104	0.022
194.05	0.366	0.0107	0.000	0.0000	0.236	0.2736	0.000	0.0000	0.0107	0.026
194.08	0.391	0.0111	0.000	0.0000	0.261	0.2879	0.000	0.0000	0.0111	0.029
194.10	0.416	0.0115	0.000	0.0000	0.286	0.3016	0.000	0.0000	0.0115	0.033
194.13	0.442	0.0118	0.000	0.0000	0.312	0.3147	0.000	0.0000	0.0118	0.036
194.15	0.467	0.0121	0.000	0.0000	0.337	0.3273	0.000	0.0000	0.0121	0.039
194.18	0.493	0.0125	0.000	0.0000	0.363	0.3394	0.000	0.0000	0.0125	0.043
194.20	0.518	0.0128	0.000	0.0000	0.388	0.3511	0.000	0.0000	0.0128	0.046
194.23	0.543	0.0131	0.000	0.0000	0.413	0.3624	0.000	0.0000	0.0131	0.050
194.25	0.569	0.0134	0.000	0.0000	0.439	0.3733	0.000	0.0000	0.0134	0.053
194.28	0.594	0.0137	0.000	0.0000	0.464	0.3840	0.000	0.0000	0.0137	0.056
194.30	0.620	0.0140	0.000	0.0000	0.490	0.3943	0.000	0.0000	0.0140	0.060
194.33	0.645	0.0143	0.000	0.0000	0.515	0.4044	0.000	0.0000	0.0143	0.063
194.36	0.670	0.0145	0.000	0.0000	0.540	0.4143	0.000	0.0000	0.0145	0.066
194.38	0.696	0.0148	0.000	0.0000	0.566	0.4239	0.000	0.0000	0.0148	0.069
194.41	0.721	0.0151	0.006	0.0108	0.591	0.4333	0.000	0.0000	0.0259	0.073
194.43	0.747	0.0153	0.032	0.0244	0.617	0.4425	0.000	0.0000	0.0397	0.076
194.46	0.772	0.0156	0.057	0.0327	0.642	0.4516	0.000	0.0000	0.0483	0.079
194.48	0.797	0.0159	0.082	0.0393	0.667	0.4604	0.000	0.0000	0.0552	0.082
194.51	0.823	0.0161	0.108	0.0450	0.693	0.4691	0.000	0.0000	0.0611	0.085
194.53	0.848	0.0163	0.133	0.0500	0.718	0.4776	0.000	0.0000	0.0663	0.088
194.56	0.874	0.0166	0.159	0.0546	0.744	0.4860	0.000	0.0000	0.0711	0.091
194.58	0.899	0.0168	0.184	0.0588	0.769	0.4942	0.000	0.0000	0.0756	0.095
194.61	0.924	0.0171	0.209	0.0627	0.794	0.5023	0.000	0.0000	0.0798	0.098
194.63	0.950	0.0173	0.235	0.0664	0.820	0.5103	0.000	0.0000	0.0837	0.101
194.66	0.975	0.0175	0.260	0.0699	0.845	0.5181	0.000	0.0000	0.0874	0.104
194.69	1.001	0.0178	0.286	0.0732	0.871	0.5259	0.000	0.0000	0.0910	0.106
194.71	1.026	0.0180	0.311	0.0764	0.896	0.5335	0.000	0.0000	0.0944	0.109
194.74	1.051	0.0182	0.336	0.0794	0.921	0.5410	0.000	0.0000	0.0977	0.112
194.76	1.077	0.0184	0.362	0.0824	0.947	0.5484	0.000	0.0000	0.1008	0.115
194.79	1.102	0.0186	0.387	0.0852	0.972	0.5557	0.000	0.0000	0.1039	0.118
194.81	1.128	0.0189	0.413	0.0880	0.998	0.5629	0.000	0.0000	0.1068	0.120

	Project:	Gateway Centre
	Date:	5/21/2024
	File No.:	120119
	Designed By:	JS
	Checked By:	
	Subject:	Pond Discharge Table

ORIFICE CONTROL

	Orifice	Standpipe	Outlet Pipe
Orifice/Pipe Size (mm)	90	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)
194.84	1.153	0.0191	0.438	0.0907	1.023	0.5700	0.000	0.0000	0.1097	0.123
194.86	1.178	0.0193	0.463	0.0932	1.048	0.5771	0.000	0.0000	0.1125	0.126
194.89	1.204	0.0195	0.489	0.0958	1.074	0.5840	0.000	0.0000	0.1152	0.128
194.91	1.229	0.0197	0.514	0.0982	1.099	0.5909	0.000	0.0000	0.1179	0.131
194.94	1.255	0.0199	0.540	0.1006	1.125	0.5977	0.000	0.0000	0.1205	0.133
194.97	1.280	0.0201	0.565	0.1030	1.150	0.6044	0.000	0.0000	0.1230	0.136
194.99	1.305	0.0203	0.590	0.1053	1.175	0.6110	0.000	0.0000	0.1255	0.138
195.02	1.331	0.0205	0.616	0.1075	1.201	0.6176	0.000	0.0000	0.1280	0.140
195.04	1.356	0.0207	0.641	0.1097	1.226	0.6241	0.000	0.0000	0.1304	0.142
195.07	1.382	0.0209	0.667	0.1118	1.252	0.6305	0.000	0.0000	0.1327	0.144
195.09	1.407	0.0211	0.692	0.1139	1.277	0.6369	0.000	0.0000	0.1350	0.145
195.12	1.432	0.0212	0.717	0.1160	1.302	0.6432	0.000	0.0000	0.1373	0.147
195.14	1.458	0.0214	0.743	0.1181	1.328	0.6494	0.000	0.0000	0.1395	0.149
195.17	1.483	0.0216	0.768	0.1201	1.353	0.6556	0.000	0.0000	0.1417	0.150
195.19	1.509	0.0218	0.794	0.1220	1.379	0.6617	0.000	0.0000	0.1438	0.152
195.22	1.534	0.0220	0.819	0.1240	1.404	0.6678	0.000	0.0000	0.1460	0.153
195.24	1.559	0.0222	0.844	0.1259	1.429	0.6738	0.000	0.0000	0.1480	0.155
195.27	1.585	0.0223	0.870	0.1278	1.455	0.6798	0.000	0.0000	0.1501	0.157
195.30	1.610	0.0225	0.895	0.1296	1.480	0.6857	0.000	0.0000	0.1521	0.158
195.32	1.636	0.0227	0.921	0.1314	1.506	0.6915	0.000	0.0000	0.1541	0.160
195.35	1.661	0.0229	0.946	0.1332	1.531	0.6973	0.000	0.0000	0.1561	0.161
195.37	1.686	0.0231	0.971	0.1350	1.556	0.7031	0.000	0.0000	0.1581	0.163
195.40	1.712	0.0232	0.997	0.1368	1.582	0.7088	0.000	0.0000	0.1600	0.164
195.42	1.737	0.0234	1.022	0.1385	1.607	0.7145	0.000	0.0000	0.1619	0.166
195.45	1.763	0.0236	1.048	0.1402	1.633	0.7201	0.008	0.0016	0.1654	0.168

Additional Notes:

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

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

Where:
 Q_w is weir flow (m³/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 Store Rooftop Storage Calculation	NAME	JS
		PAGE	1 OF 1

ZURN Z-105 'CONTROL-FLO' ROOF DRAIN

Roof Top Area = 4406 m²

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	=	18.99	notches	per Zurn Control-Flo Roof Drainage Design Manual
	=	Round to	20	

Maximum rooftop ponding depth = 0.102 mm per building design

of Drains = 10 (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	0.0077	0.0112
0.0508	0.0153	0.0224
0.0762	0.0230	0.0336
0.1016	0.0307	0.0448

Rooftop Storage			
Design Storm	Storage Used (ha-m)	Water Depth (m)	Actual Discharge (m ³ /s)
25mm	0.0075	0.017	0.0051
2-year	0.0119	0.027	0.0082
5-year	0.0158	0.036	0.0108
10-year	0.0184	0.042	0.0126
25-year	0.0217	0.049	0.0149
50-year	0.0241	0.055	0.0165
100-year	0.0265	0.060	0.0182
Regional	0.0331	0.075	0.0227

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.

=====

V V I SSSSS U U A L (v 6.2.2015)
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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\V02\voin.dat

Output filename:
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7cc-49b0-4165-9238-54c00185fbfb\scen
Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\af02a
7cc-49b0-4165-9238-54c00185fbfb\scen

DATE: 09/16/2024 TIME: 02:17:44

USER:

COMMENTS: _____

** SIMULATION : A) Chicago 25 mm **

| READ STORM | Filename: C:\Users\ASchoof\AppData\Local\Temp\
| |

| b6c1b163-7b27-4925-bd3c-f9edb913a708\66adf0b8
| 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 (0202) | Area (ha)= 1.18 Curve Number (CN)= 77.6
| ID= 1 DT= 5.0 min | Ia (mm)= 4.90 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.59

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

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)= 0.077

PEAK FLOW (cms)= 0.009 (i)
TIME TO PEAK (hrs)= 2.583
RUNOFF VOLUME (mm)= 4.312
TOTAL RAINFALL (mm)= 24.971
RUNOFF COEFFICIENT = 0.173

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

CALIB			
STANDHYD (0201)	Area (ha)=	2.67	
ID= 1 DT= 5.0 min	Total Imp(%)=	92.30	Dir. Conn.(%)= 92.30

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	2.47	0.21
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.50	2.00
Length (m)=	133.44	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)=	3.23 (ii)	4.13 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.27	0.24

PEAK FLOW (cms)=	0.40	0.00	0.404 (iii)
TIME TO PEAK (hrs)=	1.92	1.92	1.92
RUNOFF VOLUME (mm)=	22.97	3.65	21.48
TOTAL RAINFALL (mm)=	24.97	24.97	24.97
RUNOFF COEFFICIENT	= 0.92	0.15	0.86

***** 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.

CALIB			
STANDHYD (0203)	Area (ha)=	0.44	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.44	0.00
Dep. Storage (mm)=	2.00	2.00
Average Slope (%)=	1.00	1.00
Length (m)=	54.22	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)=	2.12 (ii)	3.78 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.31	0.25

PEAK FLOW (cms)=	0.07	0.00	0.075 (iii)
TIME TO PEAK (hrs)=	1.92	1.92	1.92
RUNOFF VOLUME (mm)=	22.97	22.97	22.97
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(0403)
IN= 2---> OUT= 1
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0230	0.0336
0.0077	0.0112	0.0307	0.0448
0.0153	0.0224	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0203)	0.441	0.075	1.92	22.97
OUTFLOW: ID= 1 (0403)	0.441	0.005	2.50	22.15

PEAK FLOW REDUCTION [Qout/Qin](%)= 6.87
TIME SHIFT OF PEAK FLOW (min)= 35.00
MAXIMUM STORAGE USED (ha.m.)= 0.0075

ADD HYD (0901)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0201):	2.67	0.404	1.92	21.48
+ ID2= 2 (0403):	0.44	0.005	2.50	22.15
=====				
ID = 3 (0901):	3.11	0.407	1.92	21.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0401)
IN= 2---> OUT= 1
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0837	0.1006
0.0033	0.0016	0.0977	0.1122
0.0066	0.0079	0.1097	0.1232
0.0087	0.0142	0.1205	0.1332
0.0104	0.0223	0.1327	0.1436
0.0118	0.0361	0.1417	0.1502

0.0131	0.0496	0.1501	0.1565
0.0143	0.0628	0.1561	0.1612
0.0397	0.0758	0.1654	0.1675
0.0663	0.0884	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0901)	3.112	0.407	1.92	21.58
OUTFLOW: ID= 1 (0401)	3.112	0.013	3.92	21.54

PEAK FLOW REDUCTION [Qout/Qin](%)= 3.23
TIME SHIFT OF PEAK FLOW (min)=120.00
MAXIMUM STORAGE USED (ha.m.)= 0.0500

ADD HYD (0902)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	1.18	0.009	2.58	4.31
+ ID2= 2 (0401):	3.11	0.013	3.92	21.54
=====				
ID = 3 (0902):	4.30	0.022	2.67	16.79

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 A A L
V V I SS U U A A L
VV I SSSSS UUUU A A LLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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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\XH5\db087677-d2dd-46ce-8964-f33feda22920\3e67b8e4-8156-4429-a6c7-568be92ddd42\scen
Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\3e67b8e4-8156-4429-a6c7-568be92ddd42\scen

DATE: 09/16/2024 TIME: 02:17:43

USER:

COMMENTS: _____

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

| READ STORM | Filename: C:\Users\ASchoof\AppData
| | ata\Local\Temp\
| Ptotal= 31.56 mm | b6c1b163-7b27-4925-bd3c-f9edb913a708\3ac851e3
| | 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	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 (0202) | Area (ha)= 1.18 Curve Number (CN)= 77.6
| ID= 1 DT= 5.0 min | Ia (mm)= 4.90 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 0.59

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

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.65	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)= 0.077

PEAK FLOW (cms)= 0.011 (i)
TIME TO PEAK (hrs)= 2.083
RUNOFF VOLUME (mm)= 7.107
TOTAL RAINFALL (mm)= 31.559
RUNOFF COEFFICIENT = 0.225

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

| CALIB |
| STANDHYD (0201) | Area (ha)= 2.67
| ID= 1 DT= 5.0 min | Total Imp(%)= 92.30 Dir. Conn.(%)= 92.30

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 2.47 0.21
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.50 2.00
Length (m)= 133.44 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	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

Max.Eff.Inten.(mm/hr)= 72.78 10.30
over (min) 5.00 5.00
Storage Coeff. (min)= 3.05 (ii) 3.91 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.27 0.25

TOTALS
PEAK FLOW (cms)= 0.48 0.01 0.489 (iii)
TIME TO PEAK (hrs)= 1.33 1.33 1.33
RUNOFF VOLUME (mm)= 29.56 6.09 27.75
TOTAL RAINFALL (mm)= 31.56 31.56 31.56
RUNOFF COEFFICIENT = 0.94 0.19 0.88

***** 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.

| CALIB
| STANDHYD (0203)
ID= 1 DT= 5.0 min
Area (ha)= 0.44
Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 0.44 0.00
Dep. Storage (mm)= 2.00 2.00
Average Slope (%)= 1.00 1.00
Length (m)= 54.22 40.00
Mannings n = 0.013 0.250

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

----- TRANSFORMED HYETOGRAPH -----
TIME RAIN TIME RAIN TIME RAIN TIME RAIN
hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr
0.083 2.65 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

Max.Eff.Inten.(mm/hr)= 72.78 72.78
over (min) 5.00 5.00
Storage Coeff. (min)= 2.01 (ii) 3.58 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.31 0.26

TOTALS
PEAK FLOW (cms)= 0.09 0.00 0.089 (iii)
TIME TO PEAK (hrs)= 1.33 1.33 1.33
RUNOFF VOLUME (mm)= 29.56 29.56 29.56
TOTAL RAINFALL (mm)= 31.56 31.56 31.56
RUNOFF COEFFICIENT = 0.94 0.94 0.94

***** 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(0403)
| IN= 2---> OUT= 1 |
DT= 5.0 min
OVERFLOW IS OFF

OUTFLOW STORAGE OUTFLOW STORAGE
(cms) (ha.m.) (cms) (ha.m.)
0.0000 0.0000 0.0230 0.0336
0.0077 0.0112 0.0307 0.0448
0.0153 0.0224 0.0000 0.0000

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 2 (0203) 0.441 0.089 1.33 29.56
OUTFLOW: ID= 1 (0403) 0.441 0.006 2.25 28.73

PEAK FLOW REDUCTION [Qout/Qin](%)= 6.58
TIME SHIFT OF PEAK FLOW (min)= 55.00
MAXIMUM STORAGE USED (ha.m.)= 0.0085

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

OVERFLOW IS OFF

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0901)	3.112	0.493	1.33	27.89
OUTFLOW: ID= 1 (0401)	3.112	0.018	4.00	27.85

ADD HYD (0902)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
-----	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0202):	1.18	0.011	2.08	7.11
+ ID2= 2 (0401):	3.11	0.018	4.00	27.85
=====				
ID = 3 (0902):	4.30	0.024	2.17	22.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

READ STORM	Filename: C:\Users\ASchoof\AppData\Local\Temp\
------------	--

b6c1b163-7b27-4925-bd3c-f9edb913a708\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
STANDHYD (0201)
ID= 1 DT= 5.0 min

Area (ha)= 2.67
Total Imp(%)= 92.30 Dir. Conn.(%)= 92.30

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	2.47	0.21
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.50	2.00
Length (m)=	133.44	5.00
Mannings n =	0.013	0.250

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

CALIB
NASHYD (0202)
ID= 1 DT= 5.0 min

Area (ha)= 1.18 Curve Number (CN)= 77.6
Ia (mm)= 4.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.59

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

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)= 0.077

PEAK FLOW (cms)= 0.020 (i)
TIME TO PEAK (hrs)= 2.083
RUNOFF VOLUME (mm)= 12.310
TOTAL RAINFALL (mm)= 41.725
RUNOFF COEFFICIENT = 0.295

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

---- 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

Max.Eff.Inten.(mm/hr)= 96.22 19.81
over (min) 5.00 5.00
Storage Coeff. (min)= 2.73 (ii) 3.49 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.29 0.26

TOTALS
PEAK FLOW (cms)= 0.64 0.01 0.658 (iii)
TIME TO PEAK (hrs)= 1.33 1.33 1.33
RUNOFF VOLUME (mm)= 39.72 10.71 37.49
TOTAL RAINFALL (mm)= 41.72 41.72 41.72
RUNOFF COEFFICIENT = 0.95 0.26 0.90

***** 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.

CALIB		
STANDHYD (0203)	Area (ha)= 0.44	
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.44	0.00
Dep. Storage (mm)=	2.00	2.00
Average Slope (%)=	1.00	1.00
Length (m)=	54.22	40.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	3.51	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

Max.Eff.Inten.(mm/hr)=	96.22	96.22
over (min)	5.00	5.00
Storage Coeff. (min)=	1.80 (ii)	3.20 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.32	0.27

TOTALS

PEAK FLOW (cms)=	0.12	0.00	0.117 (iii)
TIME TO PEAK (hrs)=	1.33	1.33	1.33
RUNOFF VOLUME (mm)=	39.72	39.72	39.72
TOTAL RAINFALL (mm)=	41.72	41.72	41.72
RUNOFF COEFFICIENT =	0.95	0.95	0.95

***** 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(0403)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0230	0.0336
	0.0077	0.0112	0.0307	0.0448
	0.0153	0.0224	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0203)	0.441	0.117	1.33	39.72
OUTFLOW: ID= 1 (0403)	0.441	0.008	2.25	38.91

PEAK FLOW REDUCTION [Qout/Qin](%)= 6.68
TIME SHIFT OF PEAK FLOW (min)= 55.00
MAXIMUM STORAGE USED (ha.m.)= 0.0114

ADD HYD (0901)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0201):	2.67	0.658	1.33	37.49
+ ID2= 2 (0403):	0.44	0.008	2.25	38.91
=====				
ID = 3 (0901):	3.11	0.663	1.33	37.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0401)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0837	0.1006
	0.0033	0.0016	0.0977	0.1122
	0.0066	0.0079	0.1097	0.1232
	0.0087	0.0142	0.1205	0.1332
	0.0104	0.0223	0.1327	0.1436
	0.0118	0.0361	0.1417	0.1502
	0.0131	0.0496	0.1501	0.1565
	0.0143	0.0628	0.1561	0.1612
	0.0397	0.0758	0.1654	0.1675
	0.0663	0.0884	0.0000	0.0000

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 2 (0901) 3.112 0.663 1.33 37.69
OUTFLOW: ID= 1 (0401) 3.112 0.039 2.92 37.65

PEAK FLOW REDUCTION [Qout/Qin](%)= 5.89
TIME SHIFT OF PEAK FLOW (min)= 95.00
MAXIMUM STORAGE USED (ha.m.)= 0.0755

ADD HYD (0902)
1 + 2 = 3

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0202): 1.18 0.020 2.08 12.31
+ ID2= 2 (0401): 3.11 0.039 2.92 37.65
=====

ID = 3 (0902): 4.30 0.055 2.33 30.67

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

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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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\V02\voin.dat

Output filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\ed41a
2cb-d7f9-49cf-92fb-a0115751e676\scen
Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\ed41a
2cb-d7f9-49cf-92fb-a0115751e676\scen

DATE: 09/16/2024

TIME: 02:17:44

USER:

COMMENTS: _____

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

READ STORM Filename: C:\Users\ASchoof\AppData\Local\Temp\
b6c1b163-7b27-4925-bd3c-f9edb913a708\7659700
Ptotal= 48.40 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	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 (0202) Area (ha)= 1.18 Curve Number (CN)= 77.6
ID= 1 DT= 5.0 min Ia (mm)= 4.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.59

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	4.07	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)= 0.077

PEAK FLOW (cms)= 0.026 (i)
 TIME TO PEAK (hrs)= 2.000
 RUNOFF VOLUME (mm)= 16.197
 TOTAL RAINFALL (mm)= 48.401
 RUNOFF COEFFICIENT = 0.335

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

CALIB	Area (ha)= 2.67
STANDHYD (0201)	Total Imp(%)= 92.30
ID= 1 DT= 5.0 min	Dir. Conn.(%)= 92.30

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	2.47	0.21
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.50	2.00
Length (m)=	133.44	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	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

Max.Eff.Inten.(mm/hr)= 111.61 27.24
 over (min) 5.00 5.00
 Storage Coeff. (min)= 2.57 (ii) 3.29 (ii)
 Unit Hyd. Tpeak (min)= 5.00 5.00
 Unit Hyd. peak (cms)= 0.29 0.27

TOTALS

PEAK FLOW (cms)= 0.75 0.02 0.769 (iii)
 TIME TO PEAK (hrs)= 1.33 1.33 1.33
 RUNOFF VOLUME (mm)= 46.40 14.20 43.92
 TOTAL RAINFALL (mm)= 48.40 48.40 48.40
 RUNOFF COEFFICIENT = 0.96 0.29 0.91

***** 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.

CALIB	Area (ha)= 0.44
STANDHYD (0203)	Total Imp(%)= 99.00
ID= 1 DT= 5.0 min	Dir. Conn.(%)= 99.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.44	0.00
Dep. Storage (mm)=	2.00	2.00
Average Slope (%)=	1.00	1.00
Length (m)=	54.22	40.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	4.07	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

Max.Eff.Inten.(mm/hr)= 111.61 111.61
over (min) 5.00 5.00
Storage Coeff. (min)= 1.69 (ii) 3.02 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.32 0.28

TOTALS

PEAK FLOW (cms)=	0.14	0.00	0.136 (iii)
TIME TO PEAK (hrs)=	1.33	1.33	1.33
RUNOFF VOLUME (mm)=	46.40	46.40	46.40
TOTAL RAINFALL (mm)=	48.40	48.40	48.40
RUNOFF COEFFICIENT =	0.96	0.96	0.96

***** 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(0403)
IN= 2---> OUT= 1
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0230	0.0336
0.0077	0.0112	0.0307	0.0448
0.0153	0.0224	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0203)	0.441	0.136	1.33	46.40
OUTFLOW: ID= 1 (0403)	0.441	0.009	2.25	45.58

PEAK FLOW REDUCTION [Qout/Qin](%)= 6.71
TIME SHIFT OF PEAK FLOW (min)= 55.00
MAXIMUM STORAGE USED (ha.m.)= 0.0133

ADD HYD (0901)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0201):	2.67	0.769	1.33	43.92
+ ID2= 2 (0403):	0.44	0.009	2.25	45.58
ID = 3 (0901):	3.11	0.775	1.33	44.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0401)
IN= 2---> OUT= 1
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0837	0.1006
0.0033	0.0016	0.0977	0.1122
0.0066	0.0079	0.1097	0.1232
0.0087	0.0142	0.1205	0.1332
0.0104	0.0223	0.1327	0.1436
0.0118	0.0361	0.1417	0.1502
0.0131	0.0496	0.1501	0.1565
0.0143	0.0628	0.1561	0.1612
0.0397	0.0758	0.1654	0.1675
0.0663	0.0884	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0901)	3.112	0.775	1.33	44.15
OUTFLOW: ID= 1 (0401)	3.112	0.054	2.50	44.12

PEAK FLOW REDUCTION [Qout/Qin](%)= 7.02
TIME SHIFT OF PEAK FLOW (min)= 70.00
MAXIMUM STORAGE USED (ha.m.)= 0.0828

ADD HYD (0902)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	1.18	0.026	2.00	16.20
+ ID2= 2 (0401):	3.11	0.054	2.50	44.12
ID = 3 (0902):	4.30	0.079	2.17	36.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

=====

V V I SSSS U U A L (v 6.2.2015)
V V I SS U U A A L
V V I SS U U A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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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 OTTHYM0 6.2\V02\voin.dat

Output filename:

C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\7119f
250-67b9-4fa1-bbe1-3c9b4ae5d597\scen

Summary filename:

C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\7119f
250-67b9-4fa1-bbe1-3c9b4ae5d597\scen

DATE: 09/16/2024

TIME: 02:17:44

USER:

COMMENTS: _____

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

READ STORM | Filename: C:\Users\ASchoof\AppData

| ata\Local\Temp\
| b6c1b163-7b27-4925-bd3c-f9edb913a708\27d0e6bc
| Ptotal= 57.05 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	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 (0202) | Area (ha)= 1.18 Curve Number (CN)= 77.6
ID= 1 DT= 5.0 min | Ia (mm)= 4.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.59

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)= 0.077

PEAK FLOW (cms)= 0.036 (i)
TIME TO PEAK (hrs)= 2.000
RUNOFF VOLUME (mm)= 21.673
TOTAL RAINFALL (mm)= 57.049
RUNOFF COEFFICIENT = 0.380

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

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

CALIB
STANDHYD (0201)
ID= 1 DT= 5.0 min

Area (ha)= 2.67
Total Imp(%)= 92.30 Dir. Conn.(%)= 92.30

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	2.47	0.21
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.50	2.00
Length (m)=	133.44	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	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

Max.Eff.Inten.(mm/hr)= 131.56 38.05
over (min) 5.00 5.00
Storage Coeff. (min)= 2.41 (ii) 3.08 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.30 0.27

PEAK FLOW (cms)= 0.89 0.02 0.914 (iii)
TIME TO PEAK (hrs)= 1.33 1.33 1.33
RUNOFF VOLUME (mm)= 55.05 19.17 52.29
TOTAL RAINFALL (mm)= 57.05 57.05 57.05
RUNOFF COEFFICIENT = 0.96 0.34 0.92

***** 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.

CALIB
STANDHYD (0203)
ID= 1 DT= 5.0 min

Area (ha)= 0.44
Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.44	0.00
Dep. Storage (mm)=	2.00	2.00
Average Slope (%)=	1.00	1.00
Length (m)=	54.22	40.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	4.80	1.083	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

Max.Eff.Inten.(mm/hr)= 131.56 131.56
over (min) 5.00 5.00
Storage Coeff. (min)= 1.59 (ii) 2.82 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.33 0.28

PEAK FLOW (cms)= 0.16 0.00 0.161 (iii)
TIME TO PEAK (hrs)= 1.33 1.33 1.33
RUNOFF VOLUME (mm)= 55.05 55.05 55.05
TOTAL RAINFALL (mm)= 57.05 57.05 57.05
RUNOFF COEFFICIENT = 0.96 0.96 0.96

***** 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(0403)|
| IN= 2---> OUT= 1 |
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0230	0.0336
0.0077	0.0112	0.0307	0.0448
0.0153	0.0224	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0203)	0.441	0.161	1.33	55.05
OUTFLOW: ID= 1 (0403)	0.441	0.011	2.25	54.22

PEAK FLOW REDUCTION [Qout/Qin](%)= 6.73
TIME SHIFT OF PEAK FLOW (min)= 55.00
MAXIMUM STORAGE USED (ha.m.)= 0.0158

| ADD HYD (0901)|
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0201):	2.67	0.914	1.33	52.29
+ ID2= 2 (0403):	0.44	0.011	2.25	54.22
=====				
ID = 3 (0901):	3.11	0.921	1.33	52.56

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| RESERVOIR(0401)|
| IN= 2---> OUT= 1 |
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0837	0.1006
0.0033	0.0016	0.0977	0.1122
0.0066	0.0079	0.1097	0.1232
0.0087	0.0142	0.1205	0.1332
0.0104	0.0223	0.1327	0.1436
0.0118	0.0361	0.1417	0.1502
0.0131	0.0496	0.1501	0.1565
0.0143	0.0628	0.1561	0.1612
0.0397	0.0758	0.1654	0.1675

0.0663 0.0884 | 0.0000 0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0901)	3.112	0.921	1.33	52.56
OUTFLOW: ID= 1 (0401)	3.112	0.074	2.25	52.52

PEAK FLOW REDUCTION [Qout/Qin](%)= 7.98
TIME SHIFT OF PEAK FLOW (min)= 55.00
MAXIMUM STORAGE USED (ha.m.)= 0.0935

| ADD HYD (0902)|
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	1.18	0.036	2.00	21.67
+ ID2= 2 (0401):	3.11	0.074	2.25	52.52
=====				
ID = 3 (0902):	4.30	0.109	2.08	44.03

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		

000	TTTTT	TTTTT	H	H	Y	Y	M	M	000	TM	
0	0	T	T	H	H	Y	Y	MM	MM	0	0
0	0	T	T	H	H	Y	M	M	0	0	
000	T	T	H	H	Y	M	M	000			

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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\XH5\db087677-d2dd-46ce-8964-f33feda22920\5246a
9a7-14e2-4485-b5b8-aca5e65f412b\scen

---- 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

Max.Eff.Inten.(mm/hr)= 146.25 46.79
over (min) 5.00 5.00
Storage Coeff. (min)= 2.31 (ii) 2.95 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.30 0.28

TOTALS
PEAK FLOW (cms)= 0.99 0.03 1.021 (iii)
TIME TO PEAK (hrs)= 1.33 1.33 1.33
RUNOFF VOLUME (mm)= 61.42 23.11 58.47
TOTAL RAINFALL (mm)= 63.42 63.42 63.42
RUNOFF COEFFICIENT = 0.97 0.36 0.92

***** 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.

| CALIB
| STANDHYD (0203)
ID= 1 DT= 5.0 min
Area (ha)= 0.44
Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.44	0.00
Dep. Storage	(mm)=	2.00	2.00
Average Slope	(%)=	1.00	1.00
Length	(m)=	54.22	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	5.33	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

Max.Eff.Inten.(mm/hr)= 146.25 146.25
over (min) 5.00 5.00
Storage Coeff. (min)= 1.52 (ii) 2.71 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.33 0.29

TOTALS
PEAK FLOW (cms)= 0.18 0.00 0.179 (iii)
TIME TO PEAK (hrs)= 1.33 1.33 1.33
RUNOFF VOLUME (mm)= 61.42 61.42 61.42
TOTAL RAINFALL (mm)= 63.42 63.42 63.42
RUNOFF COEFFICIENT = 0.97 0.97 0.97

***** 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(0403)
| IN= 2---> OUT= 1 |
DT= 5.0 min
OVERFLOW IS OFF

OUTFLOW	STORAGE	OUTFLOW	STORAGE
(cms)	(ha.m.)	(cms)	(ha.m.)
0.0000	0.0000	0.0230	0.0336
0.0077	0.0112	0.0307	0.0448
0.0153	0.0224	0.0000	0.0000

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0203)	0.441	0.179	1.33	61.42
OUTFLOW: ID= 1 (0403)	0.441	0.012	2.25	60.60

PEAK FLOW REDUCTION [Qout/Qin](%)= 6.75
TIME SHIFT OF PEAK FLOW (min)= 55.00
MAXIMUM STORAGE USED (ha.m.)= 0.0177

ADD HYD (0901)

```
| 1 + 2 = 3 |
-----
ID1= 1 ( 0201): 2.67 1.021 1.33 58.47
+ ID2= 2 ( 0403): 0.44 0.012 2.25 60.60
=====
ID = 3 ( 0901): 3.11 1.029 1.33 58.77
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| RESERVOIR( 0401) |
| IN= 2---> OUT= 1 |
| DT= 5.0 min      |
|-----|
```

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0837	0.1006
0.0033	0.0016	0.0977	0.1122
0.0066	0.0079	0.1097	0.1232
0.0087	0.0142	0.1205	0.1332
0.0104	0.0223	0.1327	0.1436
0.0118	0.0361	0.1417	0.1502
0.0131	0.0496	0.1501	0.1565
0.0143	0.0628	0.1561	0.1612
0.0397	0.0758	0.1654	0.1675
0.0663	0.0884	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0901)	3.112	1.029	1.33	58.77
OUTFLOW: ID= 1 (0401)	3.112	0.086	2.17	58.74

PEAK FLOW REDUCTION [Qout/Qin](%)= 8.36
TIME SHIFT OF PEAK FLOW (min)= 50.00
MAXIMUM STORAGE USED (ha.m.)= 0.1026

```
| ADD HYD ( 0902) |
| 1 + 2 = 3 |
|-----|
```

```
ID1= 1 ( 0202): 1.18 0.044 2.00 25.97
+ ID2= 2 ( 0401): 3.11 0.086 2.17 58.74
=====
ID = 3 ( 0902): 4.30 0.129 2.08 49.71
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
V V I SSSS U U A L (v 6.2.2015)
V V I SS U U A A L
V V I SS U U A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL
```

```
000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000
```

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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\V02\voin.dat

Output filename:

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65e-670d-4a3b-8a13-0e9570dfc2cb\scen

Summary filename:

C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\2d4bb
65e-670d-4a3b-8a13-0e9570dfc2cb\scen

DATE: 09/16/2024

TIME: 02:17:42

USER:

COMMENTS: _____

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

```
| READ STORM |
|-----|
| Ptotal= 69.64 mm |
|-----|
```

Filename: C:\Users\ASchoof\AppData\Local\Temp\
b6c1b163-7b27-4925-bd3c-f9edb913a708\4e6b4d51
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

|ID= 1 DT= 5.0 min | Total Imp(%)= 92.30 Dir. Conn.(%)= 92.30

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	2.47	0.21
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.50	2.00
Length (m)=	133.44	5.00
Mannings n =	0.013	0.250

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

CALIB	Area (ha)=	1.18	Curve Number (CN)=	77.6
NASHYD (0202)	Ia (mm)=	4.90	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.59		

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

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)= 0.077

PEAK FLOW (cms)= 0.052 (i)
TIME TO PEAK (hrs)= 2.000
RUNOFF VOLUME (mm)= 30.358
TOTAL RAINFALL (mm)= 69.642
RUNOFF COEFFICIENT = 0.436

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

---- 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

Max.Eff.Inten.(mm/hr)= 160.60 55.87
over (min) 5.00 5.00
Storage Coeff. (min)= 2.23 (ii) 2.85 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.30 0.28

TOTALS

PEAK FLOW (cms)= 1.09 0.04 1.126 (iii)
TIME TO PEAK (hrs)= 1.33 1.33 1.33
RUNOFF VOLUME (mm)= 67.64 27.15 64.52
TOTAL RAINFALL (mm)= 69.64 69.64 69.64
RUNOFF COEFFICIENT = 0.97 0.39 0.93

***** 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.

CALIB	Area (ha)=	2.67
STANDHYD (0201)		

CALIB		
STANDHYD (0203)	Area (ha)= 0.44	
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.44	0.00
Dep. Storage (mm)=	2.00	2.00
Average Slope (%)=	1.00	1.00
Length (m)=	54.22	40.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	5.86	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

Max.Eff.Inten.(mm/hr)=	160.60	160.60
over (min)	5.00	5.00
Storage Coeff. (min)=	1.46 (ii)	2.61 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.33	0.29

TOTALS

PEAK FLOW (cms)=	0.19	0.00	0.197 (iii)
TIME TO PEAK (hrs)=	1.33	1.33	1.33
RUNOFF VOLUME (mm)=	67.64	67.64	67.64
TOTAL RAINFALL (mm)=	69.64	69.64	69.64
RUNOFF COEFFICIENT =	0.97	0.97	0.97

***** 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(0403)
IN= 2---> OUT= 1
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0230	0.0336
0.0077	0.0112	0.0307	0.0448
0.0153	0.0224	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0203)	0.441	0.197	1.33	67.64
OUTFLOW: ID= 1 (0403)	0.441	0.013	2.25	66.81

PEAK FLOW REDUCTION [Qout/Qin](%)= 6.76
TIME SHIFT OF PEAK FLOW (min)= 55.00
MAXIMUM STORAGE USED (ha.m.)= 0.0195

ADD HYD (0901)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0201):	2.67	1.126	1.33	64.52
+ ID2= 2 (0403):	0.44	0.013	2.25	66.81
=====				
ID = 3 (0901):	3.11	1.135	1.33	64.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0401)
IN= 2---> OUT= 1
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0837	0.1006
0.0033	0.0016	0.0977	0.1122
0.0066	0.0079	0.1097	0.1232
0.0087	0.0142	0.1205	0.1332
0.0104	0.0223	0.1327	0.1436
0.0118	0.0361	0.1417	0.1502
0.0131	0.0496	0.1501	0.1565
0.0143	0.0628	0.1561	0.1612
0.0397	0.0758	0.1654	0.1675
0.0663	0.0884	0.0000	0.0000

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
-----------	-------------	-------------	-----------

INFLOW : ID= 2 (0901) 3.112 1.135 1.33 64.85
OUTFLOW: ID= 1 (0401) 3.112 0.097 2.17 64.81

PEAK FLOW REDUCTION [Qout/Qin](%)= 8.58
TIME SHIFT OF PEAK FLOW (min)= 50.00
MAXIMUM STORAGE USED (ha.m.)= 0.1119

DATE: 09/16/2024

TIME: 02:17:42

USER:

COMMENTS: _____

| ADD HYD (0902) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	1.18	0.052	2.00	30.36
+ ID2= 2 (0401):	3.11	0.097	2.17	64.81
=====				
ID = 3 (0902):	4.30	0.149	2.00	55.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

=====

V V I SSSS U U A L (v 6.2.2015)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y M M O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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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\V02\voin.dat

Output filename:
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332-6668-4bc0-bad1-febd4e008b7d\scen

Summary filename:
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332-6668-4bc0-bad1-febd4e008b7d\scen

** SIMULATION : H) TIMMINS **

READ STORM	Filename: C:\Users\ASchoof\AppData\Local\Temp\
Ptotal=193.00 mm	b6c1b163-7b27-4925-bd3c-f9edb913a708\8ddbf0b1
	Comments: TIMMINS

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	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 (0202) | Area (ha)= 1.18 Curve Number (CN)= 77.6
| ID= 1 DT= 5.0 min | Ia (mm)= 4.90 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.59

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	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)= 0.077

PEAK FLOW (cms)= 0.095 (i)
TIME TO PEAK (hrs)= 7.250
RUNOFF VOLUME (mm)= 135.339
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.701

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

CALIB
STANDHYD (0201)
ID= 1 DT= 5.0 min

Area (ha)= 2.67
Total Imp(%)= 92.30 Dir. Conn.(%)= 92.30

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	2.47	0.21
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.50	2.00
Length (m)=	133.44	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	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

Max.Eff.Inten.(mm/hr)=	43.00	34.14
over (min)	5.00	5.00
Storage Coeff. (min)=	3.77 (ii)	4.82 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.25	0.22

TOTALS			
PEAK FLOW (cms)=	0.29	0.02	0.314 (iii)
TIME TO PEAK (hrs)=	6.92	7.00	7.00
RUNOFF VOLUME (mm)=	191.00	127.48	186.11
TOTAL RAINFALL (mm)=	193.00	193.00	193.00
RUNOFF COEFFICIENT =	0.99	0.66	0.96

***** 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.

CALIB	
STANDHYD (0203)	Area (ha)= 0.44
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.44	0.00
Dep. Storage (mm)=	2.00	2.00
Average Slope (%)=	1.00	1.00
Length (m)=	54.22	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	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

Max.Eff.Inten.(mm/hr)=	43.00	43.00
over (min)	5.00	5.00
Storage Coeff. (min)=	2.48 (ii)	4.42 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.29	0.23

TOTALS			
PEAK FLOW (cms)=	0.05	0.00	0.053 (iii)
TIME TO PEAK (hrs)=	6.75	6.75	6.75
RUNOFF VOLUME (mm)=	191.00	191.00	191.00
TOTAL RAINFALL (mm)=	193.00	193.00	193.00
RUNOFF COEFFICIENT =	0.99	0.99	0.99

***** 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(0403)|
| IN= 2---> OUT= 1 |
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0230	0.0336
0.0077	0.0112	0.0307	0.0448
0.0153	0.0224	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0203)	0.441	0.053	6.75	191.00
OUTFLOW: ID= 1 (0403)	0.441	0.023	9.08	190.17

PEAK FLOW REDUCTION [Qout/Qin](%)= 42.97
TIME SHIFT OF PEAK FLOW (min)=140.00
MAXIMUM STORAGE USED (ha.m.)= 0.0331

| ADD HYD (0901)|
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0201):	2.67	0.314	7.00	186.11
+ ID2= 2 (0403):	0.44	0.023	9.08	190.17
=====				
ID = 3 (0901):	3.11	0.334	7.00	186.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| RESERVOIR(0401)|
| IN= 2---> OUT= 1 |
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0837	0.1006
0.0033	0.0016	0.0977	0.1122
0.0066	0.0079	0.1097	0.1232
0.0087	0.0142	0.1205	0.1332
0.0104	0.0223	0.1327	0.1436
0.0118	0.0361	0.1417	0.1502
0.0131	0.0496	0.1501	0.1565
0.0143	0.0628	0.1561	0.1612
0.0397	0.0758	0.1654	0.1675
0.0663	0.0884	0.0000	0.0000

AREA	QPEAK	TPEAK	R.V.
------	-------	-------	------

	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0901)	3.112	0.334	7.00	186.68
OUTFLOW: ID= 1 (0401)	3.112	0.181	9.00	186.65

PEAK FLOW REDUCTION [Qout/Qin](%)= 54.10
TIME SHIFT OF PEAK FLOW (min)=120.00
MAXIMUM STORAGE USED (ha.m.)= 0.1781

| ADD HYD (0902)|
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	1.18	0.095	7.25	135.34
+ ID2= 2 (0401):	3.11	0.181	9.00	186.65
=====				
ID = 3 (0902):	4.30	0.273	7.25	172.51

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		

000	TTTTT	TTTTT	H	H	Y	Y	M	M	000	TM	
0	0	T	T	H	H	Y	Y	MM	MM	0	0
0	0	T	T	H	H	Y	M	M	0	0	
000	T	T	H	H	Y	M	M	000			

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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\XH5\db087677-d2dd-46ce-8964-f33feda22920\42313
708-f26c-4a3e-98c9-bf6bf3720b32\scen
Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\42313
708-f26c-4a3e-98c9-bf6bf3720b32\scen

DATE: 09/16/2024 TIME: 02:17:43

USER:

COMMENTS:

CALIB
NASHYD (0202)
ID= 1 DT= 5.0 min
Area (ha)= 1.18
Ia (mm)= 4.90
U.H. Tp(hrs)= 0.59
Curve Number (CN)= 77.6
of Linear Res.(N)= 3.00

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

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

READ STORM
Ptotal= 53.94 mm
Filename: C:\Users\ASchoof\AppData\Local\Temp\ b6c1b163-7b27-4925-bd3c-f9edb913a708\cc9bf36a
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	

---- TRANSFORMED HYETOGRAPH ----								
TIME	RAIN	TIME	RAIN	'	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	'	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.083	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)= 0.077

PEAK FLOW (cms)= 0.027 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 19.651
TOTAL RAINFALL (mm)= 53.938
RUNOFF COEFFICIENT = 0.364

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

CALIB
STANDHYD (0201)
ID= 1 DT= 5.0 min

Area (ha)= 2.67
Total Imp(%)= 92.30 Dir. Conn.(%)= 92.30

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 2.47 0.21
Dep. Storage (mm)= 2.00 5.00
Average Slope (%)= 1.50 2.00
Length (m)= 133.44 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	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

Max.Eff.Inten.(mm/hr)= 66.22 25.85
over (min) 5.00 5.00
Storage Coeff. (min)= 3.17 (ii) 4.06 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.27 0.24

TOTALS
PEAK FLOW (cms)= 0.45 0.01 0.465 (iii)
TIME TO PEAK (hrs)= 12.00 12.00
RUNOFF VOLUME (mm)= 51.94 17.33 49.27
TOTAL RAINFALL (mm)= 53.94 53.94 53.94

RUNOFF COEFFICIENT = 0.96 0.32 0.91

***** 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.

CALIB
STANDHYD (0203)
ID= 1 DT= 5.0 min
Area (ha)= 0.44
Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 0.44 0.00
Dep. Storage (mm)= 2.00 2.00
Average Slope (%)= 1.00 1.00
Length (m)= 54.22 40.00
Mannings n = 0.013 0.250

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

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.083	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
Max.Eff.Inten.(mm/hr)=	66.22	66.22					
over (min)	5.00	5.00					
Storage Coeff. (min)=	2.09 (ii)	3.72 (ii)					
Unit Hyd. Tpeak (min)=	5.00	5.00					
Unit Hyd. peak (cms)=	0.31	0.25					
PEAK FLOW (cms)=	0.08	0.00					
TIME TO PEAK (hrs)=	12.00	12.00					
RUNOFF VOLUME (mm)=	51.94	51.94					
TOTAL RAINFALL (mm)=	53.94	53.94					
RUNOFF COEFFICIENT =	0.96	0.96					

TOTALS

0.081 (iii)

***** 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(0403)
IN= 2---> OUT= 1
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0230	0.0336
0.0077	0.0112	0.0307	0.0448
0.0153	0.0224	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0203)	0.441	0.081	12.00	51.93
OUTFLOW: ID= 1 (0403)	0.441	0.008	12.50	51.12

PEAK FLOW REDUCTION [Qout/Qin](%)= 10.11
TIME SHIFT OF PEAK FLOW (min)= 30.00
MAXIMUM STORAGE USED (ha.m.)= 0.0119

ADD HYD (0901)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0201):	2.67	0.465	12.00	49.27
+ ID2= 2 (0403):	0.44	0.008	12.50	51.12

=====

ID = 3 (0901): 3.11 0.472 12.00 49.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0401)
IN= 2---> OUT= 1
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0837	0.1006
0.0033	0.0016	0.0977	0.1122
0.0066	0.0079	0.1097	0.1232
0.0087	0.0142	0.1205	0.1332
0.0104	0.0223	0.1327	0.1436
0.0118	0.0361	0.1417	0.1502
0.0131	0.0496	0.1501	0.1565
0.0143	0.0628	0.1561	0.1612
0.0397	0.0758	0.1654	0.1675
0.0663	0.0884	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0901)	3.112	0.472	12.00	49.53
OUTFLOW: ID= 1 (0401)	3.112	0.040	12.67	49.50

PEAK FLOW REDUCTION [Qout/Qin](%)= 8.39
TIME SHIFT OF PEAK FLOW (min)= 40.00
MAXIMUM STORAGE USED (ha.m.)= 0.0758

ADD HYD (0902)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	1.18	0.027	12.50	19.65
+ ID2= 2 (0401):	3.11	0.040	12.67	49.50
=====				
ID = 3 (0902):	4.30	0.067	12.58	41.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

V V I SSSS U U A L (v 6.2.2015)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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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\V02\voin.dat

Output filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\63609
eb4-174e-4838-80d7-9f068f0efef9\scen
Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\63609
eb4-174e-4838-80d7-9f068f0efef9\scen

DATE: 09/16/2024 TIME: 02:17:43

USER:

COMMENTS:

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

READ STORM
Filename: C:\Users\ASchoof\AppData\Local\Temp\
b6c1b163-7b27-4925-bd3c-f9edb913a708\c1f31b71
Ptotal= 71.39 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	1.15	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

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

 CALIB
 NASHYD (0202) | Area (ha)= 1.18 Curve Number (CN)= 77.6
 ID= 1 DT= 5.0 min | Ia (mm)= 4.90 # of Linear Res.(N)= 3.00

 U.H. Tp(hrs)= 0.59

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.083	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

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)= 0.077

PEAK FLOW (cms)= 0.045 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 31.616
TOTAL RAINFALL (mm)= 71.385
RUNOFF COEFFICIENT = 0.443

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

CALIB	
STANDHYD (0201)	Area (ha)= 2.67
ID= 1 DT= 5.0 min	Total Imp(%)= 92.30 Dir. Conn.(%)= 92.30

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	2.47	0.21
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.50	2.00
Length (m)=	133.44	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	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

Max.Eff.Inten.(mm/hr)= 87.64 42.23
over (min) 5.00 5.00
Storage Coeff. (min)= 2.84 (ii) 3.63 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.28 0.25

TOTALS

PEAK FLOW (cms)= 0.60 0.02 0.622 (iii)
TIME TO PEAK (hrs)= 12.00 12.00 12.00
RUNOFF VOLUME (mm)= 69.39 28.32 66.22
TOTAL RAINFALL (mm)= 71.39 71.39 71.39
RUNOFF COEFFICIENT = 0.97 0.40 0.93

***** 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.

CALIB			
STANDHYD (0203)	Area (ha)= 0.44		
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.44	0.00
Dep. Storage (mm)=	2.00	2.00
Average Slope (%)=	1.00	1.00
Length (m)=	54.22	40.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr

0.083	0.00	6.083	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

Max.Eff.Inten.(mm/hr)= 87.64 87.64
over (min) 5.00 5.00
Storage Coeff. (min)= 1.87 (ii) 3.32 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.32 0.26

TOTALS
PEAK FLOW (cms)= 0.11 0.00 0.107 (iii)
TIME TO PEAK (hrs)= 12.00 12.00 12.00
RUNOFF VOLUME (mm)= 69.39 69.39 69.38
TOTAL RAINFALL (mm)= 71.39 71.39 71.39
RUNOFF COEFFICIENT = 0.97 0.97 0.97

***** 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(0403)
IN= 2---> OUT= 1
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0230	0.0336

0.0077	0.0112	0.0307	0.0448
0.0153	0.0224	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0203)	0.441	0.107	12.00	69.38
OUTFLOW: ID= 1 (0403)	0.441	0.011	12.50	68.55

PEAK FLOW REDUCTION [Qout/Qin](%)= 10.10
TIME SHIFT OF PEAK FLOW (min)= 30.00
MAXIMUM STORAGE USED (ha.m.)= 0.0158

ADD HYD (0901)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0201):	2.67	0.622	12.00	66.22
+ ID2= 2 (0403):	0.44	0.011	12.50	68.55
=====				
ID = 3 (0901):	3.11	0.632	12.00	66.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0401)
IN= 2---> OUT= 1
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0837	0.1006
0.0033	0.0016	0.0977	0.1122
0.0066	0.0079	0.1097	0.1232
0.0087	0.0142	0.1205	0.1332
0.0104	0.0223	0.1327	0.1436
0.0118	0.0361	0.1417	0.1502
0.0131	0.0496	0.1501	0.1565
0.0143	0.0628	0.1561	0.1612
0.0397	0.0758	0.1654	0.1675
0.0663	0.0884	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0901)	3.112	0.632	12.00	66.55
OUTFLOW: ID= 1 (0401)	3.112	0.078	12.50	66.52

PEAK FLOW REDUCTION [Qout/Qin](%)= 12.36
TIME SHIFT OF PEAK FLOW (min)= 30.00
MAXIMUM STORAGE USED (ha.m.)= 0.0968

```
| ADD HYD ( 0902) |
| 1 + 2 = 3 |
=====
ID1= 1 ( 0202):      AREA   QPEAK   TPEAK   R.V.
+ ID2= 2 ( 0401):      (ha)   (cms)   (hrs)   (mm)
=====
ID = 3 ( 0902):      1.18   0.045   12.50   31.62
                    3.11   0.078   12.50   66.52
=====
ID = 3 ( 0902):      4.30   0.123   12.50   56.90
=====
```

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
VW   I  SSSSS  UUUUU  A  A  LLLLL
```

```
000  TTTT  TTTT  H  H  Y  Y  M  M  000  TM
O  O  T    T  H  H  Y  Y  MM MM  O  O
O  O  T    T  H  H  Y  Y  M  M  O  O
000  T    T  H  H  Y  Y  M  M  000
```

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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 OTTHYM0 6.2\V02\voin.dat

Output filename:

C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\51028
53a-8de3-4bb3-a72e-1a8bf965736\scen

Summary filename:

C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\51028
53a-8de3-4bb3-a72e-1a8bf965736\scen

DATE: 09/16/2024

TIME: 02:17:43

USER:

COMMENTS: _____

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

```
-----
| READ STORM |
| Ptotal= 82.75 mm |
-----
Filename: C:\Users\ASchoof\AppData
          ata\Local\Temp\
          b6c1b163-7b27-4925-bd3c-f9edb913a708\40329db0
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	1.33	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

```
-----
| CALIB
| NASHYD ( 0202) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 1.18 Curve Number (CN)= 77.6
Ia (mm)= 4.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.59
```

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

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.083	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)= 0.077

PEAK FLOW (cms)= 0.057 (i)

TIME TO PEAK (hrs)= 12.500

RUNOFF VOLUME (mm)= 40.090

TOTAL RAINFALL (mm)= 82.751

RUNOFF COEFFICIENT = 0.484

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

CALIB	Area (ha)=	2.67
STANDHYD (0201)	Total Imp(%)=	92.30
ID= 1 DT= 5.0 min	Dir. Conn.(%)=	92.30

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	2.47	0.21
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.50	2.00

Length (m)= 133.44 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	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

Max.Eff.Inten.(mm/hr)= 101.59 53.92
over (min) 5.00 5.00
Storage Coeff. (min)= 2.67 (ii) 3.42 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.29 0.26

TOTALS

PEAK FLOW (cms)= 0.69 0.03 0.725 (iii)
TIME TO PEAK (hrs)= 12.00 12.00 12.00
RUNOFF VOLUME (mm)= 80.75 36.20 77.32
TOTAL RAINFALL (mm)= 82.75 82.75 82.75
RUNOFF COEFFICIENT = 0.98 0.44 0.93

***** 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.

CALIB
STANDHYD (0203)
ID= 1 DT= 5.0 min

Area (ha)= 0.44
Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 0.44 0.00
Dep. Storage (mm)= 2.00 2.00
Average Slope (%)= 1.00 1.00
Length (m)= 54.22 40.00
Mannings n = 0.013 0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.083	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

Max.Eff.Inten.(mm/hr)= 101.59 101.59
over (min) 5.00 5.00
Storage Coeff. (min)= 1.76 (ii) 3.13 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.32 0.27

TOTALS

PEAK FLOW	(cms)=	0.12	0.00	0.124 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	80.75	80.75	80.75
TOTAL RAINFALL	(mm)=	82.75	82.75	82.75
RUNOFF COEFFICIENT	=	0.98	0.98	0.98

***** 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(0403)
IN= 2---> OUT= 1
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW	STORAGE	OUTFLOW	STORAGE
(cms)	(ha.m.)	(cms)	(ha.m.)
0.0000	0.0000	0.0230	0.0336
0.0077	0.0112	0.0307	0.0448
0.0153	0.0224	0.0000	0.0000

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0203)	0.441	0.124	12.00	80.75
OUTFLOW: ID= 1 (0403)	0.441	0.013	12.50	79.92

PEAK FLOW REDUCTION [Qout/Qin](%)= 10.09
TIME SHIFT OF PEAK FLOW (min)= 30.00
MAXIMUM STORAGE USED (ha.m.)= 0.0184

ADD HYD (0901)
1 + 2 = 3

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0201):	2.67	0.725	12.00	77.32
+ ID2= 2 (0403):	0.44	0.013	12.50	79.92
=====				
ID = 3 (0901):	3.11	0.736	12.00	77.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0401)
IN= 2---> OUT= 1
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW	STORAGE	OUTFLOW	STORAGE
---------	---------	---------	---------

	(cms)	(ha.m.)	(cms)	(ha.m.)
0.0000	0.0000	0.0837	0.1006	
0.0033	0.0016	0.0977	0.1122	
0.0066	0.0079	0.1097	0.1232	
0.0087	0.0142	0.1205	0.1332	
0.0104	0.0223	0.1327	0.1436	
0.0118	0.0361	0.1417	0.1502	
0.0131	0.0496	0.1501	0.1565	
0.0143	0.0628	0.1561	0.1612	
0.0397	0.0758	0.1654	0.1675	
0.0663	0.0884	0.0000	0.0000	

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0901)	3.112	0.736	12.00	77.69
OUTFLOW: ID= 1 (0401)	3.112	0.097	12.50	77.65

PEAK FLOW REDUCTION [Qout/Qin](%)= 13.22
TIME SHIFT OF PEAK FLOW (min)= 30.00
MAXIMUM STORAGE USED (ha.m.)= 0.1119

ADD HYD (0902)
1 + 2 = 3

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0202):	1.18	0.057	12.50	40.09
+ ID2= 2 (0401):	3.11	0.097	12.50	77.65
=====				
ID = 3 (0902):	4.30	0.154	12.50	67.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

V V I SSSS U U A L (v 6.2.2015)
V V I SS U U A A L
V V I SS U U A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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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\V02\voin.dat

Output filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\ca7a5d83-2a2d-4bb7-ba78-12537fb25300\scen

Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\ca7a5d83-2a2d-4bb7-ba78-12537fb25300\scen

DATE: 09/16/2024

TIME: 02:17:44

USER:

COMMENTS: _____

CALIB			
NASHYD (0202)	Area (ha)=	1.18	Curve Number (CN)= 77.6
ID= 1 DT= 5.0 min	Ia (mm)=	4.90	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.59	

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

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

READ STORM	Filename: C:\Users\ASchoof\AppData\Local\Temp\
	b6c1b163-7b27-4925-bd3c-f9edb913a708\b8ac5d2b
Ptotal= 97.61 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	1.57	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

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.083	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)= 0.077

PEAK FLOW (cms)= 0.074 (i)
 TIME TO PEAK (hrs)= 12.500
 RUNOFF VOLUME (mm)= 51.763
 TOTAL RAINFALL (mm)= 97.606
 RUNOFF COEFFICIENT = 0.530

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

CALIB		Area (ha)=	2.67
STANDHYD (0201)		Total Imp(%)=	92.30
ID= 1 DT= 5.0 min		Dir. Conn.(%)=	92.30

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.47	0.21
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.50	2.00
Length	(m)=	133.44	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	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

Max.Eff.Inten.(mm/hr)=	119.83	70.08
over (min)	5.00	5.00
Storage Coeff. (min)=	2.50 (ii)	3.20 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.29	0.27

			TOTALS
PEAK FLOW (cms)=	0.82	0.04	0.860 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	95.61	47.16	91.88
TOTAL RAINFALL (mm)=	97.61	97.61	97.61
RUNOFF COEFFICIENT =	0.98	0.48	0.94

***** 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.

CALIB	Area (ha)=	0.44	
STANDHYD (0203)	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00
ID= 1 DT= 5.0 min			

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.44	0.00
Dep. Storage (mm)=	2.00	2.00
Average Slope (%)=	1.00	1.00
Length (m)=	54.22	40.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.083	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

Max.Eff.Inten.(mm/hr)=	119.83	119.83
over (min)	5.00	5.00
Storage Coeff. (min)=	1.65 (ii)	2.93 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.32	0.28

TOTALS

PEAK FLOW (cms)=	0.15	0.00	0.147 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	95.61	95.61	95.60
TOTAL RAINFALL (mm)=	97.61	97.61	97.61
RUNOFF COEFFICIENT =	0.98	0.98	0.98

***** 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(0403)
IN= 2---> OUT= 1
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0230	0.0336
0.0077	0.0112	0.0307	0.0448
0.0153	0.0224	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0203)	0.441	0.147	12.00	95.60
OUTFLOW: ID= 1 (0403)	0.441	0.015	12.50	94.77

PEAK FLOW REDUCTION [Qout/Qin](%)= 10.09
TIME SHIFT OF PEAK FLOW (min)= 30.00
MAXIMUM STORAGE USED (ha.m.)= 0.0217

ADD HYD (0901)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0201):	2.67	0.860	12.00	91.88
+ ID2= 2 (0403):	0.44	0.015	12.50	94.77
=====				
ID = 3 (0901):	3.11	0.873	12.00	92.29

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0401)
IN= 2---> OUT= 1
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0837	0.1006
0.0033	0.0016	0.0977	0.1122
0.0066	0.0079	0.1097	0.1232
0.0087	0.0142	0.1205	0.1332
0.0104	0.0223	0.1327	0.1436
0.0118	0.0361	0.1417	0.1502
0.0131	0.0496	0.1501	0.1565
0.0143	0.0628	0.1561	0.1612
0.0397	0.0758	0.1654	0.1675
0.0663	0.0884	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0901)	3.112	0.873	12.00	92.29
OUTFLOW: ID= 1 (0401)	3.112	0.120	12.25	92.25

PEAK FLOW REDUCTION [Qout/Qin](%)= 13.75
TIME SHIFT OF PEAK FLOW (min)= 15.00
MAXIMUM STORAGE USED (ha.m.)= 0.1328

ADD HYD (0902)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	1.18	0.074	12.50	51.76
+ ID2= 2 (0401):	3.11	0.120	12.25	92.25

=====

ID = 3 (0902): 4.30 0.194 12.50 81.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

V V I SSSS U U A L (v 6.2.2015)
V V I SS U U A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL

000 TTTT TTTT H H Y Y M M 000 TM
0 0 T T H H Y Y MM MM 0 0
0 0 T T H H Y M M 0 0
000 T T H H Y M M 000

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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\V02\voin.dat

Output filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\53858
9f8-5e01-4f06-9ae9-52c9a0219832\scen
Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\53858
9f8-5e01-4f06-9ae9-52c9a0219832\scen

DATE: 09/16/2024

TIME: 02:17:43

USER:

COMMENTS: _____

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

READ STORM
Ptotal=108.47 mm

Filename: C:\Users\ASchoof\AppData
ata\Local\Temp\
b6c1b163-7b27-4925-bd3c-f9edb913a708\93a3a212
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	1.74	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 (0202) |
ID= 1 DT= 5.0 min

Area (ha)= 1.18 Curve Number (CN)= 77.6
Ia (mm)= 4.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.59

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

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.083	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)= 0.077

PEAK FLOW (cms)= 0.087 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 60.641
TOTAL RAINFALL (mm)= 108.474
RUNOFF COEFFICIENT = 0.559

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

| CALIB |
| STANDHYD (0201) | Area (ha)= 2.67
| ID= 1 DT= 5.0 min | Total Imp(%)= 92.30 Dir. Conn.(%)= 92.30
|-----|

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	2.47	0.21
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	1.50	2.00
Length (m)=	133.44	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	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

Max.Eff.Inten.(mm/hr)= 133.17 82.39
over (min) 5.00 5.00
Storage Coeff. (min)= 2.40 (ii) 3.07 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.30 0.27

TOTALS

PEAK FLOW (cms)= 0.91 0.05 0.959 (iii)
TIME TO PEAK (hrs)= 12.00 12.00 12.00
RUNOFF VOLUME (mm)= 106.47 55.56 102.55
TOTAL RAINFALL (mm)= 108.47 108.47 108.47
RUNOFF COEFFICIENT = 0.98 0.51 0.95

***** 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.

CALIB	Area (ha)= 0.44
STANDHYD (0203)	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00
ID= 1 DT= 5.0 min	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.44	0.00
Dep. Storage (mm)=	2.00	2.00
Average Slope (%)=	1.00	1.00
Length (m)=	54.22	40.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.083	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

Max.Eff.Inten.(mm/hr)= 133.17 133.17
over (min) 5.00 5.00
Storage Coeff. (min)= 1.58 (ii) 2.81 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.33 0.28

TOTALS

PEAK FLOW (cms)= 0.16 0.00 0.163 (iii)
TIME TO PEAK (hrs)= 12.00 12.00 12.00
RUNOFF VOLUME (mm)= 106.47 106.47 106.47
TOTAL RAINFALL (mm)= 108.47 108.47 108.47
RUNOFF COEFFICIENT = 0.98 0.98 0.98

***** 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.

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-----
| RESERVOIR( 0403)| OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT= 5.0 min |
-----

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OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0230	0.0336
0.0077	0.0112	0.0307	0.0448
0.0153	0.0224	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0203)	0.441	0.163	12.00	106.47
OUTFLOW: ID= 1 (0403)	0.441	0.016	12.50	105.65

PEAK FLOW REDUCTION [Qout/Qin](%)= 10.09
TIME SHIFT OF PEAK FLOW (min)= 30.00
MAXIMUM STORAGE USED (ha.m.)= 0.0241

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-----
| ADD HYD ( 0901)|
| 1 + 2 = 3 |
-----

```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0201):	2.67	0.959	12.00	102.55
+ ID2= 2 (0403):	0.44	0.016	12.50	105.65
=====				
ID = 3 (0901):	3.11	0.973	12.00	102.99

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| RESERVOIR( 0401)| OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT= 5.0 min |
-----

```

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0837	0.1006
0.0033	0.0016	0.0977	0.1122
0.0066	0.0079	0.1097	0.1232
0.0087	0.0142	0.1205	0.1332
0.0104	0.0223	0.1327	0.1436
0.0118	0.0361	0.1417	0.1502
0.0131	0.0496	0.1501	0.1565

0.0143	0.0628	0.1561	0.1612
0.0397	0.0758	0.1654	0.1675
0.0663	0.0884	0.0000	0.0000

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0901)	3.112	0.973	12.00	102.99
OUTFLOW: ID= 1 (0401)	3.112	0.139	12.17	102.95

PEAK FLOW REDUCTION [Qout/Qin](%)= 14.29
TIME SHIFT OF PEAK FLOW (min)= 10.00
MAXIMUM STORAGE USED (ha.m.)= 0.1483

ADD HYD (0902)
1 + 2 = 3

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0202):	1.18	0.087	12.50	60.64
+ ID2= 2 (0401):	3.11	0.139	12.17	102.95
=====				
ID = 3 (0902):	4.30	0.225	12.50	91.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

V V I SSSS U U A L (v 6.2.2015)
V V I SS U U AAAA L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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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\V02\voin.dat

Output filename:

C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\7910f
fe8-c2d6-49bb-b862-668182ca7511\scen

Summary filename:
C:\Users\ASchoof\AppData\Local\Civica\XH5\db087677-d2dd-46ce-8964-f33feda22920\7910f
fe8-c2d6-49bb-b862-668182ca7511\scen

DATE: 09/16/2024

TIME: 02:17:44

USER:

COMMENTS:

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

READ STORM	Filename: C:\Users\ASchoof\AppData\Local\Temp\
	b6c1b163-7b27-4925-bd3c-f9edb913a708\fd73645d
Ptotal=119.14 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	1.91	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 (0202)
 ID= 1 DT= 5.0 min

Area (ha)= 1.18 Curve Number (CN)= 77.6
 Ia (mm)= 4.90 # of Linear Res.(N)= 3.00
 U.H. Tp(hrs)= 0.59

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.083	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)= 0.077

PEAK FLOW (cms)= 0.100 (i)
 TIME TO PEAK (hrs)= 12.500
 RUNOFF VOLUME (mm)= 69.581
 TOTAL RAINFALL (mm)= 119.142
 RUNOFF COEFFICIENT = 0.584

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

 CALIB
 STANDHYD (0201)
 ID= 1 DT= 5.0 min

	Area	(ha)=	2.67		
	Total Imp(%)=	92.30	Dir. Conn.(%)=	92.30	
	IMPERVIOUS	PERVIOUS (i)			
Surface Area	(ha)=	2.47	0.21		
Dep. Storage	(mm)=	2.00	5.00		
Average Slope	(%)=	1.50	2.00		
Length	(m)=	133.44	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	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

Max.Eff.Inten.(mm/hr)=	146.27	94.79
over (min)=	5.00	5.00
Storage Coeff. (min)=	2.31 (ii)	2.95 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.30	0.28

TOTALS

PEAK FLOW	(cms)=	1.00	0.06	1.056 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	117.14	64.06	113.05
TOTAL RAINFALL	(mm)=	119.14	119.14	119.14
RUNOFF COEFFICIENT	=	0.98	0.54	0.95

***** 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.

CALIB	Area (ha)=	0.44
STANDHYD (0203)	Total Imp(%)=	99.00 Dir. Conn.(%)= 99.00
ID= 1 DT= 5.0 min		

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.44	0.00
Dep. Storage (mm)=	2.00	2.00
Average Slope (%)=	1.00	1.00
Length (m)=	54.22	40.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.083	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

Max.Eff.Inten.(mm/hr)=	146.27	146.27
over (min)	5.00	5.00
Storage Coeff. (min)=	1.52 (ii)	2.71 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.33	0.29

			TOTALS
PEAK FLOW (cms)=	0.18	0.00	0.179 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	117.14	117.14	117.14
TOTAL RAINFALL (mm)=	119.14	119.14	119.14
RUNOFF COEFFICIENT =	0.98	0.98	0.98

***** 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(0403)
IN= 2---> OUT= 1
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW	STORAGE	OUTFLOW	STORAGE
(cms)	(ha.m.)	(cms)	(ha.m.)
0.0000	0.0000	0.0230	0.0336
0.0077	0.0112	0.0307	0.0448
0.0153	0.0224	0.0000	0.0000

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0203)	0.441	0.179	12.00	117.14
OUTFLOW: ID= 1 (0403)	0.441	0.018	12.50	116.31

PEAK FLOW REDUCTION [Qout/Qin](%)=	10.10
TIME SHIFT OF PEAK FLOW (min)=	30.00
MAXIMUM STORAGE USED (ha.m.)=	0.0265

ADD HYD (0901)

1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0201):	2.67	1.056	12.00	113.05
+ ID2= 2 (0403):	0.44	0.018	12.50	116.31
ID = 3 (0901):	3.11	1.072	12.00	113.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0401)
IN= 2---> OUT= 1
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW	STORAGE	OUTFLOW	STORAGE
(cms)	(ha.m.)	(cms)	(ha.m.)
0.0000	0.0000	0.0837	0.1006
0.0033	0.0016	0.0977	0.1122
0.0066	0.0079	0.1097	0.1232
0.0087	0.0142	0.1205	0.1332
0.0104	0.0223	0.1327	0.1436
0.0118	0.0361	0.1417	0.1502
0.0131	0.0496	0.1501	0.1565
0.0143	0.0628	0.1561	0.1612
0.0397	0.0758	0.1654	0.1675
0.0663	0.0884	0.0000	0.0000

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0901)	3.112	1.072	12.00	113.52
OUTFLOW: ID= 1 (0401)	3.112	0.159	12.17	113.48

PEAK FLOW REDUCTION [Qout/Qin](%)=	14.85
TIME SHIFT OF PEAK FLOW (min)=	10.00
MAXIMUM STORAGE USED (ha.m.)=	0.1633

ADD HYD (0902)
1 + 2 = 3

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0202):	1.18	0.100	12.50	69.58
+ ID2= 2 (0401):	3.11	0.159	12.17	113.48
ID = 3 (0902):	4.30	0.257	12.50	101.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Appendix C: Conveyance Calculations

853 Hurontario Street Existing Driveway Culvert

Flow From External Catchments

(from 109064-Collingwood Road Improvements)

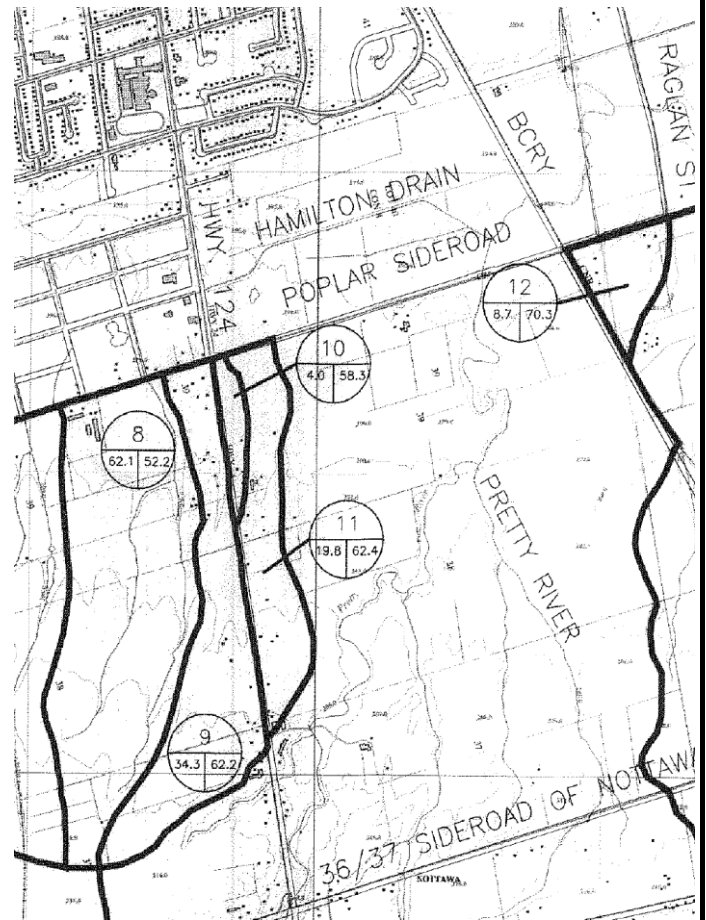
CATCHMENT	100 YEAR PEAK FLOW		
	CHI	SCS	
Ex. Catch. 10 =	0.10	0.16	cms
Ex. Catch. 11 =	0.43	0.43	cms
Catch. 202 =	0.095	0.100	cms
TOTAL	0.625	0.690	cms

Circular Pipe, Full Flow

Manning's n	0.022	
Slope (assumed min.)	0.005	m/m
Diameter	0.95	m
Area	0.709	m ²
Perimeter	2.985	m
Hydraulic Radius	0.2375	m

Capacity	0.874	cms
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$$Q = \frac{1}{n} \cdot A \cdot R^{2/3} \cdot S^{1/2}$$



Regional Flow	0.690	cms	<	Capacity	0.874	cms
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Appendix D: Underground Storage System & OGS Details

Project: Gateway Centre



Chamber Model -
Units -
Number of Chambers -
Number of End Caps -
Voids in the stone (porosity) -
Base of Stone Elevation -
Amount of Stone Above Chambers -
Amount of Stone Below Chambers -
Amount of Stone Between Chambers -

MC-3500	
Metric	Click Here for Imperial
310	
40	
40	%
193.70	m
305	mm
305	mm
229	mm
1550	sq.meters

☒ Include Perimeter Stone in Calculations

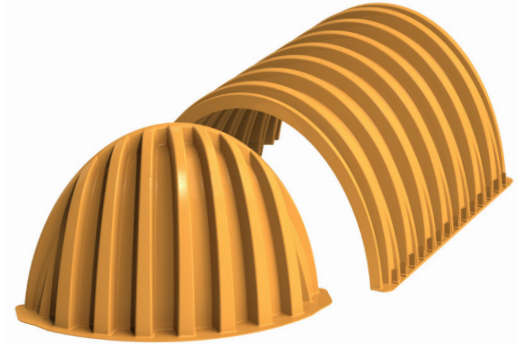
Min. Area - 1548.641 sq.meters

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

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)

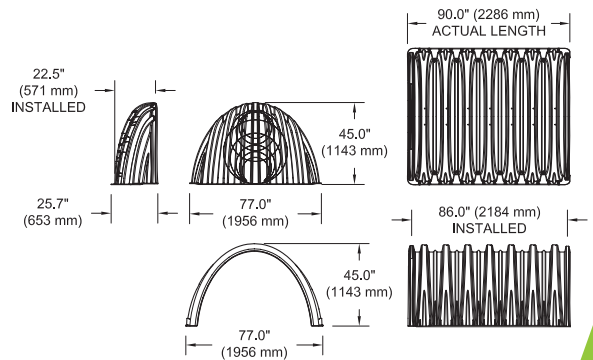
Min. Installed Storage*

45.1 ft³ (1.28 m³)

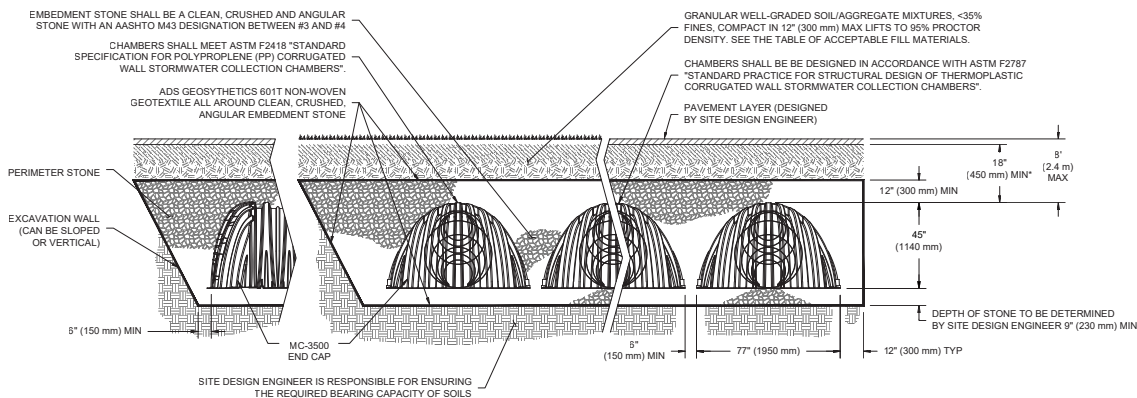
Weight

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.



*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.



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

StormTech MC-3500 Specifications

Storage Volume Per Chamber

	Bare Chamber Storage ft ³ (m ³)	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 (yds ³)	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 (m ³)	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 ASTM F2922, comply with all requirements in the Build America, Buy America (BABA) Act.

Working on a project?

Visit us at adspipe.com/stormtech and utilize the Design Tool



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800-821-6710



Hydroworks Sizing Summary

The Gateway Centre

Collingwood, ON

05-21-2024

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 3.11 (ha) with an imperviousness of 93.35 % and Collingwood, Ontario rainfall for the User defined particle size distribution.

The recommended HydroStorm HS 10 treats 98 % of the annual runoff and provides 81 % annual TSS removal for the Collingwood rainfall records and User defined particle size distribution.

The HydroStorm has a headloss coefficient (K) of 1.04. The given peak flow of .63 (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 165 (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

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

Site Parameters

Area (ha) 3.11

Imperviousness (%) 93.35

Units

☐ U.S.

☒ Metric

Rainfall Station

Collingwood Ontario

2013 To 2021 Rainfall Timestep = 60 min.

Project Title (2 lines)

The Gateway Centre

Collingwood, ON

ETV Lab Testing Results ☐ Post Treatment Recharge

Outlet Pipe

Diam. (mm) 675 Peak Design Flow (m3/s) 0.632

Slope (%) .5

HydroStorm Annual Sizing Results

Model #	Qlow (m3/s)	Qtot (m3/s)	Flow Capture (%)	TSS Removal (%)
Unavailable	.034	.632	84 %	38 %
HS 4	.058	.632	90 %	48 %
HS 5	.073	.632	92 %	59 %
HS 6	.089	.632	93 %	67 %
Unavailable	.127	.632	96 %	71 %
HS 8	.169	.632	97 %	74 %
HS 10	.242	.632	98 %	81 %
HS 12	.324	.632	99 %	86 %

Particle Size Distribution

Size (um)	%	SG
20	20	2.65
60	20	2.65
150	20	2.65
400	20	2.65
2000	20	2.65

Note: Results vary significantly based on particle size distribution

Simulate

TSS Particle Size Distribution

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

TSS Particle Size Distribution

Size (um)	%	SG
20	20	2.65
60	20	2.65
150	20	2.65
400	20	2.65
2000	20	2.65
*		

Notes:

1. To change data just click a cell and type in the new value(s)
2. To add a row just go to the bottom of the table and start typing.
3. To delete a row, select the row by clicking on the first pointer column, then press delete
4. To sort the table click on one of the column headings

TSS Distributions

☐ ETV Canada

☐ Standard HDS Design

☐ Alden Laboratory

☐ OK110

☐ Toronto

☐ Ontario Fine

☐ ETV Canada (Calgary)

☐ Calgary Forebay

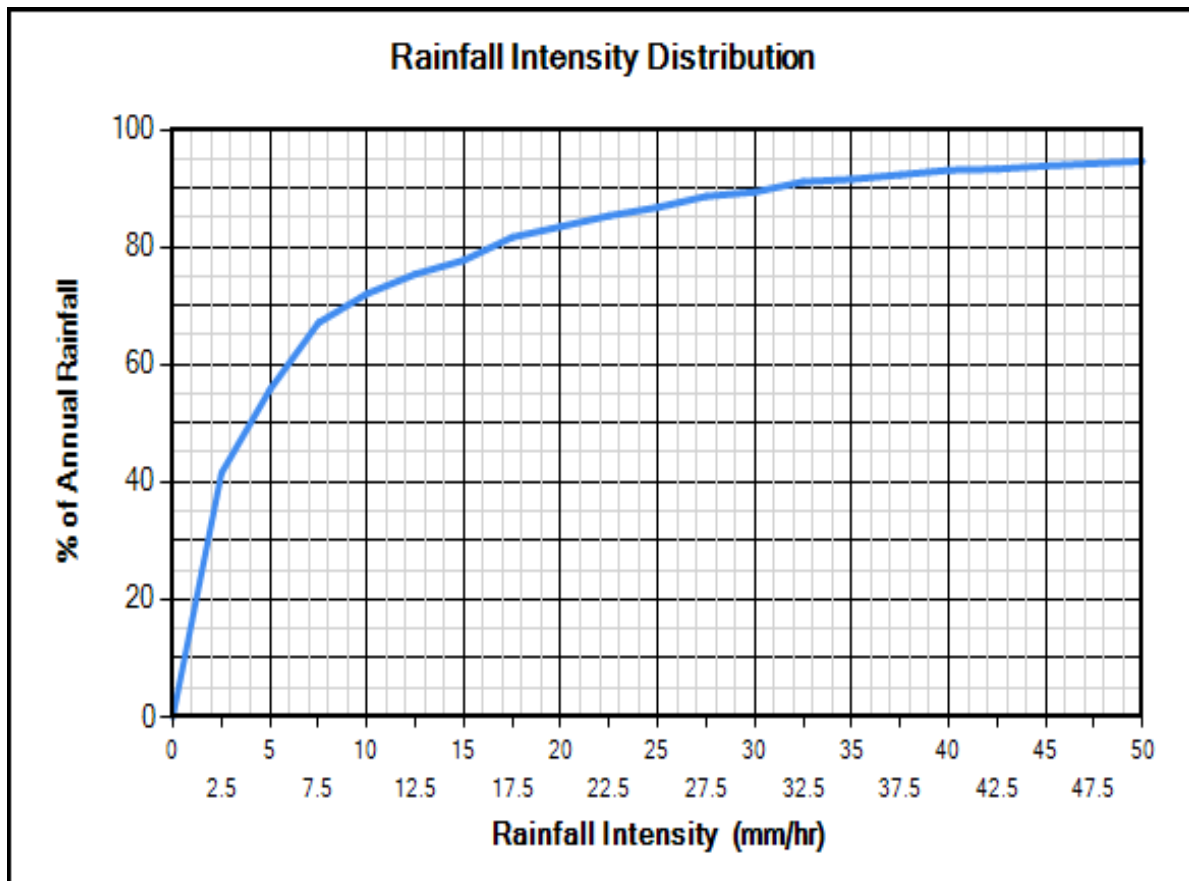
☐ Kitchener

☒ User Defined

Clear

You must select a particle size distribution for TSS to simulate TSS removal

Water Temp (C) 20



Site Physical Characteristics

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

Catchment Parameters

Width (m) Imperv. Mannings n Maintenance Frequency (months)

Perv Mannings n

Slope (%) Imp. Depress. Storage (mm)

Perv. Depress. Storage (mm)

Daily Evaporation (mm/day)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	2.54	2.54	3.81	3.81	3.81	2.54	2.54	0	0

Infiltration

Max. Infiltration Rate (mm/hr)

Min. Infiltration Rate (mm/hr)

Infiltration Decay Rate (1/s)

Infiltration Regen. Rate (1/s)

Catch Basins

of Catch basins

Constant Baseflow

Roof Runoff (m3/s)

Resets all parameters excluding input catchment width.

Dimensions And Capacities

Hydroworks Hydrodynamic Separator Sizing Program - HydroStorm

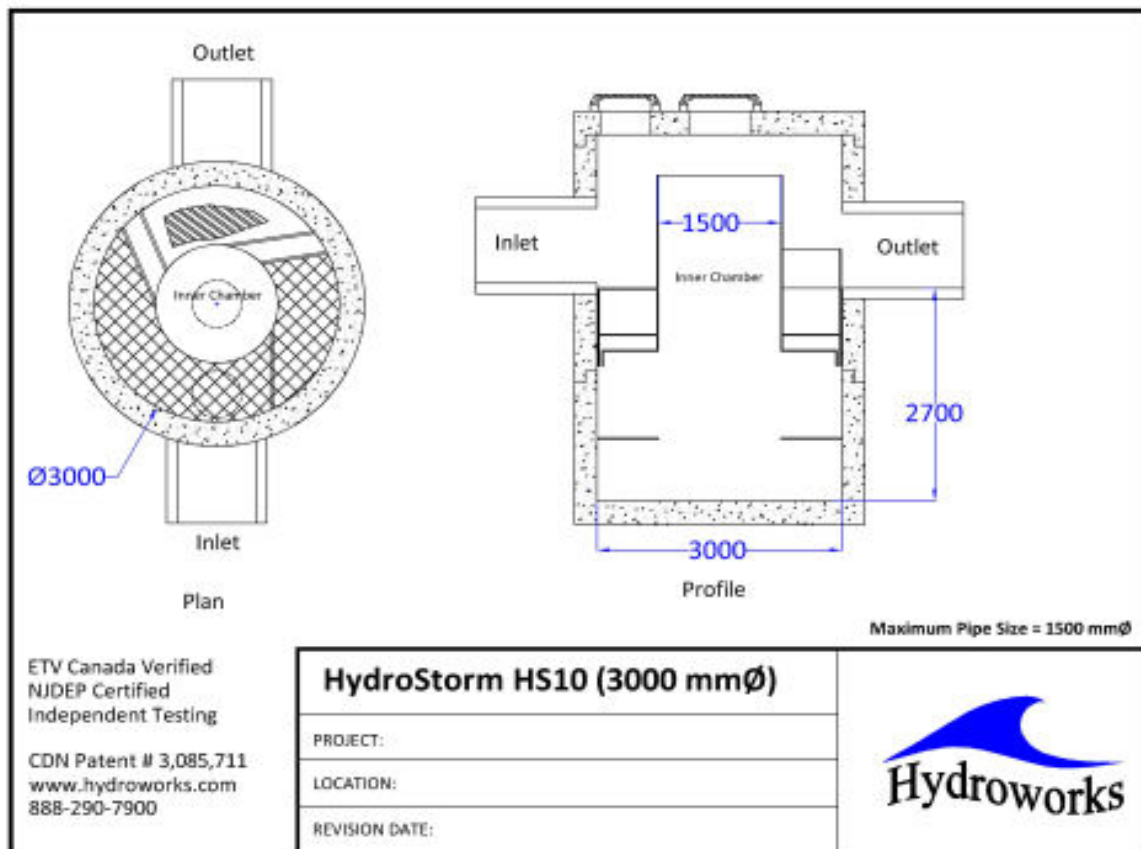
File Product Units CAD Video Help

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)
HS 3	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	1575	4.6	7.1
HS 8	2.44	2.13	2354	6.3	10
HS 10	3.05	2.74	4327	13.2	20
HS 12	3.66	3.35	7164	23.8	35.2

Depth = Depth from outlet invert to inside bottom of tank

Generic HS 10 CAD Drawing



TSS Buildup And Washoff

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

TSS Buildup

☐ Power Linear
☒ Exponential
☐ Michaelis-Menton
☐ No Buildup Required

TSS Washoff

☒ Power-Exponential
☐ Rating Curve (no upper limit)
☐ Rating Curve (limited to buildup)
☐ Event Mean Concentration

Street Sweeping

Efficiency (%)
Start Month
Stop Month
Frequency (days)
Available Fraction

Soil Erosion

☐ Add Erosion to TSS

Reset to Default Values

TSS Buildup Parameters

Limit (kg/ha)
Coeff (kg/ha)
Exponent

TSS Washoff Parameters

Coefficient
Exponent

TSS Buildup

☒ Based on Area
☐ Based on Curb Length

Upstream Quantity Storage

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

Quantity Control Storage

	Storage (m3)	Discharge (m3/s)
▶	0	0
*		

Clear

Other Parameters

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

Scaling Law

- ☒ Peclet Scaling based on diameter x depth
- ☐ Peclet Scaling based on surface area (diameter x diameter)

TSS Removal Extrapolation

- ☒ Extrapolate TSS Removal for flows lower than tested
- ☐ No TSS Removal extrapolation for flows lower than tested
- ☐ No TSS Removal extrapolation for lower flows or inter-event periods

Lab Testing

- ☐ Use NJDEP Lab Testing Results
- ☒ Use ETV Canada Lab Testing Results

Oil / Sediment Storage

- ☒ Oil Spill Storage in Pretreatment Area
- ☐ Sediment Storage in Pretreatment Area
- ☐ 50% Oil Spill / 50% Sediment Storage in Pretreatment Area

TSS Removal Results

- ☒ Required TSS Removal
- ☐ Choose Model #

TSS Removal Required

TSS Removal (%) Enter required TSS Removal (%)

Flagged Issues

None

Hydroworks Sizing Program - Version 5.8.5

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