TATHAM ENGINEERING

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Cranberry Marsh Estates

STORMWATER MANAGEMENT REPORT

Hill Ridge Homes

File 120181 | July 28, 2023

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Issue	Date	Description
1	March 4, 2022	Draft Plan Submission
2	December 1, 2022	2nd Submission
3	July 28, 2023	3rd Submission

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1 Introduction

Tatham Engineering Limited has prepared this Stormwater Management (SWM) Report in support of a site plan approval application of a residential development located in the Town of Collingwood, County of Simcoe. Specifically, this report has been prepared to address the internal and external servicing requirements related to stormwater management associated with the project.

1.1 OBJECTIVES

The primary objective of this report is to investigate the existing and proposed drainage conditions of the subject property to develop a stormwater management plan that 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 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 have been prepared in conjunction with this report in support of the proposed residential development and are summarized below.

- *Cranberry Marsh Estates Preliminary Stormwater Management Report* prepared by C.C. Tatham & Associates Ltd. (October 2011);
- Regional Stormwater Management Update & Master SWM Strategy – Tanglewood at Cranberry Trail / Cranberry Creek Watershed – Tanglewood (Sierra Homes) Inc., prepared by Crozier (May 2007);
- *Flood Study – Wyldewood Creek* prepared by C.F. Croziers & Associates Inc. (September 2020); and
- *Regional Stormwater Management Update & Master SWM Strategy* prepared by C.F. Crozier & Associates Inc. (May 2007).

2 Development Site

2.1 SITE LOCATION & DESCRIPTION

The subject property consists of approximately 1.29 ha of undeveloped land located south of Highway 26 in the Town of Collingwood. The site is currently vacant, and primarily tree covered with an environmentally protected marsh area at the south end of the property.

The municipal address of the subject property is 11589 Highway 26. The subject property is bounded by Highway 26 to the north, Georgian Manor Resort to the west, Greentrees Nursery & Emporium to the east, and the Cranberry Marsh to the south. The subject property is zoned as R3-34 (H10) – *Residential Third Density Exception 34*, excluding the southern portion of the site, which is zoned as EP-11 – *Environmental Protection Exception 11*. The subject property is regulated by the Nottawasaga Valley Conservation Authority (NVCA).

2.2 SURFACE CONDITIONS

A topographic survey of the subject property was completed by C.C. Tatham & Associates Ltd. in 2012 and updated based on a recent survey completed by Tatham Engineering in October 2022. The existing grading of the 170 m deep segment of land fronting Highway 26 generally slopes from the south to the north at an average gradient of 0.6%, The remainder of the subject property generally slopes from the north to south at an average slope of 0.3%, The site is currently vacant, and primarily tree covered with an environmentally protected marsh area at the south end of the property.

Refer to the Pre-Development Drainage Plan (DP-1) for details on existing drainage areas.

2.3 SUBSURFACE CONDITIONS

A geotechnical investigation, submitted under separate cover, completed by Peto MacCallum Ltd. dated January 2022. Fieldwork was conducted on November 22, 2021, consisting of four boreholes. The boreholes advanced to auger refusal, 3.4 m to 3.7 m below existing ground surface. Subsurface conditions are as follows:

- 50 mm to 200 mm of surficial topsoil;
- Borehole 1 showed a 650 mm layer of silt that was found to be very moist;
- Boreholes 2 - 4 showed a 0.5 m to 1.3 m layer of loose sand with trace amounts of silt and organics. The sand was found to be wet;
- A major till deposit extends below the silt or sand layers to the termination of the boreholes at 3.4 m for Borehole 3, and 3.7 m for Boreholes 1, 2 and 4. The till matrix varied from a silt

and sand with trace gravel and trace clay to a sandy silt with some gravel and trace clay. The till density was loose to very compact; and

- Auger refusal could have been due to boulders in the till or a shallow bedrock common in the area.

Groundwater was measured in the monitoring wells (Boreholes 1, 3 and 4) one month after installation (December 17, 2021). The geotechnical investigation established that the stabilized groundwater table is within 0.5 m of the ground surface at 179.30 m.

The soil has been classified as Parkhill loam or silt loam (Type BC), as per the *Soil Survey of Simcoe County - Report No. 29 of the Ontario Soil Survey*, completed by the Ontario Department of Agriculture. This soil group has low to moderate infiltration rates when thoroughly wetted.

2.4 PROPOSED DEVELOPMENT

The proposed development features a 7.2 m private road and cul-de-sac, beginning at Highway 26 and extending 220 m towards Cranberry Marsh, followed by a turning circle. The development will feature 5 buildings fronting the road and cul-de-sac, which will comprise of 26 townhomes. The majority of the lots will have 6 m frontages and are 28 m deep. The proposed development is shown on the Site Grading Plan (SG-1).

3 Existing Drainage Conditions

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

3.1 SURFACE DRAINAGE & RUNOFF

3.1.1 Development Site

The existing grade of the northern portion of the subject site (Catchment 101) generally slopes from the south to the north at an average gradient of 0.6%, discharging to an existing ditch conveying water towards the west property line where it enters an existing 600 mm diameter CSP. The CSP outlets into the roadside ditch south of Highway 26. The southern portion of the subject site (Catchment 102) generally slopes from the north to south at an average slope of 0.3%, outletting into the Cranberry Marsh to the south. Refer to the Pre-Development Drainage Plan (DP-1) for details on existing drainage areas.

3.1.2 Cranberry Marsh

The Cranberry Marsh borders the subject property to the south and various other properties described in this report. The Cranberry Marsh has been identified as a Provincially Significant Wetland (PSW). As part of the Tanglewood at Cranberry Trail Development, a regulatory floodplain elevation of 179.65 masl was approved for the Cranberry Marsh. This was based on an additional analysis prepared by C.F. Crozier & Associates Inc. in support for the Tanglewood at Cranberry Trail Development (May 2007).

3.1.3 Greentrees Nursery & Emporium

Surface runoff from the Greentrees Nursery & Emporium property drains overland as sheet flow into perimeter ditches surrounding the property.

The west perimeter ditch (adjacent to the east property line of the subject site) has an average slope of 0.1% to the north and has various high and low points. Runoff from the ditch enters an existing 300 mm diameter CSP culvert that conveys runoff to an existing storm maintenance hole on the south side of Highway 26. This storm maintenance hole is connected to a maintenance hole on the north side of Highway 26 via a 300 mm diameter CSP pipe, discharging into the north Highway 26 roadside ditch opposite the subject property.

The Greentrees Nursery & Emporium south perimeter ditch connects directly to the west perimeter ditch and Cranberry Marsh. Depending on the water level in the Cranberry Marsh, this ditch also surcharges and functions as a storage area.

Under surcharged pipe conditions or elevated Cranberry Marsh water levels, the ditch water levels can rise to a level that causes water to spill over the west bank of the west ditch into the subject property. Runoff then flows northwest overland across the subject property where it eventually discharges into the Highway 26 roadside ditch.

There are plans by Sherwood Homes to re-develop Greentrees Nursey & Emporium. Tatham Engineering has been retained to develop the site grading plan and the stormwater management plan for this new development, presenting a unique opportunity to develop Cranberry Marsh Estates stormwater management plan in conjunction with the future Greentree Development. Modifications to the Greentree site drainage will include replacement of the west ditch that functions with both the Greentree site and the proposed Cranberry Marsh Estates site (existing elevations along the adjoining property line are subject to change).

3.1.4 Georgian Manor Resort

The quadplex residential development immediately adjacent to the west property boundary of the subject site drains east to a 4.0 m utility easement located between the two properties. A high point approximately 175 m from the north property boundary directs flows north to the Highway 26 roadside ditch (from catchment 301) or south to an existing Stormwater Management Facility (SWMF) servicing Georgian Manor Resort (from catchment 302). There is no defined swale or ditch within the bordering properties, as such runoff from the rear of the quadplex units will spill into the Cranberry Marsh Estates property before ultimately draining to Highway 26 roadside ditch or the existing SWMF.

3.1.5 South Highway 26 Roadside Ditch Draining West

The south roadside ditch of Highway 26 draining west has a flat slope of less than 0.5%. As per *Cranberry Marsh Estates Preliminary Stormwater Management Report* prepared by C.C. Tatham & Associates Ltd. (October 2011), the ditch does not provide a sufficient outlet for the flow directed to it under flood spill conditions and as a result can cause additional flooding of adjacent lands between Princeton Shores Boulevard and the Cranberry Marsh Estates property.

3.2 SURFACE DRAINAGE & RUNOFF

The existing conditions, considering the site's surface and subsurface conditions, have been modelled in Visual OTTHYMO to establish the pre-development peak flows. The pre-development flows results are summarized in Table 1 and supporting calculations are provided in Appendix A.

Table 1: Pre-Development Peak Flow Rate Summary

PRE-DEVELOPMENT PEAK FLOW RATE (M^3/SEC)				
STORM EVENT	CATCH. 101/301 CHICAGO DESIGN STORM	CATCH. 101/301 SCS 24-HOUR STORM	CATCH. 102/302 CHICAGO DESIGN STORM	CATCH. 102/302 SCS 24-HOUR STORM
25mm	0.016	-	0.005	-
2-year	0.023	0.048	0.007	0.019
5-year	0.041	0.076	0.014	0.032
10-year	0.055	0.096	0.019	0.042
25-year	0.074	0.122	0.027	0.055
50-year	0.089	0.142	0.033	0.064
100-year	0.104	0.163	0.039	0.074
Timmins	**0.095**	**-**	**0.057**	**-**

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 Stormwater 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 to the Highway 26 roadside ditch north of the subject and external sites (Catchment 201/303). The Cranberry Marsh is the receiving waterbody for drainage from subject and external sites to the south (from Catchment 202/203/204/205/206/304). 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 Stormwater Quantity Control

Proposed condition peak flow rates discharging into the Highway 26 roadside ditch north of the subject site (from Catchment 201) 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.

A *Regional Stormwater Management Update & Master SWM Strategy* prepared by C.F. Crozier & Associates (May 2007) confirmed that increases in the Cranberry Marsh water levels resulting from increased runoff volumes from new developments within the Cranberry watershed north of the Georgian Trail are to be mitigated by hydraulic improvements to Cranberry Creek and the Cranberry Marsh Outlet. As the Cranberry Marsh is the ultimate receiving waterbody for the subject site drainage to the south (Catchment 202/203/204/205/206), pre- to post- quantity control is not required. Safe conveyance to a sufficient outlet must be provided for the Regulatory Storm event.

4.1.3 Siltation and Erosion Control

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

4.2 PROPOSED DRAINAGE CONDITIONS

The proposed Cranberry Marsh Estates Development will include 215m of 7.2m private road terminating north of the Cranberry Marsh with a cul-de-sac. The development will feature 26 townhome units fronting the proposed street.

The east portion of the site (Catchment 203/204/205/206) will be conveyed via a series of side-yard swales towards the road. Via a series of double catch basins at designated low points along the road, accumulated runoff in the road will drain under the proposed sidewalk and into a proposed enhanced grass ditch/bio-swale near the east property line of the subject site. The enhanced grass ditch accommodates up to and including the 25 mm design storm before spilling over into the protected area bordering the Cranberry Marsh at the south end of the site, ultimately flowing into the Cranberry Marsh. The runoff from half of the rear yards of proposed Block 4 and 5 (Catchment 202), as well as the runoff from the rear yards of the southern three and a half buildings at the Georgian Manor Resort (Catchment 304) will be collected by a swale and conveyed towards the Cranberry Marsh. Catchments 202, 203, 204, 205, 206 and 304 do not require quantity control as per the *Regional Stormwater Management Update & Master SWM Strategy* prepared by C.F. Crozier & Associates (May 2007).

The runoff from the rear yards of proposed Block 1, 2, 3 and half of block 4 (Catchment 201) and the rear yards of the northern four and a half buildings at the Georgian Manor Resort (Catchments 303) will be collected by a swale that will convey the water towards the Highway 26 roadside ditch.

The proposed drainage patterns are shown on the *Post-Development Drainage Plan (DP-2).*

4.3 WATER QUANTITY

A Visual OTTHYMO model was developed to determine peak flow rates from the subject site under existing and proposed conditions for the 25mm through 100-year storm events. The model was then used to compare the peak flow rates to existing condition levels to the proposed stormwater management design. A summary of proposed condition peak flow rates is provided in Table 2. The proposed condition supporting calculations are provided in Appendix B.

Table 2: Post-Development Peak Flow Rate Summary

STORM EVENT	POST-DEVELOPMENT PEAK FLOW RATE (M^3/SEC)			
	CATCH. 201/303 CHICAGO DESIGN STORM	CATCH. 201/303 SCS 24-HOUR STORM	CATCH. 202-206/304 CHICAGO DESIGN STORM	CATCH. 202-206/304 SCS 24-HOUR STORM
25mm	0.006 (0.016)	-	0.077 (0.005)	-
2-year	0.006 (0.023)	0.013 (0.048)	0.085 (0.007)	0.105 (0.019)
5-year	0.010 (0.041)	0.026 (0.076)	0.131 (0.014)	0.157 (0.032)
10-year	0.014 (0.055)	0.035 (0.096)	0.160 (0.019)	0.192 (0.042)
25-year	0.021 (0.074)	0.049 (0.122)	0.199 (0.027)	0.237 (0.055)
50-year	0.027 (0.089)	0.061 (0.142)	0.230 (0.033)	0.274 (0.064)
100-year	0.033 (0.104)	0.073 (0.163)	0.261 (0.039)	0.308 (0.074)
Timmins	0.048 (0.095)	-	0.129 (0.057)	-

Note: Values in brackets represent existing condition flows

The results shown in Table 2 confirm that the proposed condition peak flow rates from catchments 201/303 discharging to the Highway 26 ditch are maintained below existing condition levels for storms up to and including the 100-year storm event. Post peak flows to the south (Catchment 202-206/304) will discharge to the Cranberry Marsh uncontrolled as pre- to post- quantity controls is not required.

Emergency overland flows will spill over the east curb and gutter and be conveyed as sheet flow towards the enhanced grass ditch. The overland flow routes will pond to a maximum depth of 150 mm in the roadway.

The enhanced grass ditch overflow outlet will allow for a peak weir flow of 0.293 m^3/s at 160 mm of depth, which can accommodate the modelled 100-year storm peak flow of 0.257 m^3/s for catchment 203, 204, 205 and 206 that drains towards the ditch. The bed of the ditch will consist of a permeable soil layer, filter fabric and a gravel layer with a perforated pipe to allow the storage component of the ditch. Refer to the Post-Development Drainage Plan (DP-2) and the (SG-1) Site Grading Plan for the proposed drainage patterns. Weir flow calculations are detailed in Appendix C.

4.4 WATER QUALITY

Enhanced water quality controls must be provided to satisfy the MECP SWM Practices Planning and Design Manual, requiring in the form of 80% total suspended solids (TSS) removal and treatment of 90% of the surface runoff generated from the contributing drainage area. The details pertaining to the water quality control measures to be implemented are summarized as follows:

- **Catchment 203/204/205/206** – Runoff from these catchments derives from the road, cul-de-sac and the driveway of all the proposed units, along with half the rooftops and front yards. Enhanced water quality controls for this catchment will be provided by a flat-bottom enhanced grass ditch/bio-swale before discharging into the Cranberry Marsh. The ditch conforms to runoff quality treatment in grass swales criteria provided in Section 4.5.9 of the MOE Stormwater Management Planning and Design Manual (March 2003) and has the design capacity to retain the 25 mm design storm or the first flush of major storm events. Water volumes exceeding the ditch capacity will discharge through a rip rap spillway at the south extent of the bio-swale and into the protected area bordering Cranberry Marsh, ultimately discharging into the Cranberry Marsh. Runoff will enter the ditch through a series of four double catch basins inlets along the road. The bed of the ditch will consist of a permeable soil layer, filter fabric and a gravel layer with a perforated pipe to provide enhanced water quality treatment and allow the storage component of the ditch to drain.
- **Catchments 201/303** – Runoff from these catchments derive from rooftops and lawns before discharging into the Highway 26 roadside ditch and are considered clean runoff. Therefore, no water quality controls are required.
- **Catchment 202** – The runoff from this catchment derives from rooftops, lawns, a play area, a small section of asphalt trail and the environmentally protected area bordering Cranberry Marsh, before discharging into the marsh and is considered clean runoff. Therefore, no water quality control is required.
- **Catchment 304** – Runoff from this catchment derives from rooftops and lawns before discharging into the Cranberry Marsh and is considered clean runoff. Therefore, no water quality control is required.

4.5 GROUNDWATER

A geotechnical investigation completed by Peto MacCallum Ltd. (dated January 2022) consisting of four exploratory sampled boreholes and three monitoring wells (Boreholes 1, 3 and 4) measured the groundwater one month after installation (December 2021). The geotechnical investigation established that the stabilized groundwater table is within 0.5 m of the groundwater

surface at 179.30 m. The invert of the enhanced grass swale is set to 179.65 m, 0.35 m above the measured groundwater level.

4.6 FLOOD PROOFING

The Cranberry Marsh high water level has been established as 179.65 m and all proposed units must be adequately flood proofed to a minimum elevation of 180.00 m (0.35 m above the Marsh high water level). This will be achieved by raising the site through the placement of fill.

5 Siltation & Erosion Plan

Siltation and erosion controls will be implemented for all construction activities, including topsoil stripping, material stockpiling, road construction and grading operations as per ESC-1 and ESC-2. Detailed erosion and sediment control measures to be implemented during and after construction are summarized as follows:

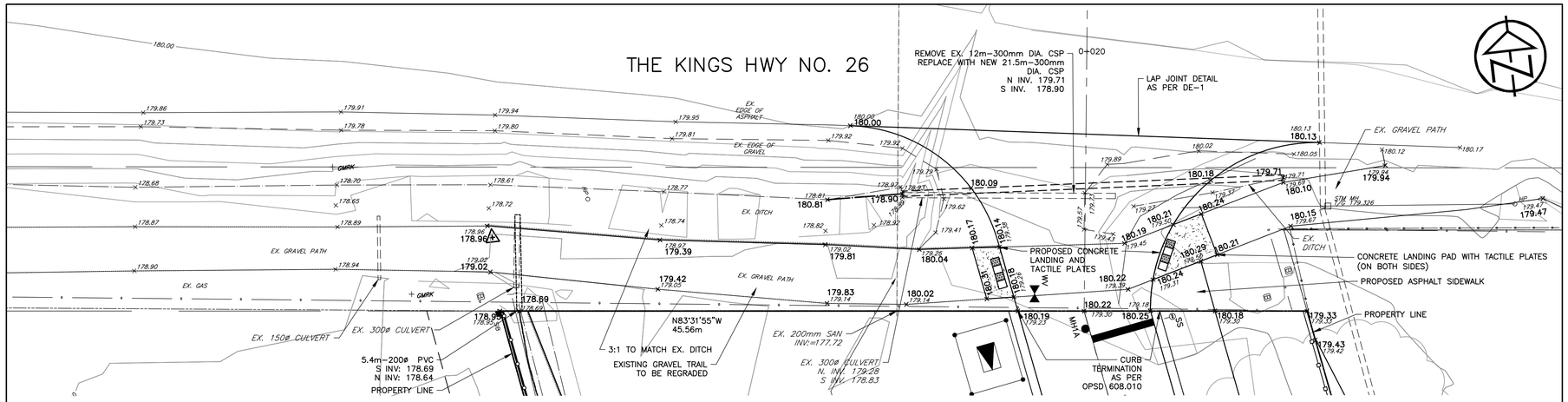
- heavy duty silt fence will be erected before the commencement of any grading operations to control sediment movement;
- a construction vehicle entrance will be constructed and maintained consisting of a stone mud mat to reduce off-site tracking of material;
- regular inspection of control measures will be instituted, and repairs will be made as necessary;
- temporary swales, sediment trap and 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 residential development will consist of 26 townhome units in Collingwood connected by a private road and cul-de-sac.

Existing drainage patterns will generally be maintained, with stormwater runoff conveyed via a road network to an enhanced grassed ditch to provide quality control for the site. Surface runoff towards the north will outlet into the Highway 26 roadside ditch, with post-development flow rates matching pre-development flow rates. Surface runoff towards the south will outlet into the Cranberry Marsh with no quantity control.

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.



GRADING WITHIN HWY#26 RIGHT OF WAY
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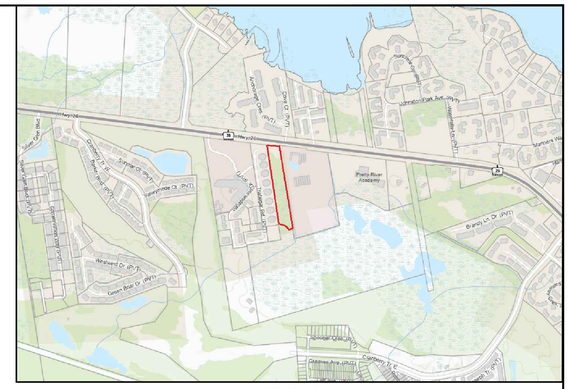
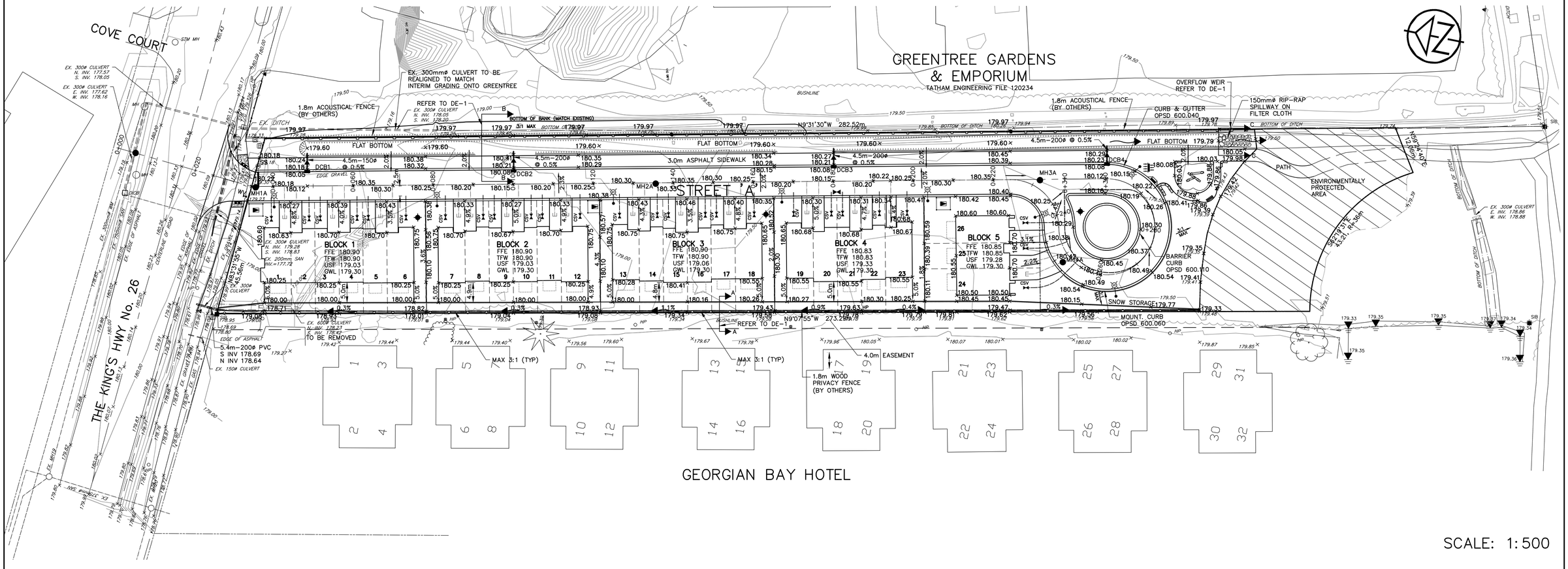


KEY PLAN



GEORGIAN BAY HOTEL

SCALE: 1:500

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BENCHMARKS

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM BENCH MARK No. 0011972U311 HAVING A PUBLISHED ELEVATION OF 181.032 METRES.

NOTES

LEGAL SURVEY INFORMATION AND LOT DIMENSIONS SHOWN ON THIS PLAN ARE TAKEN FROM A SURVEY PLAN PREPARED BY PATTEN & THOMSEN LTD, DATED, JANUARY 2, 2012 JOB No. 66-170-6

TOPOGRAPHIC SURVEY COMPLETED BY TATHAM ENGINEERING OCTOBER, 2022.

No.	REVISION DESCRIPTION	DATE
1.	1ST SUBMISSION	03/22
2.	2ND SUBMISSION	12/22
3.	3RD SUBMISSION	07/23

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LICENSED PROFESSIONAL ENGINEER
2023.07.28
D. M. CASULLO
PROVINCE OF ONTARIO

TOWN APPROVAL

CRANBERRY MARSH ESTATES
TOWN OF COLLINGWOOD

TATHAM ENGINEERING

SITE GRADING PLAN

DESIGN: KH	FILE: 120181	DWG: SG-1
DRAWN: KH/SBU/AP	DATE: OCT 2021	
CHECK: DC	SCALE: AS NOTED	

Drawing Name: 120181 - SG01.dwg, Plotted: Aug 02, 2023

LEGEND

AREA BOUNDARY

AREA IDENTIFICATION NUMBER — 101

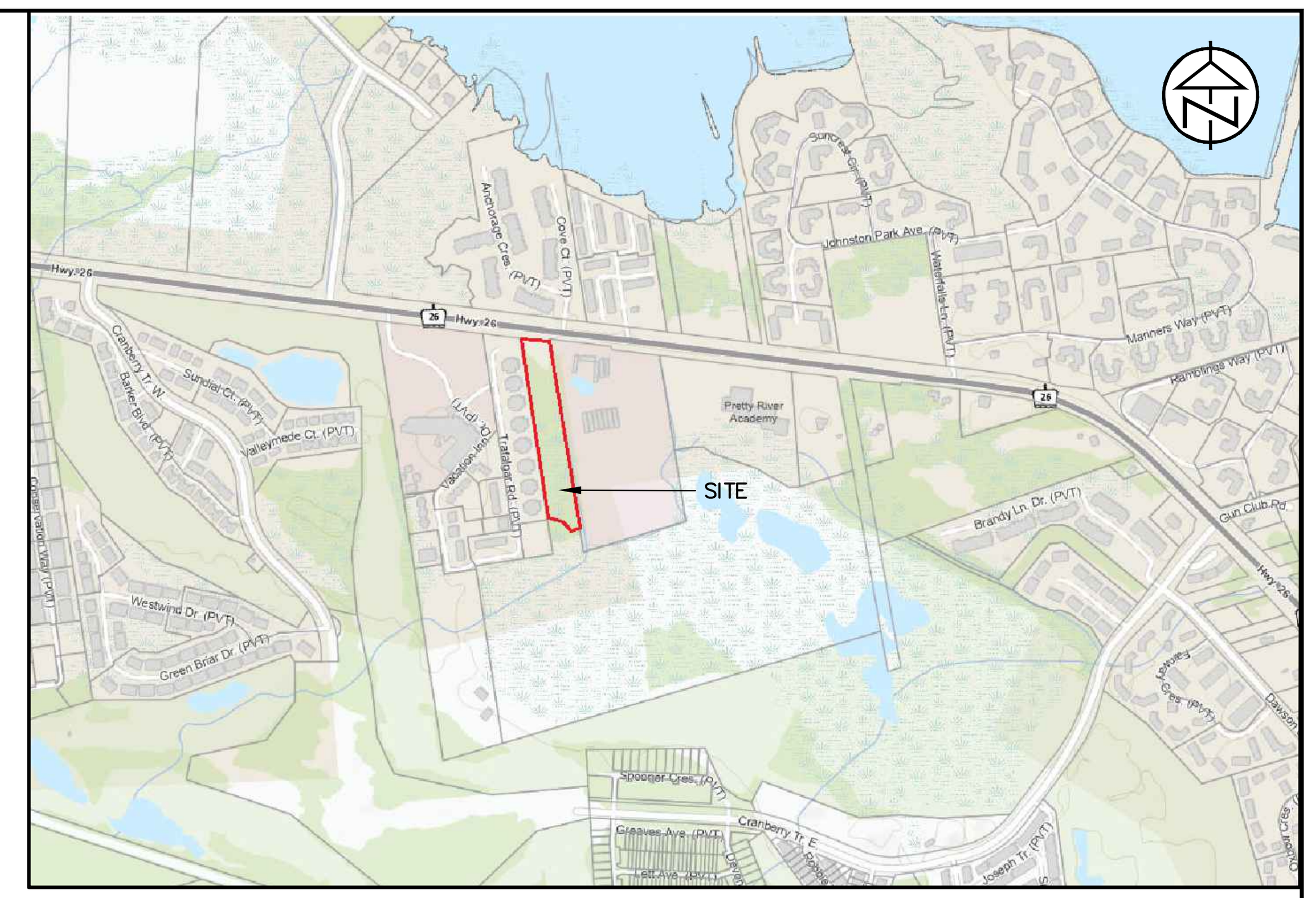
AREA IN HECTARES — 1.40

RUNOFF COEFFICIENT — 0.25

EXISTING MAJOR OVERLAND FLOW DIRECTION

EXISTING DITCH FLOW DIRECTION

TOWN APPROVAL



KEY PLAN

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LICENSED PROFESSIONAL ENGINEER
2023.07.28
D. M. CASULLO
PROVINCE OF ONTARIO

CRANBERRY MARSH ESTATES
TOWN OF COLLINGWOOD

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PRE-DEVELOPMENT DRAINAGE PLAN

DESIGN: KG	FILE: 120181	DWG: **DP-1**
DRAWN: KH/SBU/AP	DATE: DEC 2021	
CHECK: DC	SCALE: 1:500	

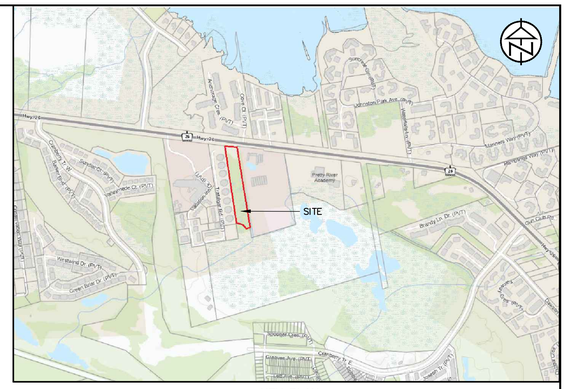
Drawing Name: 120181 – DP01.dwg, Plotted: Aug 01, 2023

GREENTREE GARDENS & EMPORIUM

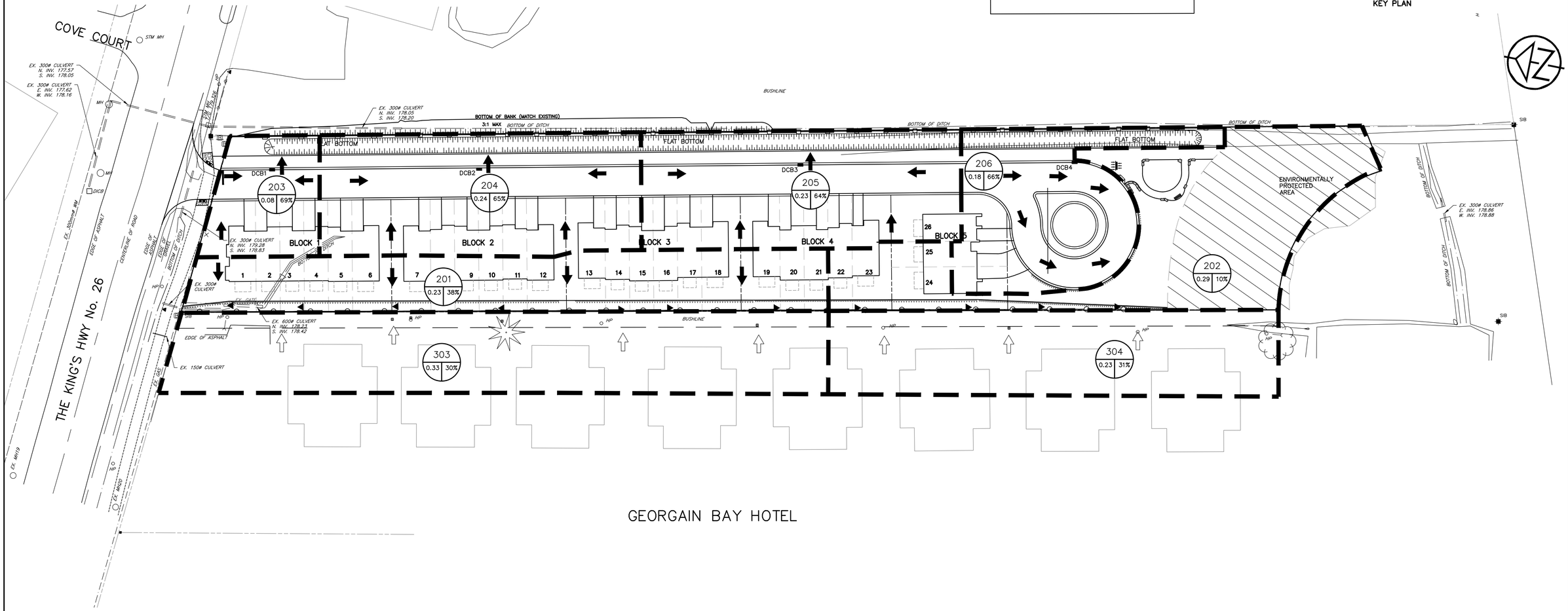
LEGEND

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

TOWN APPROVAL



KEY PLAN



GEORGAIN BAY HOTEL

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No.	REVISION DESCRIPTION	DATE
1.	1ST SUBMISSION	03/22
2.	2ND SUBMISSION	12/22
3.	UPDATE TO IMPERVIOUS VALUES	01/23
4.	3RD SUBMISSION	07/23

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CRANBERRY MARSH ESTATES
TOWN OF COLLINGWOOD

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POST-DEVELOPMENT DRAINAGE PLAN

DESIGN: KG	FILE: 120181	DWG:	
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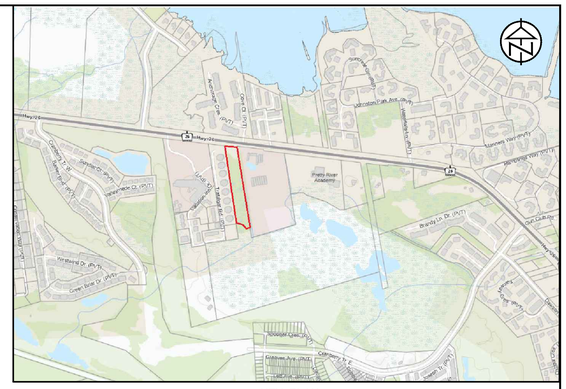
CHECK: DC	SCALE: 1:500		

Drawing Name: 120181 – DP02.dwg, Plotted: Aug 01, 2023



KEY PLAN

GREENTREE GARDENS & EMPORIUM

COVE COURT

STM MH

CONSTRUCTION ENTRANCE AS PER "STONE MUD MAT DETAIL" SEE DRAWING ESC02

PROPOSED SILT FENCE (AS PER NVCA BSD-23 DRAFT)

TEMPORARY TOPSOIL STORAGE LOCATION
MAX HEIGHT 4.5m
MAX SIDE SLOPE 2:1
IF LEFT LONGER THAN 30 DAYS, VEGETATE WITH HYDROSEED AND MULCH

BUSHLINE

BOTTOM OF BANK (MATCH EXISTING)
3:1 MAX BOTTOM OF DITCH

BOTTOM OF DITCH

SBFC

PROPOSED TEMPORARY DRAINAGE SWALE. SEE DETAIL ON ESC02

ENVIRONMENTALLY PROTECTED AREA

DOUBLE ROW SEDIMENT FENCE AS PER LSRCA ESC-5

RFCD

THE KING'S HWY No. 26

9.0m X 4.5m
EXCAVATED SEDIMENT TRAP PER OPSD 219.220
CATCHMENT AREA = 0.74ha
BOTTOM ELEV. = 177.75
TRAP VOLUME = 40.5m³

ROCK FLOW CHECK DAM PER OPSD 219.210

PROPOSED SILT FENCE (AS PER NVCA BSD-23 DRAFT)

8.0m X 4.0m
EXCAVATED SEDIMENT TRAP PER OPSD 219.220
CATCHMENT AREA = 0.55ha
BOTTOM ELEV. = 178.35
TRAP VOLUME = 32.0m³

ROCK FLOW CHECK DAM PER OPSD 219.210

TOWN APPROVAL

GEORGAIN BAY HOTEL

LEGEND

- PROPOSED STRAW BALE FLOW CHECK (AS PER OPSD 219.210) — SBFC
- PROPOSED ROCK FLOW CHECK (AS PER OPSD 219.180) — RFCD
- PROPOSED HEAVY DUTY SILT FENCE (AS PER NVCA BSD-23 DRAFT)
- PROPOSED SWALE / DITCH — 0.5%
- EXISTING OVERLAND FLOW

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.

BENCHMARKS

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM BENCH MARK No. 0011972U311 HAVING A PUBLISHED ELEVATION OF 181.032 METRES.

NOTES

LEGAL SURVEY INFORMATION AND LOT DIMENSIONS SHOWN ON THIS PLAN ARE TAKEN FROM A SURVEY PLAN PREPARED BY PATTEN & THOMSEN LTD, DATED, JANUARY 2, 2012 JOB No. 66-170-6

TOPOGRAPHIC SURVEY COMPLETED BY TATHAM ENGINEERING OCTOBER, 2022.

No.	REVISION DESCRIPTION	DATE
1.	1ST SUBMISSION	03/22
2.	2ND SUBMISSION	12/22
3.	3RD SUBMISSION	07/23

ENGINEER STAMP

LICENSED PROFESSIONAL ENGINEER
2023.07.28
D. M. CASULLO
PROVINCE OF ONTARIO

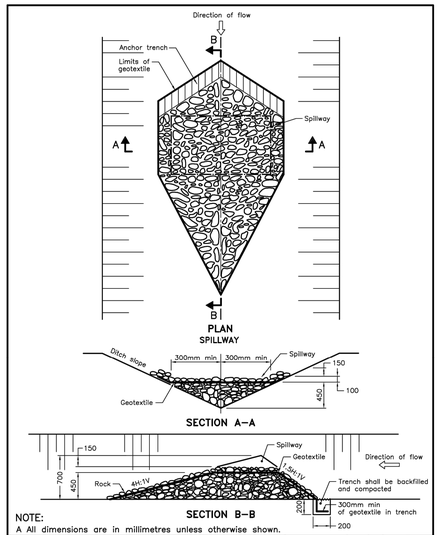
CRANBERRY MARSH ESTATES
TOWN OF COLLINGWOOD

TATHAM ENGINEERING

EROSION AND SEDIMENT CONTROL PLAN

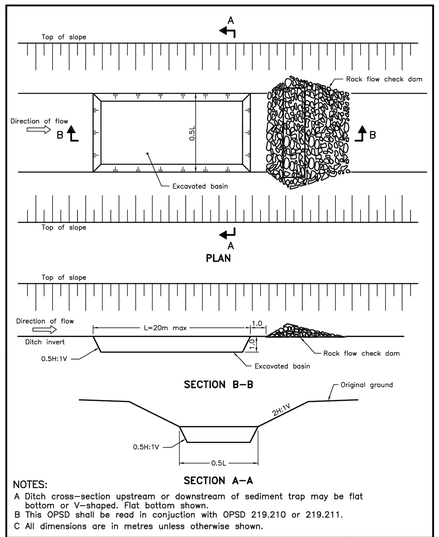
DESIGN: KG	FILE: 120181	DWG: ESC-1
DRAWN: KB/SBU/AP	DATE: MAR 2022	
CHECK: DC	SCALE: 1:500	

Drawing Name: 120181 - ESC01.dwg, Plotted: Aug 01, 2023



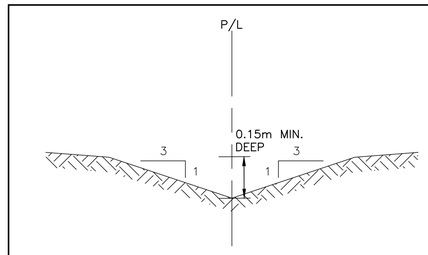
NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
TEMPORARY ROCK FLOW CHECK DAM V–DITCH		OPSD 219.210



NOTES:
A Ditch cross–section upstream or downstream of sediment trap may be flat bottom or V–shaped. Flat bottom shown.
B This OPSD shall be read in conjuction with OPSD 219.210 or 219.211.
C All dimensions are in metres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
SEDIMENT TRAP IN DITCH		OPSD 219.220



TEMPORARY SWALE DETAIL
NTS

STONE SIZE
THE STONE PAD SHALL BE A MIN. 450mm THICK. USE 50mmø STONE OR RECLAIMED CONCRETE EQUIVALENT FOR FIRST 10m FROM ADJACENT ROAD & 150mmø STONE FOR REMAINDER OF STONE PAD.

LENGTH
AS REQUIRED BUT NOT LESS THAN 20m.

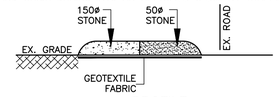
WIDTH
10m MIN. BUT NOT LESS THAN THE WIDTH AT POINTS WHERE INGRESS AND EGRESS OCCURS.

GEOTEXTILE FABRIC
TERRAFIX 270R OR APPROVED EQUIVALENT TO BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.

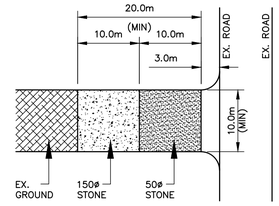
SURFACE WATER
ALL SURFACE WATER FLOWING OR DIRECTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE.

MAINTENANCE
THE CONTRACTOR SHALL MAINTAIN THE ENTRANCE IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT–OF–WAY. THIS MAY REQUIRE PERIODIC DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT–OF–WAY MUST BE REMOVED IMMEDIATELY BY THE CONTRACTOR. UPON OBSERVATION OF CONTINUOUS MUD TRACKING ONTO ADJACENT STREETS, THE STONE MAT IS TO BE FULLY REPLACED. INSPECTION AND REQUIRED MAINTENANCE AFTER EACH RAIN EVENT SHALL BE PROVIDED BY THE CONTRACTOR.

WASHING
WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF–WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

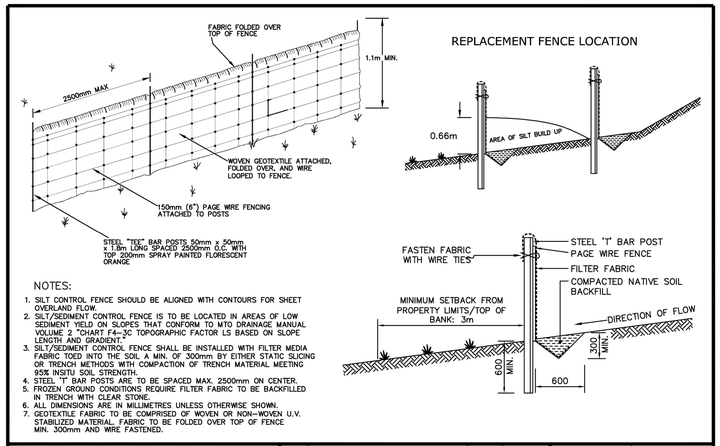


PROFILE



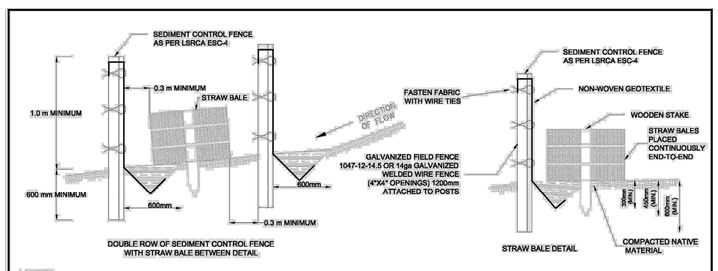
PLAN

STONE MUD MAT DETAIL
NTS



NOTES:
1. SILT CONTROL FENCE SHOULD BE ALIGNED WITH CONTOURS FOR SHEET OVERLAND FLOW.
2. SILT/SEDIMENT CONTROL FENCE IS TO BE LOCATED IN AREAS OF LOW SEDIMENT YIELD ON SLOPES THAT CONFORM TO MTO DRAINAGE MANUAL VOLUME 2 "CHART F4–3C TOPOGRAPHIC FACTOR LS BASED ON SLOPE LENGTH AND GRADIENT."
3. SILT/SEDIMENT CONTROL FENCE SHALL BE INSTALLED WITH FILTER MEDIA FABRIC TOED INTO THE SOIL A MIN. OF 300mm BY EITHER STATIC SLICING OR TRENCH METHODS WITH COMPACTION OF TRENCH MATERIAL MEETING 95% INSITU SOIL STRENGTH.
4. STEEL "T" BAR POSTS ARE TO BE SPACED MAX. 2500mm ON CENTER.
5. FROZEN GROUND CONDITIONS REQUIRE FILTER FABRIC TO BE BACKFILLED IN TRENCH WITH CLEAR STONE.
6. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
7. GEOTEXTILE FABRIC TO BE COMPRISED OF WOVEN OR NON–WOVEN U.V. STABILIZED MATERIAL. FABRIC TO BE FOLDED OVER TOP OF FENCE MIN. 300mm AND WIRE FASTENED.

Nottawasaga Valley Conservation Authority					APR'D:	DATE: 03.03.06
TYPICAL DETAIL OF SILT/SEDIMENT FENCE					DRAWN: A.S.C	SCALE: NTS
	NO.	REVISION	APR'D	DATE	BSD-23 DRAFT	



NOTES:
1. SEDIMENT CONTROL FENCE SHOULD BE ALIGNED WITH CONTOURS FOR SHEET OVERLAND FLOW.
2. SEDIMENT CONTROL FENCE IS TO BE LOCATED IN AREAS OF LOW SEDIMENT YIELD ON SLOPES THAT CONFORM TO MTO DRAINAGE MANUAL VOLUME 2 CHART F4-3C TOPOGRAPHIC FACTOR LS BASED ON SLOPE LENGTH AND GRADIENT.
3. SEDIMENT CONTROL FENCE SHALL BE INSTALLED WITH FILTER MEDIA FABRIC TIED INTO THE SOIL A MINIMUM OF 300 mm BY EITHER STATIC SLICING OR TRENCH METHODS WITH COMPACTION OF TRENCH MATERIAL MEETING 95% STANDARD PROCTOR MAXIMUM DRY DENSITY.
4. STEEL "T" BAR POSTS ARE TO BE SPACED A MAXIMUM DISTANCE OF 2000 mm ON CENTER.
5. STRAW BALES TO BE PLACED END-TO-END CONTINUOUSLY BETWEEN SEDIMENT CONTROL FENCES.
6. FROZEN GROUND CONDITIONS REQUIRE FILTER FABRIC TO BE BACKFILLED IN TRENCH WITH CLEAR STONE.
7. GEOTEXTILE FABRIC TO BE COMPRISED OF NON-WOVEN U.V. STABILIZED MATERIAL FABRIC TO BE FOLDED OVER TOP OF FENCE A MINIMUM OF 300 mm AND WIRE FASTENED.
8. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.
9. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SHOWN.

NO.	REVISION	DATE
1	SWM GUIDELINES UPDATE	06.2016

DOUBLE ROW SEDIMENT CONTROL FENCE

DATE: 06.2016
SCALE: NTS
LSRCA ESC-5

NOTES

1. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. SEDIMENT AND EROSION CONTROL MEASURES THAT ARE DESIGNED TO CONTROL RUNOFF FROM SPECIFIC AREAS MUST BE INSTALLED PRIOR TO ANY DISTURBANCE OF THAT PART OF THE SITE. THE LOCATION OF ALL SILTATION AND EROSION CONTROL WORKS TO BE REVIEWED ON SITE AND MAY BE REVISED AS DIRECTED BY THE ENGINEER.
2. THE CONTRACTOR MAY CONSIDER ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES. SUCH MEASURES MUST BE PRESENTED IN WRITING TO THE ENGINEER FOR APPROVAL OF THE TOWN AND NOTTAWASAGA VALLEY CONSERVATION AUTHORITY.
3. THE CONTRACTOR SHALL HAVE MATERIALS AVAILABLE ON SITE TO REPAIR SEDIMENT AND EROSION CONTROL MEASURES IN THE EVENT OF UNFORESEEN CONDITIONS SUCH AS HIGH WATER, EXTREME RAINFALL EVENTS, ETC.
4. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSPECTED, CLEANED AND MAINTAINED BY THE CONTRACTOR AFTER EACH STORM EVENT. ALL WORKS WILL BE INSPECTED BY THE ENGINEER BI–WEEKLY AND AFTER EACH MAJOR STORM EVENT.
5. CONSTRUCTION OF ALL SILTATION AND EROSION CONTROL WORK IS TO BE IN ACCORDANCE WITH THE FOLLOWING STEPS:
   - 5.1. INSTALL NEW OR MAINTAIN EXISTING STONE MUD MAT AS PER DETAIL.
   - 5.2. INSTALL SILT FENCE AS PER NVCA STANDARDS (BSD–23).
   - 5.3. INSTALL TEMPORARY CATCH BASIN SEDIMENT TRAPS ON ALL NEW AND EXISTING CATCH BASINS. SEDIMENT TRAPS TO BE RECTANGULAR BY LAYFIELD OR APPROVED EQUAL. ALL CATCH BASINS TO REMAIN SCREENED UNTIL BASE COURSE ASPHALT IS PLACED AND LOT GRADING IS COMPLETE.
6. ALL CONSTRUCTION VEHICLES TO ACCESS SITE USING THE DESIGNATED CONSTRUCTION ACCESS POINTS.
7. EROSION AND SEDIMENT CONTROL MEASURES TO BE REMOVED BY THE CONTRACTOR ONCE GROUND COVER IS ESTABLISHED AND LANDSCAPING IS COMPLETE AND APPROVED BY THE ENGINEER.
8. STOCKPILE LOCATIONS ARE TO BE APPROVED BY THE ENGINEER.
9. PROVIDE FENCE OR APPROVED EQUAL ACROSS ALL CONSTRUCTION ACCESSES DURING PERIODS OF INACTIVITY.
10. CONSTRUCTION AREAS THAT EXCEED 30 DAYS OF INACTIVITY SHALL BE STABILIZED BY SEEDING IN ACCORDANCE WITH THE NOTTAWASAGA VALLEY CONSERVATION AUTHORITY'S TECHNICAL DESIGN GUIDELINES, STANDARDS AND POLICIES FOR SILTATION AND EROSION CONTROL, CONSTRUCTION CONTROL REQUIREMENTS, NOTES 1, 2 AND 3 AND/OR AS DIRECTED BY THE TOWN. THIS IS TO INCLUDE STOCKPILES OF FILL AND TOPSOIL.

TOWN APPROVAL

BENCHMARKS

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NOTES

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TOPOGRAPHIC SURVEY COMPLETED BY TATHAM ENGINEERING OCTOBER, 2022.

No.	REVISION DESCRIPTION	DATE
1.	1ST SUBMISSION	03/22
2.	2ND SUBMISSION	12/22
3.	3RD SUBMISSION	07/23

ENGINEER STAMP

LICENSED PROFESSIONAL ENGINEER
2023.07.28
D. M. CASULLO
PROVINCE OF ONTARIO

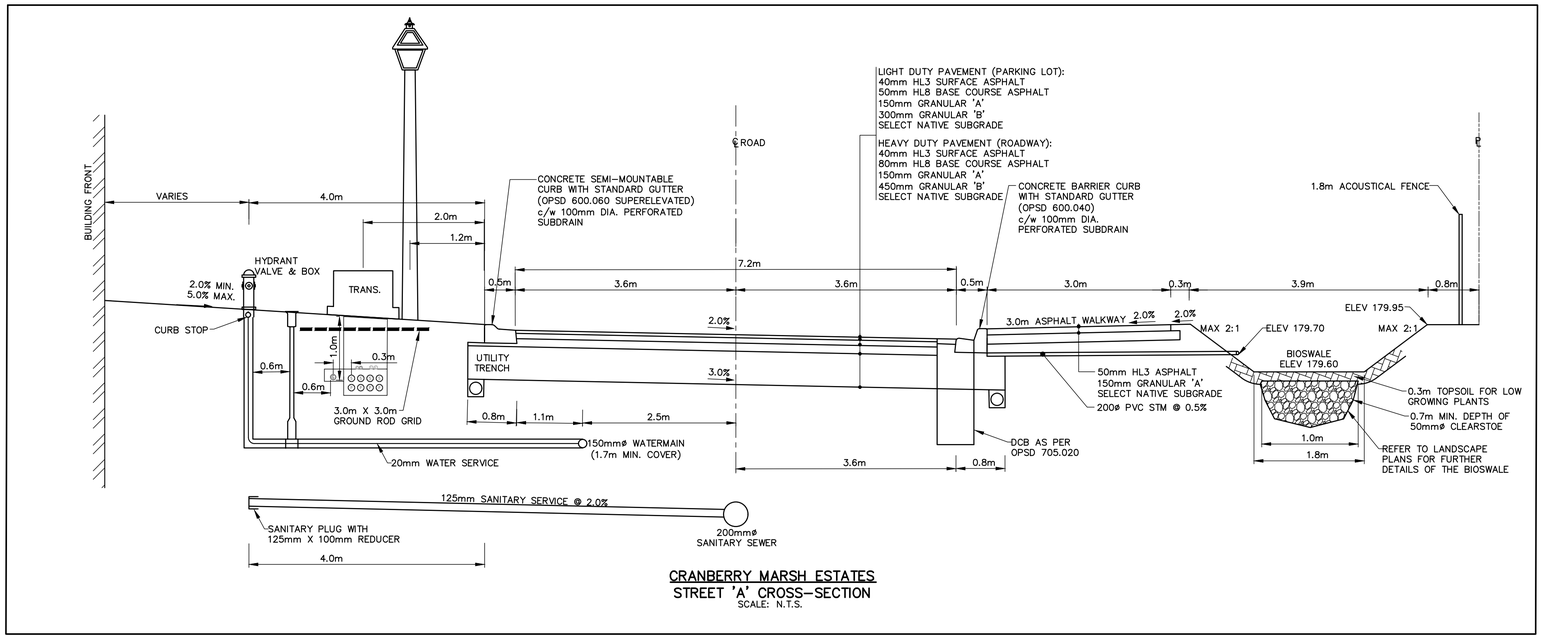
CRANBERRY MARSH ESTATES
TOWN OF COLLINGWOOD

EROSION AND SEDIMENT CONTROL DETAILS

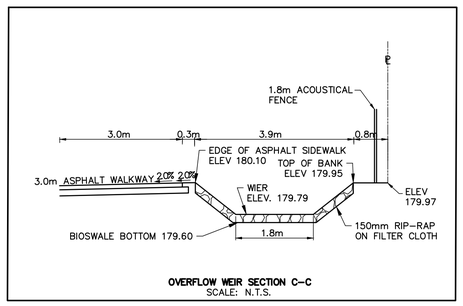
TATHAM ENGINEERING

DESIGN: KG	FILE: 120181	DWG: ESC-2
DRAWN: KH/SBU/AP	DATE: MAR 2022	
CHECK: DC	SCALE: N.T.S.	

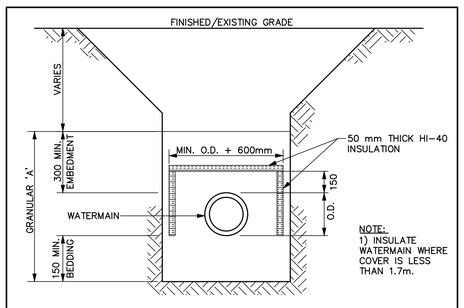
Drawing Name: 120181 – ESC01.dwg, Plotted: Aug 01, 2023



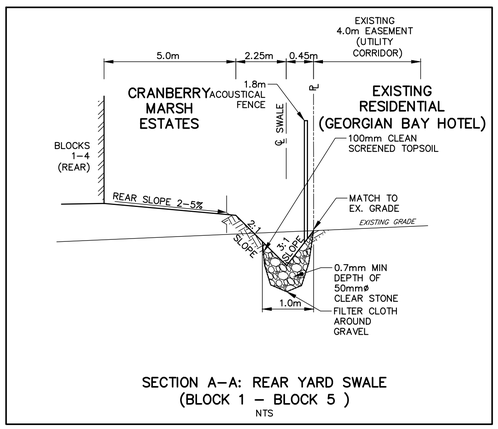
CRANBERRY MARSH ESTATES
STREET 'A' CROSS-SECTION
SCALE: N.T.S.



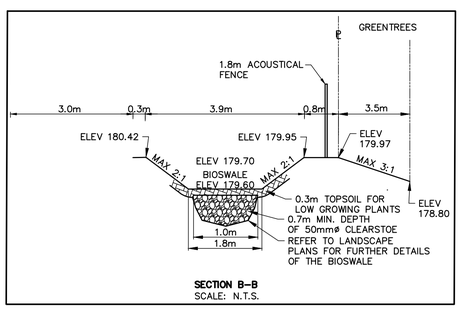
OVERFLOW WEIR SECTION C-C
SCALE: N.T.S.



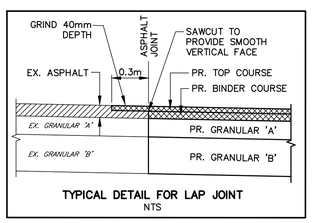
TYPICAL WATERMAIN INSULATION DETAIL
NTS



SECTION A-A: REAR YARD SWALE
(BLOCK 1 - BLOCK 5)
NTS



SECTION B-B
SCALE: N.T.S.



TYPICAL DETAIL FOR LAP JOINT
NTS

GENERAL - CONSTRUCTION

A) ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH TOWN OF COLLINGWOOD STANDARDS, O.P.S.D. AND O.P.S.S. WHERE CONFLICT OCCURS, TOWN OF COLLINGWOOD STANDARD TO GOVERN.
B) TRENCH BACKFILL TO OPSD 802.010 TO BE SELECT NATIVE MATERIAL OR IMPORTED SELECT SUBGRADE TO OPSS 1010. BACKFILL TO BE PLACED IN MAXIMUM 200 mm THICK LIFTS AND COMPACTED TO 95% OF THE MATERIAL'S STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD).
C) PIPE BEDDING TO BE GRANULAR 'A' PIPE COVER TO BE GRANULAR 'B' MAX. AGGREGATE SIZE 25mm FOR RIGID PIPE AND GRANULAR 'A' FOR FLEXIBLE PIPE. (MINIMUM BEDDING DEPTH 150 mm, MINIMUM COVER 300mm, COMPACTED TO A MINIMUM 95% SPMDD).
D) CLEAR STONE WRAPPED IN FILTER FABRIC CAN BE SUBSTITUTED FOR EMBEDMENT MATERIAL IF APPROVED BY THE ENGINEER.
E) ALL TOPSOIL AND EARTH EXCAVATION TO BE STOCK PILED OR REMOVED TO OPSS 180. MANAGEMENT AND DISPOSAL OF EXCESS MATERIAL TO AN APPROVED SITE AS DIRECTED BY ENGINEER.
F) THE OWNER'S ENGINEER SHALL PROVIDE BENCH MARK ELEVATIONS AND HORIZONTAL ALIGNMENT REFERENCE FOR THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DETAILED LAYOUT OF THE WORK.
G) ALL PROPERTY BARS TO BE PRESERVED AND REPLACED BY O.L.S. AT CONTRACTOR'S EXPENSE IF REMOVED DURING CONSTRUCTION.
H) ALL MAINTENANCE HOLE AND CATCHBASINI FRAMES AND COVERS TO BE SET TO BASE COURSE HL8 ASPHALT ELEVATION AND RAISED PRIOR TO PLACEMENT OF FINAL COURSE HL3 ASPHALT.
I) THE CONTRACTOR SHALL MAKE HIS OWN ARRANGEMENTS FOR THE SUPPLY OF TEMPORARY WATER AND POWER.
J) DEWATERING TO BE CARRIED OUT IN ACCORDANCE WITH OPSS-517 AND 518 TO MAINTAIN ALL TRENCHES IN A DRY CONDITION.
K) ALL ENGINE DRIVEN PUMPS TO BE ADEQUATELY SILENCED, SUITABLE FOR OPERATION IN A RESIDENTIAL DISTRICT.
L) ALL DISTURBED AREAS TO BE REINSTATED TO PREVIOUS CONDITION OR BETTER.
M) THE CONTRACTOR IS RESPONSIBLE FOR PRESERVATION OF ALL EXISTING FACILITIES AS WELL AS NOTIFYING ALL UTILITY COMPANIES PRIOR TO COMMENCING WORK AND CO-ORDINATE CONSTRUCTION ACCORDINGLY.
N) ALL SIGNAGE TO BE LAWFULLY ERECTED AND MAINTAINED IN ACCORDANCE TO THE TOWN SIGN BY-LAW.
O) CLEARING, GRUBBING AND REMOVAL OF SURFACE BOULDERS TO OPSS 201.
P) GRADING TO OPSS 206.
Q) COMPACTING TO OPSS 501.
R) DUST SUPPRESSANTS TO OPSS 506.
S) TREE REMOVALS AND/OR TRANSPLANTS TO BE COMPLETED OUTSIDE OF MIGRATORY BIRDS NESTING SEASON FROM APRIL 1ST TO AUGUST 31ST. REMOVALS MAY TAKE PLACE DURING THIS RESTRICTED TIME ONLY IF THE REQUIREMENTS OF MIGRATING BIRDS CONVENTION ACT ARE MET AND NESTING ACTIVITY IS ROUTINELY MONITORED BY QUALIFIED INDIVIDUALS (I.E. WILDLIFE BIOLOGIST).

SANITARY SEWERS

A) MAINTENANCE HOLES TO OPSD 701.010 AND 701.030.
B) BENCHING TO OPSD - 701.021.
C) STEPS TO OPSD - 405.010.
D) FROST STRAPS SHALL BE INSTALLED ON ALL MAINTENANCE HOLE AS PER OPSD - 701.100
E) FRAMES AND COVERS TO OPSD - 401.030 (WATER TIGHT COVER).
F) PIPE SUPPORT AT MAINTENANCE HOLES AS PER OPSD 708.020.
G) ALL MAINTENANCE HOLES, UNLESS EXPRESSLY IDENTIFIED ARE 1200 mm DIAMETER WITH WATER TIGHT INSERTS.
H) GENERAL INSTALLATION AND TESTING OF SEWERS AND APPURTENANCES TO BE IN ACCORDANCE WITH O.P.S.S. 407, 408, 409 (CCTV), 410, 421 AND ALL SPECIFICATIONS REFERENCED WITHIN THESE SECTIONS.
I) SERVICE CONNECTIONS TO BE 125 mm DIA., TERMINNATED WHERE SPECIFIED ON THE DRAWING COMPLETE WITH PLUG AND MARKED WITH A 38mm X 89mm POST PAINTED GREEN FROM THE INVERT OF THE SERVICE TO 600 mm ABOVE GRADE.
J) SERVICE CONNECTION TO OPSD 1006.020, GRANULAR A BEDDING AND EMBEDMENT.
K) RIGID BOARD INSULATION (HI-40) REQUIRED FOR FROST PROTECTION OF SEWER WITH LESS THAN 1.2 m MINIMUM COVER. INSULATION TO BE MINIMUM 50 mm THICK AND HAVE A MINIMUM WIDTH OF 1.2m.

WATER MAINS

A) THRUST BLOCKS TO OPSD-1103.010 AND 1103.020 WHERE SUITABLE SOILS ARE ENCOUNTERED.
B) MINIMUM COVER ON WATER MAIN AND SERVICES TO BE 1.7 m.
C) GATE VALVES, BENDS AND FITTINGS TO BE CONNECTED WITH ROMAC GRIP RING RESTRAINING CLAMP.
D) CLEARANCE BETWEEN WATER MAINS AND SEWERS TO BE A MINIMUM OF 0.5m VERTICAL WHERE WATER MAIN IS BELOW SEWER OR 2.5m MINIMUM HORIZONTAL SEPARATION. WHERE WATER MAIN IS ABOVE SEWER, THE MINIMUM SEPARATION TO BE 150 mm (BEDDING MATERIAL).
E) GENERAL INSTALLATION AND TESTING OF WATER MAIN AND APPURTENANCES TO BE IN ACCORDANCE WITH O.P.S.S. 701 AND ALL SPECIFICATIONS REFERENCED WITHIN THESE SECTIONS.
F) ALL WORK ON TOWN PROPERTY AND ON TOWN OF COLLINGWOOD WATER DEPARTMENT (TCWD) WATER MAINS MUST BE UNDERTAKEN BY TCWD OR AN APPROVED CONTRACTOR WITH TCWD INSPECTION, ALL AT DEVELOPER'S COST.
H) SERVICE CONNECTIONS TO OPSD-1104.010, 100 mm GRANULAR 'A' EMBEDMENT AND COVER OVER PIPE. TERMINATE WHERE SPECIFIED ON DRAWING C/W CURB STOP AND BOX, TESTING TAIL TO SURFACE ATTACHED TO A 38mm x 89mm MARKER POST PAINTED BLUE FROM THE INVERT OF THE SERVICE TO 600 mm ABOVE GRADE. I) ALL SERVICES ARE TO BE CONSTRUCTED IN ACCORDANCE WITH TOWN STANDARDS.
I) WATER MAIN SERVICES - 20mm TYPE K COPPER, MAIN STOPS TO 201-A3H3, 3/4", BALL STYLE. AWWA THREAD BY COMPRESSION CAMBRIDGE BRASS. CURB STOPS TO 203-H3H3, 3/4" BALL STYLE WITH DRAIN, COMPRESSION JOINT CAMBRIDGE BRASS. SERVICE BOXES TO NUMBER 7, D-1 CLOW OR MUELLER WITH 24" BLACK RODS STRAIGHT OR OTHERWISE NOTED ON DRAWINGS.
J) ALL WATER TESTING AND WATER MAIN CHLORINATION WILL BE CONDUCTED BY TCWD AT THE DEVELOPER'S COST. WATER MAINS ARE NOT TO BE CONNECTED TO THE EXISTING WATER MAINS UNTIL BACTERIOLOGICAL TESTING HAS BEEN SUCCESSFULLY COMPLETED. NEW WATER MAINS CAN NOT BE CONNECTED TO EXISTING MAINS UNTIL THEY HAVE PASSED BACTERIOLOGICAL TESTING AND AS SUCH A TEMPORARY BACKFLOW PREVENTOR WILL NEED TO BE INSTALLED BETWEEN THE LIVE TAP AND THE NEW SERVICE TO FACILITATE ADEQUATE PROTECTION OF THE EXISTING WATER MAIN. IT SHOULD BE NOTED THAT THIS TESTING TAKES APPROXIMATELY A WEEK TO COMPLETE AND MUST BE CONDUCTED BY TCWD. A WORK PLAN FOR THIS WORK MUST BE SUBMITTED TO TCWD FOR APPROVAL.
K) AS A GENERAL PRINCIPAL EACH PROPERTY SHALL HAVE ONE SERVICE AND ONE METER.
L) NO WATER VALVES ARE TO BE OPERATED WITHOUT TCWD APPROVAL.

STORM SEWERS

A) CATCH BASINS AND DOUBLE CATCH BASINS TO OPSD 705.010 AND 705.020 C/W 600 mm SUMP. REAR LOT CATCH BASINS AND DITCH INLET CATCH BASINS TO OPSD 705.010 WITHOUT SUMP.
B) CATCH BASINS AND DOUBLE CATCH BASINS FRAMES AND GRATES TO OPSD 400.020. REAR LOT CATCH BASIN FRAMES AND GRATES TO OPSD 400.120.
C) CATCH BASIN LEADS - 250 mm DIA. SINGLE AND 300 mm DIA. DOUBLE. CATCH BASIN CONNECTIONS TO OPSD 708.010 AND OPSD 708.030.
D) PIPE SUPPORT AT CB'S TO OPSD 708.020. CATCH BASINS AND INLET STRUCTURES FITTED WITH SEDIMENT TRAPS DURING CONSTRUCTION ACTIVITIES, AND CLEANED OUT AS REQUIRED PRIOR TO ASSUMPTION OF THE WORK.
E) HEADWALLS TO BE INSTALLED IN ACCORDANCE WITH OPSD 804.030 (PIPE LESS THAN 900 mm DIA.) OR OPSD 804.040 (AS SPECIFIED), C/W GRATING IN ACCORDANCE WITH OPSD 804.050.

ROAD AND PARKING

A) SUBGRADE AND ALL GRANULAR 'A' BOULEVARD MATERIAL TO BE COMPACTED TO A MINIMUM DRY DENSITY OF AT LEAST 95% SPMDD. SUBGRADE TO BE PROOF ROLLED AND CERTIFIED PRIOR TO PLACING GRANULAR 'B'.
B) GRANULAR 'A' AND 'B' BASE TO BE COMPACTED TO 100% OF THE MATERIAL'S RESPECTIVE SPMDD.
C) LIGHT DUTY PAVEMENT TWO LIFTS TOTAL 90mm (50mm HL8 AND 40mm HL3), 150mm GRANULAR 'A', 300mm GRANULAR 'B'. HEAVY DUTY PAVEMENT TWO LIFTS TOTAL 120mm (80mm HL8 AND 40mm HL3), 150 mm GRANULAR 'A', 450mm GRANULAR 'B', ALL SUBDRAINS TO BE CONSTRUCTED IN ACCORDANCE WITH OPSS 405.
D) CONCRETE SEMI-MOUNTABLE CURB WITH STANDARD GUTTER TO OPSD 600.060 INCLUDING SUPERELEVATED. CONCRETE BARRIER CURB WITH STANDARD GUTTER TO OPSD 600.040. CONCRETE BARRIER CURB TO OPSD 600.110
E) SELECT SUBGRADE MATERIAL, OR IMPORTED GRANULAR MATERIAL APPROVED BY THE ENGINEER, COMPACTED TO 98% S.P.M.D.D. TO BE USED AS FILL IN ALL AREAS WHERE PROPOSED PIPE INVERTS ARE HIGHER THAN EXISTING GRADE OR AS INSTRUCTED BY THE ENGINEER.
F) ALL GRANULARS AND ASPHALT MATERIALS AND PLACEMENT TO BE IN ACCORDANCE WITH OPSS 314 AND OPSS 310
G) JOINTS WITH EXISTING ASPHALT TO BE SAW CUT STRAIGHT PRIOR TO PLACING NEW ASPHALT AND TACK COAT APPLIED TO EXISTING ASPHALT. ASPHALT JOINT WITH HIGHWAY No. 26 TO BE COMPLETE WITH LAP JOINT, SEE DETAIL THIS PAGE.
H) REINSTATEMENT OF ALL DISTURBED BOULEVARDS TO INCLUDE REGRADING, MINIMUM 150mm TOPSOIL AND SOD TO OPSS.MUNI 802 AND 803.
I) ALL FIRE ROUTE SIGNAGE TO BE AS PER TOWN OF COLLINGWOOD BY-LAW 96-37.
J) ENTRANCE AS PER OPSD 350.010, SIDEWALKS TO OPSD 310.050 AND 310.010.

MATERIALS

A) SANITARY SEWER SDR-35 PVC, SANITARY SERVICES - SDR 28 PVC
B) WATER MAIN - DUCTILE IRON CLASS 52, OR PRESSURE CLASS 350 CEMENT LINED. CONDUCTIVITY CONNECTORS TO BE USED ON ALL JOINTS.
C) WATER SERVICE CONNECTIONS TO BE TYPE 'K' COPPER PIPE.
D) VALVES - RESILIENT SEATED, RSGV, MECHANICAL JOINT, OPEN LEFT CLOW OR MUELLER WITH 5 SL-48 SLIDING VALVE BOX, TO AWWA C504.
E) MECHANICAL JOINT DUCTILE FITTINGS - AWWA/ANSI C153/A21.53.
F) RESTRAINER - ROMAC GRIPPER RING FOR PIPE SIZES UP TO 300 mm AND SIGMA ONE-LOCK FOR PIPE SIZES GREATER THAN 300 mm.
G) LIVE TAP SADDLES - EPOXY COATED c/w STAINLESS STEEL BOLTS.
H) LIVE TAP VALVE - RESILIENT SEATED RSGV, LIVE TAPE VALVE, OPEN LE.
I) FILTER FABRIC - TERRAFIX 270R OR APPROVED EQUAL.
J) PERFORATED SUBDRAINS - 100mm DIA. BIG 'O' WITH GEOTEXTILE FILTER SOCK OR APPROVED EQUAL UNLESS NOTED OTHERWISE.
K) ALL SPECIFIED AGGREGATES TO OPSD 1010.
L) INSULATION - STRYROFOAM HI-40.
M) ALL HYDRANTS SHALL BE, CANADA VALVE, CENTURY NO. 1 OPEN LEFT WITH 2 CSA HOSE PORTS, ONE STORZ 4"PUMPER PORT, AND A BREAK AWAY TYPE 6"MJ BASE.

TOWN APPROVAL

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.

BENCHMARKS

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM BENCH MARK No. 0011972U311 HAVING A PUBLISHED ELEVATION OF 181.032 METRES.

NOTES

LEGAL SURVEY INFORMATION AND LOT DIMENSIONS SHOWN ON THIS PLAN ARE TAKEN FROM A SURVEY PLAN PREPARED BY PATTEN & THOMSEN LTD, DATED, JANUARY 2, 2012 JOB No. 66-170-6

TOPOGRAPHIC SURVEY COMPLETED BY TATHAM ENGINEERING OCTOBER, 2022.

No.	REVISION DESCRIPTION	DATE
1.	1ST SUBMISSION	03/22
2.	2ND SUBMISSION	12/22
3.	3RD SUBMISSION	07/23

ENGINEER STAMP

LICENSED PROFESSIONAL ENGINEER
2023.07.28
D. M. CASULLO
PROVINCE OF ONTARIO

CRANBERRY MARSH ESTATES
TOWN OF COLLINGWOOD

TATHAM ENGINEERING

DETAILS & NOTES

DESIGN: KG/SBU	FILE: 120181	DWG:
DRAWN: KH/SBU	DATE: NOV 2021	**DE-1**
CHECK: DC	SCALE: 1:500	

Drawing Name: 120181 - DE01.dwg, Plotted: Aug 02, 2023

Appendix A: Pre-Development SWM Calculations

Active coordinate

44° 30' 45" N, 80° 15' 45" W (44.512500,-80.262500)

Retrieved: Wed, 08 Dec 2021 16:31:58 GMT

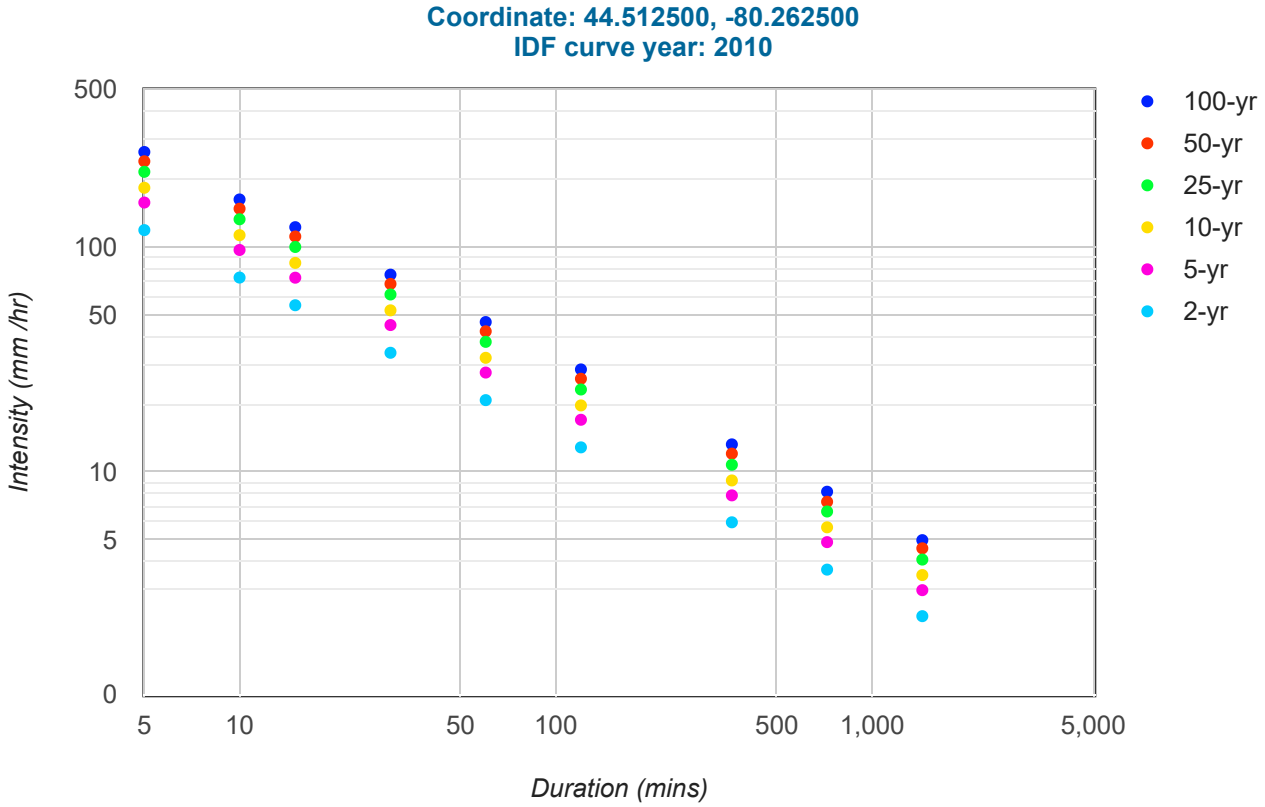
Location summary

These are the locations in the selection.

IDF Curve: 44° 30' 45" N, 80° 15' 45" W (44.512500,-80.262500)

Results

An IDF curve was found.



Coefficient summary

IDF Curve: 44° 30' 45" N, 80° 15' 45" W (44.512500,-80.262500)

Retrieved: Wed, 08 Dec 2021 16:31:58 GMT

Data year: 2010
IDF curve year: 2010

Return period	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
A	20.9	27.7	32.2	37.9	42.2	46.4
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	118.7	73.1	55.1	33.9	20.9	12.9	6.0	3.7	2.3
5-yr	157.3	96.9	73.0	45.0	27.7	17.1	7.9	4.9	3.0
10-yr	182.9	112.7	84.9	52.3	32.2	19.8	9.2	5.7	3.5
25-yr	215.3	132.6	99.9	61.5	37.9	23.3	10.8	6.7	4.1
50-yr	239.7	147.7	111.2	68.5	42.2	26.0	12.1	7.4	4.6
100-yr	263.6	162.3	122.3	75.3	46.4	28.6	13.3	8.2	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	9.9	12.2	13.8	17.0	20.9	25.7	35.8	44.2	54.4
5-yr	13.1	16.2	18.2	22.5	27.7	34.1	47.5	58.5	72.1
10-yr	15.2	18.8	21.2	26.1	32.2	39.7	55.2	68.0	83.8
25-yr	17.9	22.1	25.0	30.8	37.9	46.7	65.0	80.1	98.6
50-yr	20.0	24.6	27.8	34.3	42.2	52.0	72.4	89.2	109.8
100-yr	22.0	27.1	30.6	37.7	46.4	57.2	79.6	98.0	120.8

Terms of Use

CRANBERRY MARSH ESTATES
EXISTING CONDITIONS

Nashyd		Route Pipe		Duhyd	
Standhyd		Route Channel		Diverthyd	
Addhyd		Route Reservoir			

TATHAM ENGINEERING

Project:	Cranberry Marsh Estates
File No.:	120181
Subject:	Otthymo Flow Schematic
Date:	Dec-22

TATHAM ENGINEERING

Visual OTTHYMO Model Parameter Calculations (NasHYD)

Project Details

Cranberry Marsh Estates	120181

Prepared By

Kyle Gowanlock	Dec 2022

Data Sources

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

Pre-Development Condition

Watershed:	NVCA
Catchment ID:	101
Catchment Area (ha):	0.74
Impervious %:	

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

Soil Symbol		**Pal**											
Soil Series		Parkhill											
Hydrologic Soils Group		BC											
Soil Texture		Loam or Silt Loam											
Runoff Coefficient Type		2											
Area (ha)		0.74											
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		100	0.95									
Gravel	3	0.09	89	0.27									
Woodland	10	0.65	67	0.25									
Pasture/Lawns	5		74	0.28									
Meadows	8		71	0.27									
Cultivated	7		78	0.35									
Waterbody	12		50	0.05									
Average CN		69.68											
Average C		0.25											
Average IA		9.15											

Time to Peak Calculations

Max. Catchment Elev. (m):	179.75
Min. Catchment Elev. (m):	178.74
Catchment Length (m):	115
Catchment Slope (%):	0.88%
Method: Airport Method	
Time of Concentration (mins):	30.95

Summary

Catchment CN:	69.7
Catchment C:	0.25
Catchment IA (mm):	9.15
Time of Concentration (hrs):	0.52
Catchment Time to Peak (hrs):	0.34
Catchment Time Step (mins):	4.13

TATHAM ENGINEERING

Visual OTTHYMO Model Parameter Calculations (NasHYD)

Project Details

Cranberry Marsh Estates	120181

Prepared By

Kyle Gowanlock	Dec 2022

Data Sources

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

Pre-Development Condition

Watershed:	NVCA
Catchment ID:	102
Catchment Area (ha):	0.55
Impervious %:	

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

Soil Symbol		**Pal**											
Soil Series		Parkhill											
Hydrologic Soils Group		BC											
Soil Texture		Loam or Silt Loam											
Runoff Coefficient Type		2											
Area (ha)		0.55											
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		100	0.95									
Gravel	3		89	0.27									
Woodland	10	0.55	67	0.25									
Pasture/Lawns	5		74	0.28									
Meadows	8		71	0.27									
Cultivated	7		78	0.35									
Waterbody	12		50	0.05									
Average CN		67.00											
Average C		0.25											
Average IA		10.00											

Time to Peak Calculations

Max. Catchment Elev. (m):	179.75
Min. Catchment Elev. (m):	179.37
Catchment Length (m):	128
Catchment Slope (%):	0.30%
Method: Airport Method	
Time of Concentration (mins):	46.80

Summary

Catchment CN:	67.0
Catchment C:	0.25
Catchment IA (mm):	10.00
Time of Concentration (hrs):	0.78
Catchment Time to Peak (hrs):	0.52
Catchment Time Step (mins):	6.24

TATHAM ENGINEERING

Visual OTTHYMO Model Parameter Calculations (StandHYD)

Project Details

Cranberry Marsh Estates	120181

Prepared By

Kyle Gowanlock	Dec 2022

Data Sources

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

Pre-Development Condition

Watershed:	NVCA
Catchment ID:	301
Catchment Area (ha):	0.35
Impervious %:	53%
Pervious Area (ha):	0.16

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

Soil Symbol		**Pal**							
Soil Series		Parkhill							
Hydrologic Soils Group		BC							
Soil Texture		Loam or Silt Loam							
Runoff Coefficient Type		2							
Area (ha)		0.16							
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	0.16	74						
Meadows	8		71						
Cultivated	7		78						
Waterbody	12		50						
Average CN		74.00							
Average IA		5.00							

Notes

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

Summary

Catchment CN:	74.0
Catchment IA (mm):	5.00

TATHAM ENGINEERING

Visual OTTHYMO Model Parameter Calculations (StandHYD)

Project Details

Cranberry Marsh Estates	120181

Prepared By

Kyle Gowanlock	Dec 2022

Data Sources

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

Pre-Development Condition

Watershed:	NVCA
Catchment ID:	302
Catchment Area (ha):	0.20
Impervious %:	43%
Pervious Area (ha):	0.11

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

Soil Symbol		**Pal**							
Soil Series		Parkhill							
Hydrologic Soils Group		BC							
Soil Texture		Loam or Silt Loam							
Runoff Coefficient Type		2							
Area (ha)		0.11							
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	0.11	74						
Meadows	8		71						
Cultivated	7		78						
Waterbody	12		50						
Average CN		74.00							
Average IA		5.00							

Notes

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

Summary

Catchment CN:	74.0
Catchment IA (mm):	5.00

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

       V    V   I    SSSSS  U   U    A    L             (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


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  Output  filename:
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DATE: 02-25-2022                          TIME: 04:44:36

USER:



COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------
------------------------
  ***********************************************
  ** SIMULATION : (1) 25mm Design Storm        **
  ***********************************************


--------------------
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|                  |              ata\Local\Temp\
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| Ptotal= 24.97 mm |    Comments: 25MM BARRIE
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.10    0.00 |  1.20    2.81 |  2.30    8.44 |  3.40    1.76
                0.20    1.29 |  1.30    3.22 |  2.40    6.21 |  3.50    1.65
                0.30    1.36 |  1.40    3.77 |  2.50    4.91 |  3.60    1.55
                0.40    1.44 |  1.50    4.55 |  2.60    4.06 |  3.70    1.46
                0.50    1.53 |  1.60    5.77 |  2.70    3.47 |  3.80    1.39
                0.60    1.63 |  1.70    7.86 |  2.80    3.03 |  3.90    1.32
                0.70    1.75 |  1.80   12.27 |  2.90    2.70 |  4.00    1.26
                0.80    1.89 |  1.90   26.17 |  3.00    2.43 |  4.10    1.20
                0.90    2.06 |  2.00   72.58 |  3.10    2.22 |
                1.00    2.26 |  2.10   26.96 |  3.20    2.04 |
                1.10    2.50 |  2.20   13.05 |  3.30    1.89 |

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

--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   0.74   Curve Number   (CN)= 69.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   9.15   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39


     Unit Hyd Qpeak  (cms)=   0.072

     PEAK FLOW       (cms)=   0.003 (i)
     TIME TO PEAK    (hrs)=   2.500
     RUNOFF VOLUME    (mm)=   1.975
     TOTAL RAINFALL   (mm)=  24.951
     RUNOFF COEFFICIENT   =   0.079

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0301)|   Area    (ha)=   0.35
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=   0.10
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.17         0.17
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         8.00
     Length            (m)=      48.30        13.00
     Mannings n           =      0.013        0.250
```

```
     Max.Eff.Inten.(mm/hr)=      72.58        35.68
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       1.52 (ii)    5.11 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.33         0.16
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.02          0.015 (iii)
     TIME TO PEAK    (hrs)=       2.00         2.08           2.08
     RUNOFF VOLUME    (mm)=      22.95         7.51           7.51
     TOTAL RAINFALL   (mm)=      24.95        24.95          24.95
     RUNOFF COEFFICIENT   =       0.92         0.30           0.30

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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

--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     0.74   0.003     2.50     1.97
      + ID2= 2 (  0301):     0.35   0.015     2.08     7.51
        ====================================================
        ID = 3 (  0901):     1.09   0.016     2.08     3.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.55   Curve Number   (CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.52


     Unit Hyd Qpeak  (cms)=   0.040

     PEAK FLOW       (cms)=   0.001 (i)
     TIME TO PEAK    (hrs)=   2.750
     RUNOFF VOLUME    (mm)=   1.594
     TOTAL RAINFALL   (mm)=  24.951
     RUNOFF COEFFICIENT   =   0.064
```

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0302)|   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=   0.10
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.09         0.11
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      36.51        40.00
     Mannings n           =      0.013        0.250


     Max.Eff.Inten.(mm/hr)=      72.58        22.39
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       1.29 (ii)   14.13 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.005 (iii)
     TIME TO PEAK    (hrs)=       2.00         2.17           2.17
     RUNOFF VOLUME    (mm)=      22.95         6.69           6.67
     TOTAL RAINFALL   (mm)=      24.95        24.95          24.95
     RUNOFF COEFFICIENT   =       0.92         0.27           0.27

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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

--------------------
| ADD HYD  (  0902)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0102):     0.55   0.001     2.75     1.59
      + ID2= 2 (  0302):     0.20   0.005     2.17     6.67
        ====================================================
        ID = 3 (  0902):     0.75   0.005     2.25     2.95

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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       V    V   I    SSSSS  U   U    A    L             (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\1
9ba2dc5-18e5-4447-bf3f-766e142c5e44\s
  Summary filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\1
9ba2dc5-18e5-4447-bf3f-766e142c5e44\s


DATE: 02-25-2022                          TIME: 04:44:36

USER:



COMMENTS: _____________________________________________________


--------------------------------------------------------------------------------
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  ***********************************************
  ** SIMULATION : (2) 2 Year Design Storm - Chi **
  ***********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 365.657
| Ptotal= 31.69 mm |                          B=   0.000
```

```
--------------------                          C=   0.699
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.35

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.17    2.76 |  1.17   12.83 |  2.17    5.19 |  3.17    3.02
                0.33    3.08 |  1.33   73.13 |  2.33    4.58 |  3.33    2.84
                0.50    3.51 |  1.50   15.38 |  2.50    4.12 |  3.50    2.69
                0.67    4.13 |  1.67    9.64 |  2.67    3.76 |  3.67    2.56
                0.83    5.11 |  1.83    7.34 |  2.83    3.47 |  3.83    2.44
                1.00    6.98 |  2.00    6.04 |  3.00    3.23 |  4.00    2.33


--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   0.74   Curve Number   (CN)= 69.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   9.15   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39


     Unit Hyd Qpeak  (cms)=   0.072

     PEAK FLOW       (cms)=   0.004 (i)
     TIME TO PEAK    (hrs)=   1.917
     RUNOFF VOLUME    (mm)=   3.817
     TOTAL RAINFALL   (mm)=  31.693
     RUNOFF COEFFICIENT   =   0.120

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0301)|   Area    (ha)=   0.35
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=   0.10
--------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.17         0.17
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         8.00
     Length            (m)=      48.30        13.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      73.13        47.30
               over (min)        5.00         5.00
```

```
     Storage Coeff.  (min)=       1.52 (ii)    4.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.22
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.02          0.023 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.33           1.33
     RUNOFF VOLUME    (mm)=      29.69        11.54          11.55
     TOTAL RAINFALL   (mm)=      31.69        31.69          31.69
     RUNOFF COEFFICIENT   =       0.94         0.36           0.36

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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

--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0101):     0.74   0.004     1.92     3.82
     + ID2= 2 (  0301):     0.35   0.023     1.33    11.55
       ================================================
       ID = 3 (  0901):     1.09   0.023     1.33     6.30

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.55   Curve Number   (CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.52


     Unit Hyd Qpeak  (cms)=   0.040

     PEAK FLOW       (cms)=   0.002 (i)
     TIME TO PEAK    (hrs)=   2.167
     RUNOFF VOLUME    (mm)=   3.203
     TOTAL RAINFALL   (mm)=  31.693
     RUNOFF COEFFICIENT   =   0.101

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

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--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0302)|   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=   0.10
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.09         0.11
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      36.51        40.00
     Mannings n           =      0.013        0.250


     Max.Eff.Inten.(mm/hr)=      73.13        28.26
                 over (min)       5.00        15.00
     Storage Coeff.  (min)=       1.28 (ii)   12.98 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.01          0.006 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.50           1.50
     RUNOFF VOLUME    (mm)=      29.69        10.43          10.41
     TOTAL RAINFALL   (mm)=      31.69        31.69          31.69
     RUNOFF COEFFICIENT   =       0.94         0.33           0.33

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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

--------------------
| ADD HYD  (  0902)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0102):     0.55   0.002     2.17     3.20
     + ID2= 2 (  0302):     0.20   0.006     1.50    10.41
       ================================================
       ID = 3 (  0902):     0.75   0.007     1.50     5.12

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

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       V    V   I    SSSSS  U   U    A    L             (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\2
51b044f-7e22-4719-bb83-c2a62d1be9d7\s
  Summary filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\2
51b044f-7e22-4719-bb83-c2a62d1be9d7\s


DATE: 02-25-2022                          TIME: 04:44:36

USER:



COMMENTS: _____________________________________________________________


-------------------------------------------------------------------------------
------------------------
  ***********************************************
  ** SIMULATION : (3) 5 Year Design Storm - Chi **
  ***********************************************


--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 484.627
| Ptotal= 42.00 mm |                          B=   0.000
--------------------                          C=   0.699
                       used in:   INTENSITY =  A / (t + B)^C
```

```
                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.35

      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
      0.17    3.65 |  1.17   17.00 |  2.17    6.88 |  3.17    4.00
      0.33    4.08 |  1.33   96.92 |  2.33    6.07 |  3.33    3.77
      0.50    4.65 |  1.50   20.39 |  2.50    5.46 |  3.50    3.57
      0.67    5.48 |  1.67   12.78 |  2.67    4.98 |  3.67    3.39
      0.83    6.78 |  1.83    9.73 |  2.83    4.60 |  3.83    3.23
      1.00    9.25 |  2.00    8.01 |  3.00    4.27 |  4.00    3.09


-------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   0.74   Curve Number   (CN)= 69.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   9.15   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39

     Unit Hyd Qpeak  (cms)=   0.072

     PEAK FLOW       (cms)=   0.009 (i)
     TIME TO PEAK    (hrs)=   1.833
     RUNOFF VOLUME    (mm)=   7.527
     TOTAL RAINFALL   (mm)=  42.005
     RUNOFF COEFFICIENT   =   0.179

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

-------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0301)|   Area    (ha)=   0.35
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=   0.10
--------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.17          0.17
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       2.00          8.00
     Length            (m)=      48.30         13.00
     Mannings n             =     0.013         0.250


     Max.Eff.Inten.(mm/hr)=      96.92         79.45
               over (min)        5.00          5.00
     Storage Coeff.  (min)=       1.36 (ii)     3.96 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
```

```
     Unit Hyd. peak  (cms)=       0.33         0.24
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.04          0.040 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.33           1.33
     RUNOFF VOLUME    (mm)=      40.00        18.54          18.56
     TOTAL RAINFALL   (mm)=      42.00        42.00          42.00
     RUNOFF COEFFICIENT   =       0.95         0.44           0.44

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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

--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     0.74   0.009     1.83     7.53
      + ID2= 2 (  0301):     0.35   0.040     1.33    18.56
        =================================================
        ID = 3 (  0901):     1.09   0.041     1.33    11.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.55   Curve Number   (CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.52

     Unit Hyd Qpeak  (cms)=   0.040

     PEAK FLOW       (cms)=   0.005 (i)
     TIME TO PEAK    (hrs)=   2.083
     RUNOFF VOLUME    (mm)=   6.518
     TOTAL RAINFALL   (mm)=  42.005
     RUNOFF COEFFICIENT   =   0.155

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
```

```
| STANDHYD (  0302)|   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=   0.10
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.09         0.11
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      36.51        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      96.92        62.74
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.15 (ii)    9.65 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.11
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.01          0.013 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42           1.42
     RUNOFF VOLUME    (mm)=      40.00        17.02          17.01
     TOTAL RAINFALL   (mm)=      42.00        42.00          42.00
     RUNOFF COEFFICIENT   =       0.95         0.41           0.41

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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

--------------------
| ADD HYD  (  0902)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0102):     0.55   0.005     2.08     6.52
      + ID2= 2 (  0302):     0.20   0.013     1.42    17.01
        =================================================
        ID = 3 (  0902):     0.75   0.014     1.42     9.32

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

       V    V   I    SSSSS  U   U    A    L             (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
```

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

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


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

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

Output filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\27d4faf6-7d84-4d75-805b-2d77e3965804\s
Summary filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\27d4faf6-7d84-4d75-805b-2d77e3965804\s

DATE: 02-25-2022 TIME: 04:44:36

USER:

COMMENTS: _____

****
** SIMULATION : (4) 10 Year Design Storm - Ch **
****

| CHICAGO STORM | Ptotal= 48.83 mm |

IDF curve parameters: A= 563.357
B= 0.000
C= 0.699
used in: INTENSITY = A / (t + B)^C

Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.35

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	4.25	1.17	19.77	2.17	8.00	3.17	4.65
0.33	4.74	1.33	112.66	2.33	7.06	3.33	4.38
0.50	5.41	1.50	23.70	2.50	6.35	3.50	4.15
0.67	6.37	1.67	14.86	2.67	5.79	3.67	3.94
0.83	7.88	1.83	11.31	2.83	5.34	3.83	3.75
1.00	10.75	2.00	9.31	3.00	4.97	4.00	3.59

| CALIB | NASHYD (0101) | ID= 1 DT= 5.0 min |

Area (ha)= 0.74 Curve Number (CN)= 69.7
Ia (mm)= 9.15 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.39

Unit Hyd Qpeak (cms)= 0.072

PEAK FLOW (cms)= 0.013 (i)
TIME TO PEAK (hrs)= 1.833
RUNOFF VOLUME (mm)= 10.479
TOTAL RAINFALL (mm)= 48.829
RUNOFF COEFFICIENT = 0.215

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

| CALIB | STANDHYD (0301) | ID= 1 DT= 5.0 min |

Area (ha)= 0.35
Total Imp(%)= 50.00 Dir. Conn.(%)= 0.10

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.17	0.17	
Dep. Storage	(mm)=	2.00	5.00	
Average Slope	(%)=	2.00	8.00	
Length	(m)=	48.30	13.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=	over (min)	112.66 5.00	103.18 5.00	
Storage Coeff.	(min)=	1.28 (ii)	3.62 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	0.33	0.25	
				TOTALS
PEAK FLOW	(cms)=	0.00	0.05	0.052 (iii)
TIME TO PEAK	(hrs)=	1.33	1.33	1.33
RUNOFF VOLUME	(mm)=	46.83	23.59	23.60

```
     TOTAL RAINFALL   (mm)=      48.83        48.83          48.83
     RUNOFF COEFFICIENT   =       0.96         0.48           0.48

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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

--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     0.74   0.013     1.83    10.48
      + ID2= 2 (  0301):     0.35   0.052     1.33    23.60
        ================================================
        ID = 3 (  0901):     1.09   0.055     1.33    14.69

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.55   Curve Number   (CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.52

     Unit Hyd Qpeak  (cms)=   0.040

     PEAK FLOW       (cms)=   0.007 (i)
     TIME TO PEAK    (hrs)=   2.000
     RUNOFF VOLUME    (mm)=   9.195
     TOTAL RAINFALL   (mm)=  48.829
     RUNOFF COEFFICIENT   =   0.188

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0302)|   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=   0.10
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.09         0.11
```

```
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      36.51        40.00
     Mannings n           =      0.013        0.250


     Max.Eff.Inten.(mm/hr)=     112.66        82.23
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.08 (ii)    8.71 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.12
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.02          0.017 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42           1.42
     RUNOFF VOLUME    (mm)=      46.83        21.82          21.82
     TOTAL RAINFALL   (mm)=      48.83        48.83          48.83
     RUNOFF COEFFICIENT   =       0.96         0.45           0.45

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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

--------------------
| ADD HYD  (  0902)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0102):     0.55   0.007     2.00     9.19
      + ID2= 2 (  0302):     0.20   0.017     1.42    21.82
        ================================================
        ID = 3 (  0902):     0.75   0.019     1.42    12.56

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

       V    V   I    SSSSS  U   U    A    L              (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL
```

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


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

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

Output filename:
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Summary filename:
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DATE: 02-25-2022 TIME: 04:44:36

USER:

COMMENTS: _____

****
** SIMULATION : (5) 25 Year Design Storm - Ch **
****

| CHICAGO STORM | Ptotal= 57.47 mm |

IDF curve parameters: A= 663.082
B= 0.000
C= 0.699
used in: INTENSITY = A / (t + B)^C

Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.35

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	5.00	1.17	23.27	2.17	9.41	3.17	5.48
0.33	5.58	1.33	132.61	2.33	8.31	3.33	5.16
0.50	6.37	1.50	27.90	2.50	7.48	3.50	4.88
0.67	7.49	1.67	17.49	2.67	6.82	3.67	4.64
0.83	9.27	1.83	13.31	2.83	6.29	3.83	4.42
1.00	12.65	2.00	10.95	3.00	5.85	4.00	4.23

CALIB NASHYD (0101) ID= 1 DT= 5.0 min	Area (ha)= 0.74 Curve Number (CN)= 69.7 Ia (mm)= 9.15 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.39

Unit Hyd Qpeak (cms)= 0.072

PEAK FLOW (cms)= 0.019 (i)
TIME TO PEAK (hrs)= 1.750
RUNOFF VOLUME (mm)= 14.697
TOTAL RAINFALL (mm)= 57.473
RUNOFF COEFFICIENT = 0.256

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

CALIB STANDHYD (0301) ID= 1 DT= 5.0 min	Area (ha)= 0.35 Total Imp(%)= 50.00 Dir. Conn.(%)= 0.10

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.17	0.17	
Dep. Storage	(mm)=	2.00	5.00	
Average Slope	(%)=	2.00	8.00	
Length	(m)=	48.30	13.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)	=	132.61	135.38	
over (min)		5.00	5.00	
Storage Coeff.	(min)=	1.20 (ii)	3.30 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	0.33	0.27	
				TOTALS
PEAK FLOW	(cms)=	0.00	0.07	0.070 (iii)
TIME TO PEAK	(hrs)=	1.33	1.33	1.33
RUNOFF VOLUME	(mm)=	55.47	30.33	30.35
TOTAL RAINFALL	(mm)=	57.47	57.47	57.47
RUNOFF COEFFICIENT	=	0.97	0.53	0.53

```
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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

--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0101):     0.74   0.019     1.75    14.70
     + ID2= 2 (  0301):     0.35   0.070     1.33    30.35
       ================================================
       ID = 3 (  0901):     1.09   0.074     1.33    19.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.55   Curve Number   (CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.52


     Unit Hyd Qpeak  (cms)=   0.040

     PEAK FLOW       (cms)=   0.010 (i)
     TIME TO PEAK    (hrs)=   2.000
     RUNOFF VOLUME    (mm)=  13.056
     TOTAL RAINFALL   (mm)=  57.473
     RUNOFF COEFFICIENT   =   0.227

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0302)|   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=   0.10
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.09         0.11
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         2.00

     Length            (m)=      36.51        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     132.61       108.92
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.01 (ii)    7.83 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.13
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.02          0.024 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42           1.42
     RUNOFF VOLUME    (mm)=      55.47        28.27          28.28
     TOTAL RAINFALL   (mm)=      57.47        57.47          57.47
     RUNOFF COEFFICIENT   =       0.97         0.49           0.49

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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

--------------------
| ADD HYD  (  0902)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0102):     0.55   0.010     2.00    13.06
     + ID2= 2 (  0302):     0.20   0.024     1.42    28.28
       ================================================
       ID = 3 (  0902):     0.75   0.027     1.42    17.11

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

       V    V   I    SSSSS  U   U    A    L              (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
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a8cb67f-9e99-444e-bb98-988a078e4edf\s
  Summary filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\5
a8cb67f-9e99-444e-bb98-988a078e4edf\s


DATE: 02-25-2022                          TIME: 04:44:36

USER:



COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------
------------------------
  ***********************************************
  ** SIMULATION : (6) 50 Year Design Storm - Ch **
  ***********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 738.312
| Ptotal= 63.99 mm |                          B=   0.000
--------------------                          C=   0.699
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.35

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.17    5.56 |  1.17   25.91 |  2.17   10.48 |  3.17    6.10
                0.33    6.22 |  1.33  147.65 |  2.33    9.25 |  3.33    5.74
                0.50    7.09 |  1.50   31.06 |  2.50    8.32 |  3.50    5.43
                0.67    8.34 |  1.67   19.47 |  2.67    7.59 |  3.67    5.16
                0.83   10.32 |  1.83   14.82 |  2.83    7.00 |  3.83    4.92
                1.00   14.09 |  2.00   12.20 |  3.00    6.51 |  4.00    4.71


--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   0.74   Curve Number   (CN)= 69.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   9.15   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39

     Unit Hyd Qpeak  (cms)=   0.072

     PEAK FLOW       (cms)=   0.024 (i)
     TIME TO PEAK    (hrs)=   1.750
     RUNOFF VOLUME    (mm)=  18.185
     TOTAL RAINFALL   (mm)=  63.993
     RUNOFF COEFFICIENT   =   0.284

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0301)|   Area    (ha)=   0.35
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=   0.10
--------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.17          0.17
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       2.00          8.00
     Length            (m)=      48.30         13.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     147.65        160.94
               over (min)        5.00          5.00
     Storage Coeff.  (min)=       1.15 (ii)     3.11 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.27
                                                            *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.08          0.083 (iii)
     TIME TO PEAK    (hrs)=       1.33          1.33           1.33
     RUNOFF VOLUME    (mm)=      61.99         35.62          35.64
     TOTAL RAINFALL   (mm)=      63.99         63.99          63.99
     RUNOFF COEFFICIENT   =       0.97          0.56           0.56

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.
```

```
       (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.

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

--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     0.74   0.024     1.75    18.18
      + ID2= 2 (  0301):     0.35   0.083     1.33    35.64
        ================================================
        ID = 3 (  0901):     1.09   0.089     1.33    23.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.55   Curve Number   (CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.52

     Unit Hyd Qpeak  (cms)=   0.040

     PEAK FLOW       (cms)=   0.013 (i)
     TIME TO PEAK    (hrs)=   2.000
     RUNOFF VOLUME    (mm)=  16.274
     TOTAL RAINFALL   (mm)=  63.993
     RUNOFF COEFFICIENT   =   0.254

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0302)|   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=   0.10
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.09         0.11
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      36.51        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     147.65       130.25
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       0.97 (ii)    7.32 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.13
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.03          0.029 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42           1.42
     RUNOFF VOLUME    (mm)=      61.99        33.36          33.37
     TOTAL RAINFALL   (mm)=      63.99        63.99          63.99
     RUNOFF COEFFICIENT   =       0.97         0.52           0.52

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
             YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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

--------------------
| ADD HYD  (  0902)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0102):     0.55   0.013     2.00    16.27
      + ID2= 2 (  0302):     0.20   0.029     1.42    33.37
        ================================================
        ID = 3 (  0902):     0.75   0.033     1.42    20.83

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

       V    V   I    SSSSS  U   U    A    L              (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
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  Summary filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\8
6a49e86-b771-4b46-8895-06e0a67c74ad\s


DATE: 02-25-2022                          TIME: 04:44:36

USER:



COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------
-----------------------
  ***********************************************
  ** SIMULATION : (7) 100 Year Design Storm - C **
  ***********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 811.794
| Ptotal= 70.36 mm |                          B=   0.000
--------------------                          C=   0.699
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.35

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.17    6.12 |  1.17   28.48 |  2.17   11.52 |  3.17    6.70
                0.33    6.83 |  1.33  162.35 |  2.33   10.17 |  3.33    6.31
                0.50    7.80 |  1.50   34.15 |  2.50    9.15 |  3.50    5.97
                0.67    9.17 |  1.67   21.41 |  2.67    8.35 |  3.67    5.68
                0.83   11.35 |  1.83   16.30 |  2.83    7.70 |  3.83    5.41
                1.00   15.49 |  2.00   13.41 |  3.00    7.16 |  4.00    5.17


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

```
--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   0.74   Curve Number   (CN)= 69.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   9.15   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39

     Unit Hyd Qpeak  (cms)=   0.072

     PEAK FLOW       (cms)=   0.029 (i)
     TIME TO PEAK    (hrs)=   1.750
     RUNOFF VOLUME    (mm)=  21.814
     TOTAL RAINFALL   (mm)=  70.362
     RUNOFF COEFFICIENT   =   0.310

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0301)|   Area    (ha)=   0.35
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=   0.10
--------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.17         0.17
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         8.00
     Length            (m)=      48.30        13.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     162.35       186.77
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.10 (ii)    2.95 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.28
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.10          0.097 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.33           1.33
     RUNOFF VOLUME    (mm)=      68.36        40.92          40.95
     TOTAL RAINFALL   (mm)=      70.36        70.36          70.36
     RUNOFF COEFFICIENT   =       0.97         0.58           0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
             YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.
```

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

--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0101):     0.74   0.029     1.75    21.81
     + ID2= 2 (  0301):     0.35   0.097     1.33    40.95
       ================================================
       ID = 3 (  0901):     1.09   0.104     1.33    27.96

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.55   Curve Number   (CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.52

     Unit Hyd Qpeak  (cms)=   0.040

     PEAK FLOW       (cms)=   0.016 (i)
     TIME TO PEAK    (hrs)=   2.000
     RUNOFF VOLUME    (mm)=  19.643
     TOTAL RAINFALL   (mm)=  70.362
     RUNOFF COEFFICIENT   =   0.279

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0302)|   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=   0.10
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.09         0.11
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      36.51        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     162.35       151.92
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       0.93 (ii)    6.90 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.14
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.03         0.034 (iii)
```

```
     TIME TO PEAK    (hrs)=       1.33         1.42          1.42
     RUNOFF VOLUME    (mm)=      68.36        38.48         38.50
     TOTAL RAINFALL   (mm)=      70.36        70.36         70.36
     RUNOFF COEFFICIENT   =       0.97         0.55          0.55

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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

--------------------
| ADD HYD  (  0902)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0102):     0.55   0.016     2.00    19.64
     + ID2= 2 (  0302):     0.20   0.034     1.42    38.50
       ================================================
       ID = 3 (  0902):     0.75   0.039     1.42    24.67

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

 FINISH
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      V    V   I    SSSSS  U   U    A    L              (v 6.1.2001)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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

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

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

Output filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\3a3da94d-d18f-42c4-a909-5d1f49244ebc\s
Summary filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\3a3da94d-d18f-42c4-a909-5d1f49244ebc\s

DATE: 02-25-2022 TIME: 04:44:36

USER:

COMMENTS: _____

** SIMULATION : (8) Timmins Design Storm **

READ STORM	Filename: C:\Users\KGowanlock\AppData\Local\Temp\a6086671-b0bf-4fff-b250-a32c0506adc7\3c4d485d
Ptotal=193.00 mm	Comments: TIMMINS

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	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	15.00	4.00	3.00	7.00	43.00	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	20.00	5.00	5.00	8.00	20.00	11.00	13.00
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
3.00	10.00	6.00	20.00	9.00	23.00	12.00	8.00

CALIB NASHYD (0101) ID= 1 DT= 5.0 min	Area (ha)= 0.74	Curve Number (CN)= 69.7
	Ia (mm)= 9.15	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.39	

Unit Hyd Qpeak (cms)= 0.072

PEAK FLOW (cms)= 0.058 (i)
TIME TO PEAK (hrs)= 7.083
RUNOFF VOLUME (mm)= 114.806
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.595

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

CALIB STANDHYD (0301) ID= 1 DT= 5.0 min	Area (ha)= 0.35	
	Total Imp(%)= 50.00	Dir. Conn.(%)= 0.10

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.17	0.17	
Dep. Storage	(mm)=	2.00	5.00	
Average Slope	(%)=	2.00	8.00	
Length	(m)=	48.30	13.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)	=	43.00	78.74	
over (min)		5.00	5.00	
Storage Coeff. (min)	=	1.88 (ii)	4.49 (ii)	
Unit Hyd. Tpeak (min)	=	5.00	5.00	
Unit Hyd. peak (cms)	=	0.32	0.23	
				TOTALS
PEAK FLOW	(cms)=	0.00	0.04	0.038 (iii)
TIME TO PEAK	(hrs)=	6.50	7.00	7.00
RUNOFF VOLUME	(mm)=	191.00	154.31	154.34
TOTAL RAINFALL	(mm)=	193.00	193.00	193.00
RUNOFF COEFFICIENT	=	0.99	0.80	0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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.

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

--------------------
| ADD HYD  (  0901)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0101):     0.74   0.058     7.08   114.81
      + ID2= 2 (  0301):     0.35   0.038     7.00   154.34
        ================================================
        ID = 3 (  0901):     1.09   0.095     7.00   127.50

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.55   Curve Number   (CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.52

     Unit Hyd Qpeak  (cms)=   0.040

     PEAK FLOW       (cms)=   0.037 (i)
     TIME TO PEAK    (hrs)=   7.167
     RUNOFF VOLUME    (mm)= 108.686
     TOTAL RAINFALL   (mm)= 193.000
     RUNOFF COEFFICIENT   =   0.563

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0302)|   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=   0.10
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.09         0.11
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      36.51        40.00
     Mannings n           =      0.013        0.250


     Max.Eff.Inten.(mm/hr)=      43.00        67.77
               over (min)         5.00        10.00
```

```
     Storage Coeff.  (min)=       1.59 (ii)    9.83 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.33         0.11
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.02         0.021 (iii)
     TIME TO PEAK    (hrs)=       6.25         7.00          7.00
     RUNOFF VOLUME    (mm)=     191.00       149.98        150.00
     TOTAL RAINFALL   (mm)=     193.00       193.00        193.00
     RUNOFF COEFFICIENT   =       0.99         0.78          0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
             YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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

--------------------
| ADD HYD  (  0902)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0102):     0.55   0.037     7.17   108.69
      + ID2= 2 (  0302):     0.20   0.021     7.00   150.00
        ================================================
        ID = 3 (  0902):     0.75   0.057     7.00   119.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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       V    V   I    SSSSS  U   U    A    L             (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\0
1eb1316-aea3-48a4-86c8-9b1e1d2e5ca3\s
  Summary filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\0
1eb1316-aea3-48a4-86c8-9b1e1d2e5ca3\s


DATE: 02-25-2022                          TIME: 10:42:09

USER:



COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------
------------------------
  ***********************************************
  ** SIMULATION : (1) 2 Year Design Storm - SCS **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\KGowanlock\AppD
|                  |              ata\Local\Temp\
```

```
|                  |              9c1599e0-5705-4571-9428-977ab3d9d9a7\7793d5b3
| Ptotal= 54.40 mm |    Comments: 2yr 24hr 15min SCS
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    0.00 |  6.50    0.98 | 12.75    7.83 | 19.00    0.98
                0.50    0.60 |  6.75    0.98 | 13.00    4.03 | 19.25    0.98
                0.75    0.60 |  7.00    0.98 | 13.25    4.03 | 19.50    0.98
                1.00    0.60 |  7.25    0.98 | 13.50    2.94 | 19.75    0.98
                1.25    0.60 |  7.50    1.20 | 13.75    2.94 | 20.00    0.98
                1.50    0.60 |  7.75    1.20 | 14.00    2.28 | 20.25    0.98
                1.75    0.60 |  8.00    1.20 | 14.25    2.28 | 20.50    0.65
                2.00    0.60 |  8.25    1.20 | 14.50    1.63 | 20.75    0.65
                2.25    0.60 |  8.50    1.41 | 14.75    1.63 | 21.00    0.65
                2.50    0.71 |  8.75    1.41 | 15.00    1.63 | 21.25    0.65
                2.75    0.71 |  9.00    1.52 | 15.25    1.63 | 21.50    0.65
                3.00    0.71 |  9.25    1.52 | 15.50    1.63 | 21.75    0.65
                3.25    0.71 |  9.50    1.74 | 15.75    1.63 | 22.00    0.65
                3.50    0.71 |  9.75    1.74 | 16.00    1.63 | 22.25    0.65
                3.75    0.71 | 10.00    1.96 | 16.25    1.63 | 22.50    0.65
                4.00    0.71 | 10.25    1.96 | 16.50    0.98 | 22.75    0.65
                4.25    0.71 | 10.50    2.50 | 16.75    0.98 | 23.00    0.65
                4.50    0.87 | 10.75    2.50 | 17.00    0.98 | 23.25    0.65
                4.75    0.87 | 11.00    3.37 | 17.25    0.98 | 23.50    0.65
                5.00    0.87 | 11.25    3.37 | 17.50    0.98 | 23.75    0.65
                5.25    0.87 | 11.50    5.22 | 17.75    0.98 | 24.00    0.65
                5.50    0.87 | 11.75    5.22 | 18.00    0.98 | 24.25    0.65
                5.75    0.87 | 12.00   16.10 | 18.25    0.98 |
                6.00    0.87 | 12.25   66.59 | 18.50    0.98 |
                6.25    0.87 | 12.50    7.83 | 18.75    0.98 |

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

--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.55   Curve Number   (CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.52

     Unit Hyd Qpeak  (cms)=   0.040

     PEAK FLOW       (cms)=   0.008 (i)
     TIME TO PEAK    (hrs)=  12.750
     RUNOFF VOLUME    (mm)=  11.627
     TOTAL RAINFALL   (mm)=  54.400
     RUNOFF COEFFICIENT   =   0.214

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

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```

```
--------------------
| CALIB            |
| STANDHYD (  0302)|   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=   0.10
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.09         0.11
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      36.51        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      66.59        67.46
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.33 (ii)    9.60 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.33         0.11
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.02          0.015 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.25          12.25
     RUNOFF VOLUME    (mm)=      52.40        25.93          25.93
     TOTAL RAINFALL   (mm)=      54.40        54.40          54.40
     RUNOFF COEFFICIENT   =       0.96         0.48           0.48

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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


--------------------
| ADD HYD  (  0902)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0102):     0.55   0.008    12.75    11.63
     + ID2= 2 (  0302):     0.20   0.015    12.25    25.93
       ================================================
       ID = 3 (  0902):     0.75   0.019    12.33    15.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0301)|   Area    (ha)=   0.35
```

```
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=   0.10
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.17         0.17
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         8.00
     Length            (m)=      48.30        13.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      66.59        82.50
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.58 (ii)    4.14 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.24
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.04          0.040 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.25          12.25
     RUNOFF VOLUME    (mm)=      52.40        27.89          27.91
     TOTAL RAINFALL   (mm)=      54.40        54.40          54.40
     RUNOFF COEFFICIENT   =       0.96         0.51           0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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            |
| NASHYD   (  0101)|   Area    (ha)=   0.74   Curve Number   (CN)= 69.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   9.15   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39

     Unit Hyd Qpeak  (cms)=   0.072

     PEAK FLOW       (cms)=   0.015 (i)
     TIME TO PEAK    (hrs)=  12.500
     RUNOFF VOLUME    (mm)=  13.141
     TOTAL RAINFALL   (mm)=  54.400
     RUNOFF COEFFICIENT   =   0.242

     (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):     0.74   0.015    12.50    13.14
     + ID2= 2 (  0301):     0.35   0.040    12.25    27.91
       ================================================
       ID = 3 (  0901):     1.09   0.048    12.25    17.88

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

       V    V   I    SSSSS  U   U    A    L              (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\7
89aebe1-77d2-4b2e-bbb9-2007b1070cfb\s
  Summary filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\7
89aebe1-77d2-4b2e-bbb9-2007b1070cfb\s


DATE: 02-25-2022                          TIME: 10:42:09

USER:



COMMENTS: _____________________________________________________________
```

```
--------------------------------------------------------------------------------
------------------------
  ***********************************************
  ** SIMULATION : (2) 5 Year Design Storm - SCS **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\KGowanlock\AppD
|                  |              ata\Local\Temp\
|                  |              9c1599e0-5705-4571-9428-977ab3d9d9a7\f65a105d
| Ptotal= 72.10 mm |    Comments: 5yr 24hr 15min SCS
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	6.50	1.30	12.75	10.38	19.00	1.30
0.50	0.79	6.75	1.30	13.00	5.34	19.25	1.30
0.75	0.79	7.00	1.30	13.25	5.34	19.50	1.30
1.00	0.79	7.25	1.30	13.50	3.89	19.75	1.30
1.25	0.79	7.50	1.59	13.75	3.89	20.00	1.30
1.50	0.79	7.75	1.59	14.00	3.03	20.25	1.30
1.75	0.79	8.00	1.59	14.25	3.03	20.50	0.87
2.00	0.79	8.25	1.59	14.50	2.16	20.75	0.87
2.25	0.79	8.50	1.87	14.75	2.16	21.00	0.87
2.50	0.94	8.75	1.87	15.00	2.16	21.25	0.87
2.75	0.94	9.00	2.02	15.25	2.16	21.50	0.87
3.00	0.94	9.25	2.02	15.50	2.16	21.75	0.87
3.25	0.94	9.50	2.31	15.75	2.16	22.00	0.87
3.50	0.94	9.75	2.31	16.00	2.16	22.25	0.87
3.75	0.94	10.00	2.60	16.25	2.16	22.50	0.87
4.00	0.94	10.25	2.60	16.50	1.30	22.75	0.87
4.25	0.94	10.50	3.32	16.75	1.30	23.00	0.87
4.50	1.15	10.75	3.32	17.00	1.30	23.25	0.87
4.75	1.15	11.00	4.47	17.25	1.30	23.50	0.87
5.00	1.15	11.25	4.47	17.50	1.30	23.75	0.87
5.25	1.15	11.50	6.92	17.75	1.30	24.00	0.87
5.50	1.15	11.75	6.92	18.00	1.30	24.25	0.87
5.75	1.15	12.00	21.34	18.25	1.30		
6.00	1.15	12.25	88.25	18.50	1.30		
6.25	1.15	12.50	10.38	18.75	1.30		

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

--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.55   Curve Number   (CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.52
```

```
     Unit Hyd Qpeak  (cms)=   0.040

     PEAK FLOW       (cms)=   0.014 (i)
     TIME TO PEAK    (hrs)=  12.667
     RUNOFF VOLUME    (mm)=  20.597
     TOTAL RAINFALL   (mm)=  72.100
     RUNOFF COEFFICIENT   =   0.286

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0302)|   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=   0.10
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.09         0.11
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      36.51        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.25       103.13
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.19 (ii)    8.16 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.33         0.13
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.02          0.025 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.25          12.25
     RUNOFF VOLUME    (mm)=      70.10        39.90          39.90
     TOTAL RAINFALL   (mm)=      72.10        72.10          72.10
     RUNOFF COEFFICIENT   =       0.97         0.55           0.55

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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

--------------------
| ADD HYD  (  0902)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0102):     0.55   0.014    12.67    20.60
      + ID2= 2 (  0302):     0.20   0.025    12.25    39.90
        ================================================
        ID = 3 (  0902):     0.75   0.032    12.33    25.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0301)|   Area    (ha)=   0.35
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=   0.10
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.17         0.17
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         8.00
     Length            (m)=      48.30        13.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.25       124.37
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.41 (ii)    3.58 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.26
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.06          0.061 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.25          12.25
     RUNOFF VOLUME    (mm)=      70.10        42.39          42.41
     TOTAL RAINFALL   (mm)=      72.10        72.10          72.10
     RUNOFF COEFFICIENT   =       0.97         0.59           0.59

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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            |
| NASHYD   (  0101)|   Area    (ha)=   0.74   Curve Number   (CN)= 69.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   9.15   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39

     Unit Hyd Qpeak  (cms)=   0.072
```

```
     PEAK FLOW      (cms)=   0.026 (i)
     TIME TO PEAK   (hrs)=  12.500
     RUNOFF VOLUME   (mm)=  22.839
     TOTAL RAINFALL  (mm)=  72.100
     RUNOFF COEFFICIENT   =   0.317

     (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):     0.74   0.026    12.50    22.84
     + ID2= 2 (  0301):     0.35   0.061    12.25    42.41
       ====================================================
       ID = 3 (  0901):     1.09   0.076    12.25    29.12

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

       V    V   I    SSSSS  U   U    A    L             (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\3
a0ce9c2-c0a9-47c9-b4bd-09c4327b5106\s
  Summary filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\3
```

```
a0ce9c2-c0a9-47c9-b4bd-09c4327b5106\s


DATE: 02-25-2022                          TIME: 10:42:09

USER:


COMMENTS: _____________________________________________________


--------------------------------------------------------------------------------
------------------------
  ***********************************************
  ** SIMULATION : (3) 10 Year Design Storm - SC **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\KGowanlock\AppD
|                  |              ata\Local\Temp\
|                  |              9c1599e0-5705-4571-9428-977ab3d9d9a7\965a2d52
| Ptotal= 83.81 mm |    Comments: 10yr 24hr 15min SCS
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	6.50	1.51	12.75	12.07	19.00	1.51
0.50	0.92	6.75	1.51	13.00	6.20	19.25	1.51
0.75	0.92	7.00	1.51	13.25	6.20	19.50	1.51
1.00	0.92	7.25	1.51	13.50	4.53	19.75	1.51
1.25	0.92	7.50	1.84	13.75	4.53	20.00	1.51
1.50	0.92	7.75	1.84	14.00	3.52	20.25	1.51
1.75	0.92	8.00	1.84	14.25	3.52	20.50	1.01
2.00	0.92	8.25	1.84	14.50	2.51	20.75	1.01
2.25	0.92	8.50	2.18	14.75	2.51	21.00	1.01
2.50	1.09	8.75	2.18	15.00	2.51	21.25	1.01
2.75	1.09	9.00	2.35	15.25	2.51	21.50	1.01
3.00	1.09	9.25	2.35	15.50	2.51	21.75	1.01
3.25	1.09	9.50	2.68	15.75	2.51	22.00	1.01
3.50	1.09	9.75	2.68	16.00	2.51	22.25	1.01
3.75	1.09	10.00	3.02	16.25	2.51	22.50	1.01
4.00	1.09	10.25	3.02	16.50	1.51	22.75	1.01
4.25	1.09	10.50	3.86	16.75	1.51	23.00	1.01
4.50	1.34	10.75	3.86	17.00	1.51	23.25	1.01
4.75	1.34	11.00	5.20	17.25	1.51	23.50	1.01
5.00	1.34	11.25	5.20	17.50	1.51	23.75	1.01
5.25	1.34	11.50	8.05	17.75	1.51	24.00	1.01
5.50	1.34	11.75	8.05	18.00	1.51	24.25	1.01
5.75	1.34	12.00	24.81	18.25	1.51		

```
                6.00    1.34 | 12.25  102.58 | 18.50    1.51 |
                6.25    1.34 | 12.50   12.07 | 18.75    1.51 |

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

--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.55   Curve Number   (CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.52

     Unit Hyd Qpeak  (cms)=   0.040

     PEAK FLOW       (cms)=   0.019 (i)
     TIME TO PEAK    (hrs)=  12.667
     RUNOFF VOLUME    (mm)=  27.385
     TOTAL RAINFALL   (mm)=  83.810
     RUNOFF COEFFICIENT   =   0.327

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0302)|   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=   0.10
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.09         0.11
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      36.51        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     102.58       127.81
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.12 (ii)    7.52 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.13
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.03          0.032 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.25          12.25
     RUNOFF VOLUME    (mm)=      81.81        49.70          49.71
     TOTAL RAINFALL   (mm)=      83.81        83.81          83.81
     RUNOFF COEFFICIENT   =       0.98         0.59           0.59

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.
```

```
       (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.

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

--------------------
| ADD HYD  (  0902)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0102):     0.55   0.019    12.67    27.39
     + ID2= 2 (  0302):     0.20   0.032    12.25    49.71
       ================================================
       ID = 3 (  0902):     0.75   0.042    12.33    33.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0301)|   Area    (ha)=   0.35
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=   0.10
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.17         0.17
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         8.00
     Length            (m)=      48.30        13.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     102.58       153.07
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.33 (ii)    3.33 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.26
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.07          0.075 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.25          12.25
     RUNOFF VOLUME    (mm)=      81.81        52.48          52.50
     TOTAL RAINFALL   (mm)=      83.81        83.81          83.81
     RUNOFF COEFFICIENT   =       0.98         0.63           0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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            |
| NASHYD   (  0101)|   Area    (ha)=   0.74   Curve Number   (CN)= 69.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   9.15   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39

     Unit Hyd Qpeak  (cms)=   0.072

     PEAK FLOW       (cms)=   0.035 (i)
     TIME TO PEAK    (hrs)=  12.500
     RUNOFF VOLUME    (mm)=  30.095
     TOTAL RAINFALL   (mm)=  83.810
     RUNOFF COEFFICIENT   =   0.359

     (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):     0.74   0.035    12.50    30.10
     + ID2= 2 (  0301):     0.35   0.075    12.25    52.50
       ================================================
       ID = 3 (  0901):     1.09   0.096    12.25    37.29

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

       V    V   I    SSSSS  U   U    A    L              (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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

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

```
  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\e
4d7ddd6-3d51-4ca0-97ae-ba5cfb535653\s
  Summary filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\e
4d7ddd6-3d51-4ca0-97ae-ba5cfb535653\s


DATE: 02-25-2022                          TIME: 10:42:09

USER:


COMMENTS: _____________________________________________________________

--------------------------------------------------------------------------------
------------------------
  ***********************************************
  ** SIMULATION : (4) 25 Year Design Storm - SC **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\KGowanlock\AppD
|                  |              ata\Local\Temp\
|                  |              9c1599e0-5705-4571-9428-977ab3d9d9a7\7c77deb8
| Ptotal= 98.65 mm |    Comments: 25yr 24hr 15min SCS
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    0.00 |  6.50    1.78 | 12.75   14.21 | 19.00    1.78
                0.50    1.09 |  6.75    1.78 | 13.00    7.30 | 19.25    1.78
                0.75    1.09 |  7.00    1.78 | 13.25    7.30 | 19.50    1.78
                1.00    1.09 |  7.25    1.78 | 13.50    5.33 | 19.75    1.78
                1.25    1.09 |  7.50    2.17 | 13.75    5.33 | 20.00    1.78
                1.50    1.09 |  7.75    2.17 | 14.00    4.14 | 20.25    1.78
                1.75    1.09 |  8.00    2.17 | 14.25    4.14 | 20.50    1.18
                2.00    1.09 |  8.25    2.17 | 14.50    2.96 | 20.75    1.18
                2.25    1.09 |  8.50    2.56 | 14.75    2.96 | 21.00    1.18
                2.50    1.28 |  8.75    2.56 | 15.00    2.96 | 21.25    1.18
                2.75    1.28 |  9.00    2.76 | 15.25    2.96 | 21.50    1.18
                3.00    1.28 |  9.25    2.76 | 15.50    2.96 | 21.75    1.18
```

3.25	1.28	9.50	3.16	15.75	2.96	22.00	1.18
3.50	1.28	9.75	3.16	16.00	2.96	22.25	1.18
3.75	1.28	10.00	3.55	16.25	2.96	22.50	1.18
4.00	1.28	10.25	3.55	16.50	1.78	22.75	1.18
4.25	1.28	10.50	4.54	16.75	1.78	23.00	1.18
4.50	1.58	10.75	4.54	17.00	1.78	23.25	1.18
4.75	1.58	11.00	6.12	17.25	1.78	23.50	1.18
5.00	1.58	11.25	6.12	17.50	1.78	23.75	1.18
5.25	1.58	11.50	9.47	17.75	1.78	24.00	1.18
5.50	1.58	11.75	9.47	18.00	1.78	24.25	1.18
5.75	1.58	12.00	29.20	18.25	1.78		
6.00	1.58	12.25	120.75	18.50	1.78		
6.25	1.58	12.50	14.21	18.75	1.78		

CALIB			
NASHYD (0102)	Area (ha)= 0.55	Curve Number (CN)= 67.0	
ID= 1 DT= 5.0 min	Ia (mm)= 10.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.52		

Unit Hyd Qpeak (cms)=	0.040	
PEAK FLOW (cms)=	0.026 (i)	
TIME TO PEAK (hrs)=	12.667	
RUNOFF VOLUME (mm)=	36.762	
TOTAL RAINFALL (mm)=	98.650	
RUNOFF COEFFICIENT =	0.373	

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

CALIB			
STANDHYD (0302)	Area (ha)= 0.20		
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00	Dir. Conn.(%)= 0.10	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.11
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	36.51	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		120.75	159.82
over (min)		5.00	10.00
Storage Coeff. (min)=		1.05 (ii)	6.90 (ii)
Unit Hyd. Tpeak (min)=		5.00	10.00
Unit Hyd. peak (cms)=		0.34	0.14

			TOTALS
PEAK FLOW	(cms)=	0.00	0.04	0.041 (iii)
TIME TO PEAK	(hrs)=	12.25	12.25	12.25
RUNOFF VOLUME	(mm)=	96.65	62.55	62.57
TOTAL RAINFALL	(mm)=	98.65	98.65	98.65
RUNOFF COEFFICIENT	=	0.98	0.63	0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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.

ADD HYD (0902)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0102):	0.55	0.026	12.67	36.76
+ ID2= 2 (0302):	0.20	0.041	12.25	62.57
ID = 3 (0902):	0.75	0.055	12.33	43.64

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0301)	Area (ha)= 0.35		
ID= 1 DT= 5.0 min	Total Imp(%)= 50.00	Dir. Conn.(%)= 0.10	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.17	0.17
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	8.00
Length	(m)=	48.30	13.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		120.75	190.08
over (min)		5.00	5.00
Storage Coeff. (min)=		1.24 (ii)	3.08 (ii)
Unit Hyd. Tpeak (min)=		5.00	5.00
Unit Hyd. peak (cms)=		0.33	0.27

			TOTALS
PEAK FLOW	(cms)=	0.00	0.09	0.093 (iii)
TIME TO PEAK	(hrs)=	12.25	12.25	12.25

```
     RUNOFF VOLUME    (mm)=      96.65        65.65          65.68
     TOTAL RAINFALL   (mm)=      98.65        98.65          98.65
     RUNOFF COEFFICIENT   =       0.98         0.67           0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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            |
| NASHYD   (  0101)|   Area    (ha)=   0.74   Curve Number   (CN)= 69.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   9.15   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39

     Unit Hyd Qpeak  (cms)=   0.072

     PEAK FLOW       (cms)=   0.048 (i)
     TIME TO PEAK    (hrs)=  12.500
     RUNOFF VOLUME    (mm)=  40.040
     TOTAL RAINFALL   (mm)=  98.650
     RUNOFF COEFFICIENT   =   0.406

     (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):     0.74   0.048    12.50    40.04
      + ID2= 2 (  0301):     0.35   0.093    12.25    65.68
        ====================================================
        ID = 3 (  0901):     1.09   0.122    12.25    48.27

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

       V    V   I    SSSSS  U   U    A    L             (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
```

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

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


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  Output  filename:
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fb662b4-1edd-432a-810d-c2eed9babf0a\s
  Summary filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\e
fb662b4-1edd-432a-810d-c2eed9babf0a\s


DATE: 02-25-2022                          TIME: 10:42:09

USER:


COMMENTS: _____________________________________________________


--------------------------------------------------------------------------------
------------------------
  ***********************************************
  ** SIMULATION : (5) 50 Year Design Storm - SC **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\KGowanlock\AppD
|                  |              ata\Local\Temp\
|                  |              9c1599e0-5705-4571-9428-977ab3d9d9a7\ee650115
| Ptotal=109.84 mm |    Comments: 50yr 24hr 15min SCS
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    0.00 |  6.50    1.98 | 12.75   15.82 | 19.00    1.98
```

0.50	1.21	6.75	1.98	13.00	8.13	19.25	1.98
0.75	1.21	7.00	1.98	13.25	8.13	19.50	1.98
1.00	1.21	7.25	1.98	13.50	5.93	19.75	1.98
1.25	1.21	7.50	2.42	13.75	5.93	20.00	1.98
1.50	1.21	7.75	2.42	14.00	4.61	20.25	1.98
1.75	1.21	8.00	2.42	14.25	4.61	20.50	1.32
2.00	1.21	8.25	2.42	14.50	3.30	20.75	1.32
2.25	1.21	8.50	2.86	14.75	3.30	21.00	1.32
2.50	1.43	8.75	2.86	15.00	3.30	21.25	1.32
2.75	1.43	9.00	3.08	15.25	3.30	21.50	1.32
3.00	1.43	9.25	3.08	15.50	3.30	21.75	1.32
3.25	1.43	9.50	3.51	15.75	3.30	22.00	1.32
3.50	1.43	9.75	3.51	16.00	3.30	22.25	1.32
3.75	1.43	10.00	3.95	16.25	3.30	22.50	1.32
4.00	1.43	10.25	3.95	16.50	1.98	22.75	1.32
4.25	1.43	10.50	5.05	16.75	1.98	23.00	1.32
4.50	1.76	10.75	5.05	17.00	1.98	23.25	1.32
4.75	1.76	11.00	6.81	17.25	1.98	23.50	1.32
5.00	1.76	11.25	6.81	17.50	1.98	23.75	1.32
5.25	1.76	11.50	10.54	17.75	1.98	24.00	1.32
5.50	1.76	11.75	10.54	18.00	1.98	24.25	1.32
5.75	1.76	12.00	32.51	18.25	1.98		
6.00	1.76	12.25	134.44	18.50	1.98		
6.25	1.76	12.50	15.82	18.75	1.98		

CALIB	
NASHYD (0102)	Area (ha)= 0.55 Curve Number (CN)= 67.0
ID= 1 DT= 5.0 min	Ia (mm)= 10.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.52

Unit Hyd Qpeak (cms)= 0.040

PEAK FLOW (cms)= 0.032 (i)
TIME TO PEAK (hrs)= 12.667
RUNOFF VOLUME (mm)= 44.310
TOTAL RAINFALL (mm)= 109.840
RUNOFF COEFFICIENT = 0.403

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

CALIB	
STANDHYD (0302)	Area (ha)= 0.20
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 0.10

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.09	0.11
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	2.00	2.00
Length (m)=	36.51	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	134.44	184.31
over (min)	5.00	10.00
Storage Coeff. (min)=	1.01 (ii)	6.53 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.34	0.14

		TOTALS
PEAK FLOW (cms)=	0.00	0.05	0.049 (iii)
TIME TO PEAK (hrs)=	12.25	12.25	12.25
RUNOFF VOLUME (mm)=	107.84	72.49	72.51
TOTAL RAINFALL (mm)=	109.84	109.84	109.84
RUNOFF COEFFICIENT =	0.98	0.66	0.66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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.

ADD HYD (0902)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0102):	0.55	0.032	12.67	44.31
+ ID2= 2 (0302):	0.20	0.049	12.25	72.51
ID = 3 (0902):	0.75	0.064	12.33	51.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
STANDHYD (0301)	Area (ha)= 0.35
ID= 1 DT= 5.0 min	Total Imp(%)= 50.00 Dir. Conn.(%)= 0.10

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.17	0.17
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	2.00	8.00

```
     Length            (m)=      48.30        13.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     134.44       218.28
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.19 (ii)    2.93 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.28
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.11          0.107 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.25          12.25
     RUNOFF VOLUME    (mm)=     107.84        75.80          75.82
     TOTAL RAINFALL   (mm)=     109.84       109.84         109.84
     RUNOFF COEFFICIENT   =       0.98         0.69           0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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            |
| NASHYD   (  0101)|   Area    (ha)=   0.74   Curve Number   (CN)= 69.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   9.15   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39

     Unit Hyd Qpeak  (cms)=   0.072

     PEAK FLOW       (cms)=   0.057 (i)
     TIME TO PEAK    (hrs)=  12.500
     RUNOFF VOLUME    (mm)=  47.994
     TOTAL RAINFALL   (mm)= 109.840
     RUNOFF COEFFICIENT   =   0.437

     (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):     0.74   0.057    12.50    47.99
      + ID2= 2 (  0301):     0.35   0.107    12.25    75.82
        ==================================================
        ID = 3 (  0901):     1.09   0.142    12.25    56.93

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

       V    V   I    SSSSS  U   U    A    L              (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
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414f2bd-3a31-4910-a0be-4653217bf096\s
  Summary filename:
C:\Users\KGowanlock\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\f
414f2bd-3a31-4910-a0be-4653217bf096\s


DATE: 02-25-2022                          TIME: 10:42:09

USER:


COMMENTS: _____

--------------------------------------------------------------------------------
------------------------
  ********************************************
  ** SIMULATION : (6) 100 Year Design Storm - S **
  ********************************************
```

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--------------------
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|                  |              ata\Local\Temp\
|                  |              9c1599e0-5705-4571-9428-977ab3d9d9a7\3c054a99
| Ptotal=120.77 mm |    Comments: 100yr 24hr 15min SCS
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	6.50	2.17	12.75	17.39	19.00	2.17
0.50	1.33	6.75	2.17	13.00	8.94	19.25	2.17
0.75	1.33	7.00	2.17	13.25	8.94	19.50	2.17
1.00	1.33	7.25	2.17	13.50	6.52	19.75	2.17
1.25	1.33	7.50	2.66	13.75	6.52	20.00	2.17
1.50	1.33	7.75	2.66	14.00	5.07	20.25	2.17
1.75	1.33	8.00	2.66	14.25	5.07	20.50	1.45
2.00	1.33	8.25	2.66	14.50	3.62	20.75	1.45
2.25	1.33	8.50	3.14	14.75	3.62	21.00	1.45
2.50	1.57	8.75	3.14	15.00	3.62	21.25	1.45
2.75	1.57	9.00	3.38	15.25	3.62	21.50	1.45
3.00	1.57	9.25	3.38	15.50	3.62	21.75	1.45
3.25	1.57	9.50	3.86	15.75	3.62	22.00	1.45
3.50	1.57	9.75	3.86	16.00	3.62	22.25	1.45
3.75	1.57	10.00	4.35	16.25	3.62	22.50	1.45
4.00	1.57	10.25	4.35	16.50	2.17	22.75	1.45
4.25	1.57	10.50	5.56	16.75	2.17	23.00	1.45
4.50	1.93	10.75	5.56	17.00	2.17	23.25	1.45
4.75	1.93	11.00	7.49	17.25	2.17	23.50	1.45
5.00	1.93	11.25	7.49	17.50	2.17	23.75	1.45
5.25	1.93	11.50	11.59	17.75	2.17	24.00	1.45
5.50	1.93	11.75	11.59	18.00	2.17	24.25	1.45
5.75	1.93	12.00	35.75	18.25	2.17		
6.00	1.93	12.25	147.82	18.50	2.17		
6.25	1.93	12.50	17.39	18.75	2.17		

```
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   0.55   Curve Number   (CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.52

     Unit Hyd Qpeak  (cms)=   0.040

     PEAK FLOW       (cms)=   0.037 (i)
     TIME TO PEAK    (hrs)=  12.667
     RUNOFF VOLUME    (mm)=  52.015
     TOTAL RAINFALL   (mm)= 120.770
     RUNOFF COEFFICIENT   =   0.431

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

--------------------
| CALIB            |
| STANDHYD (  0302)|   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=   0.10
--------------------
```

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.09	0.11	
Dep. Storage	(mm)=	2.00	5.00	
Average Slope	(%)=	2.00	2.00	
Length	(m)=	36.51	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		147.82	208.43	
over (min)		5.00	10.00	
Storage Coeff. (min)=		0.97 (ii)	6.23 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.34	0.15	
				TOTALS
PEAK FLOW	(cms)=	0.00	0.06	0.056 (iii)
TIME TO PEAK	(hrs)=	12.25	12.25	12.25
RUNOFF VOLUME	(mm)=	118.77	82.35	82.38
TOTAL RAINFALL	(mm)=	120.77	120.77	120.77
RUNOFF COEFFICIENT	=	0.98	0.68	0.68

```
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

--------------------
| ADD HYD  (  0902)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0102):     0.55   0.037    12.67    52.01
      + ID2= 2 (  0302):     0.20   0.056    12.25    82.38
        ==================================================
        ID = 3 (  0902):     0.75   0.074    12.33    60.11
```

```
     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0301)|   Area    (ha)=   0.35
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=   0.10
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.17         0.17
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         8.00
     Length            (m)=      48.30        13.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     147.82       245.96
                 over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.15 (ii)    2.80 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.28
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.12          0.121 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.25          12.25
     RUNOFF VOLUME    (mm)=     118.77        85.85          85.87
     TOTAL RAINFALL   (mm)=     120.77       120.77         120.77
     RUNOFF COEFFICIENT   =       0.98         0.71           0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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            |
| NASHYD   (  0101)|   Area    (ha)=   0.74   Curve Number   (CN)= 69.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   9.15   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39

     Unit Hyd Qpeak  (cms)=   0.072

     PEAK FLOW       (cms)=   0.067 (i)
     TIME TO PEAK    (hrs)=  12.500
     RUNOFF VOLUME    (mm)=  56.076
     TOTAL RAINFALL   (mm)= 120.770
     RUNOFF COEFFICIENT   =   0.464
```

```
     (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):     0.74   0.067    12.50    56.08
     + ID2= 2 (  0301):     0.35   0.121    12.25    85.87
       ================================================
       ID = 3 (  0901):     1.09   0.163    12.25    65.64

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

 FINISH
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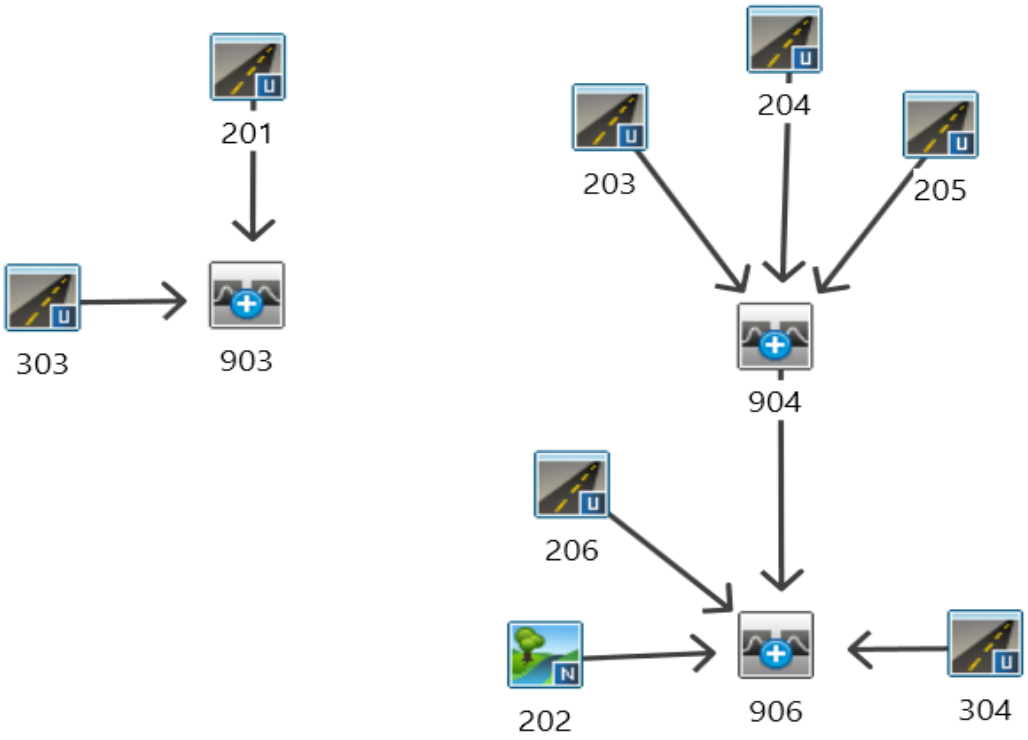
```

Appendix B: Post-Development SWM Calculations

CRANBERRY MARSH ESTATES
PROPOSED CONDITIONS



1	Nashyd	1	Route Pipe	1	Duhyd
1	Standhyd	1	Route Channel	1	Diverthyd
1	Addhyd	1	Route Reservoir		

TATHAM ENGINEERING

Project:	Cranberry Marsh Estates
File No.:	120181
Subject:	Otthymo Flow Schematic
Date:	Jul-23

TATHAM ENGINEERING

Visual OTTHYMO Model Parameter Calculations (StandHYD)

Project Details

Cranberry Marsh Estates	120181

Prepared By

John Birchard	July 25, 2023

Data Sources

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

Post Development Condition

Watershed:	NVCA
Catchment ID:	201
Catchment Area (ha):	0.23
Impervious %:	38%
Pervious Area (ha):	0.14

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

Soil Symbol		**Pal**							
Soil Series		Parkhill							
Hydrologic Soils Group		BC							
Soil Texture		Loam or Silt Loam							
Runoff Coefficient Type		2							
Area (ha)		0.14							
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	0.14	74						
Meadows	8		71						
Cultivated	7		78						
Waterbody	12		50						
Average CN		74.00							
Average IA		5.00							

Notes

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

Summary

Catchment CN:	74.0
Catchment IA (mm):	5.00

TATHAM ENGINEERING

Visual OTTHYMO Model Parameter Calculations (NasHYD)

Project Details

Cranberry Marsh Estates	120181

Prepared By

John Birchard	July 25, 2023

Data Sources

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

Pre-Development Condition

Watershed:	NVCA
Catchment ID:	202
Catchment Area (ha):	0.29
Impervious %:	10%

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

Soil Symbol		**Pal**											
Soil Series		Parkhill											
Hydrologic Soils Group		BC											
Soil Texture		Loam or Silt Loam											
Runoff Coefficient Type		2											
Area (ha)		0.29											
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	0.03	100	0.95									
Gravel	3		89	0.27									
Woodland	10		67	0.25									
Pasture/Lawns	5	0.26	74	0.28									
Meadows	8		71	0.27									
Cultivated	7		78	0.35									
Waterbody	12		50	0.05									
Average CN		76.50											
Average C		0.34											
Average IA		4.71											

Time to Peak Calculations

Max. Catchment Elev. (m):	180.30
Min. Catchment Elev. (m):	179.37
Catchment Length (m):	110
Catchment Slope (%):	0.85%
Method: Airport Method	
Time of Concentration (mins):	27.30

Summary

Catchment CN:	76.5
Catchment C:	0.34
Catchment IA (mm):	4.71
Time of Concentration (hrs):	0.46
Catchment Time to Peak (hrs):	0.30
Catchment Time Step (mins):	3.64

TATHAM ENGINEERING

Visual OTTHYMO Model Parameter Calculations (StandHYD)

Project Details

Cranberry Marsh Estates	120181

Prepared By

Kyle Gowanlock	Dec 2022

Data Sources

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

Post Development Condition

Watershed:	NVCA
Catchment ID:	203
Catchment Area (ha):	0.08
Impervious %:	69%
Pervious Area (ha):	0.02

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

Soil Symbol		**Pal**							
Soil Series		Parkhill							
Hydrologic Soils Group		BC							
Soil Texture		Loam or Silt Loam							
Runoff Coefficient Type		2							
Area (ha)		0.02							
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	0.02	74						
Meadows	8		71						
Cultivated	7		78						
Waterbody	12		50						
Average CN		74.00							
Average IA		5.00							

Notes

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

Summary

Catchment CN:	74.0
Catchment IA (mm):	5.00

TATHAM ENGINEERING

Visual OTTHYMO Model Parameter Calculations (StandHYD)

Project Details

Cranberry Marsh Estates	120181

Prepared By

Kyle Gowanlock	Dec 2022

Data Sources

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

Post Development Condition

Watershed:	NVCA
Catchment ID:	204
Catchment Area (ha):	0.24
Impervious %:	65%
Pervious Area (ha):	0.08

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

Soil Symbol		**Pal**							
Soil Series		Parkhill							
Hydrologic Soils Group		BC							
Soil Texture		Loam or Silt Loam							
Runoff Coefficient Type		2							
Area (ha)		0.08							
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	0.08	74						
Meadows	8		71						
Cultivated	7		78						
Waterbody	12		50						
Average CN		74.00							
Average IA		5.00							

Notes

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

Summary

Catchment CN:	74.0
Catchment IA (mm):	5.00

TATHAM ENGINEERING

Visual OTTHYMO Model Parameter Calculations (StandHYD)

Project Details

Cranberry Marsh Estates	120181

Prepared By

Kyle Gowanlock	Dec 2022

Data Sources

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

Post Development Condition

Watershed:	NVCA
Catchment ID:	205
Catchment Area (ha):	0.23
Impervious %:	64%
Pervious Area (ha):	0.08

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

Soil Symbol		**Pal**							
Soil Series		Parkhill							
Hydrologic Soils Group		BC							
Soil Texture		Loam or Silt Loam							
Runoff Coefficient Type		2							
Area (ha)		0.08							
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	0.08	74						
Meadows	8		71						
Cultivated	7		78						
Waterbody	12		50						
Average CN		74.00							
Average IA		5.00							

Notes

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

Summary

Catchment CN:	74.0
Catchment IA (mm):	5.00

TATHAM ENGINEERING

Visual OTTHYMO Model Parameter Calculations (StandHYD)

Project Details

Cranberry Marsh Estates	120181

Prepared By

John Birchard	July 25, 2023

Data Sources

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

Post Development Condition

Watershed:	NVCA
Catchment ID:	206
Catchment Area (ha):	0.18
Impervious %:	66%
Pervious Area (ha):	0.06

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

Soil Symbol		**Pal**							
Soil Series		Parkhill							
Hydrologic Soils Group		BC							
Soil Texture		Loam or Silt Loam							
Runoff Coefficient Type		2							
Area (ha)		0.06							
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	0.06	74						
Meadows	8		71						
Cultivated	7		78						
Waterbody	12		50						
Average CN		74.00							
Average IA		5.00							

Notes

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

Summary

Catchment CN:	74.0
Catchment IA (mm):	5.00

TATHAM ENGINEERING

Visual OTTHYMO Model Parameter Calculations (StandHYD)

Project Details

Cranberry Marsh Estates	120181

Prepared By

John Birchard	July 25, 2023

Data Sources

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

Post Development Condition

Watershed:	NVCA
Catchment ID:	303
Catchment Area (ha):	0.33
Impervious %:	30%
Pervious Area (ha):	0.23

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

Soil Symbol		**Pal**							
Soil Series		Parkhill							
Hydrologic Soils Group		BC							
Soil Texture		Loam or Silt Loam							
Runoff Coefficient Type		2							
Area (ha)		0.23							
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	0.23	74						
Meadows	8		71						
Cultivated	7		78						
Waterbody	12		50						
Average CN		74.00							
Average IA		5.00							

Notes

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

Summary

Catchment CN:	74.0
Catchment IA (mm):	5.00

TATHAM ENGINEERING

Visual OTTHYMO Model Parameter Calculations (StandHYD)

Project Details

Cranberry Marsh Estates	120181

Prepared By

John Birchard	July 25, 2023

Data Sources

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

Post Development Condition

Watershed:	NVCA
Catchment ID:	304
Catchment Area (ha):	0.23
Impervious %:	31%
Pervious Area (ha):	0.16

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

Soil Symbol		**Pal**							
Soil Series		Parkhill							
Hydrologic Soils Group		BC							
Soil Texture		Loam or Silt Loam							
Runoff Coefficient Type		2							
Area (ha)		0.16							
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	0.16	74						
Meadows	8		71						
Cultivated	7		78						
Waterbody	12		50						
Average CN		74.00							
Average IA		5.00							

Notes

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

Summary

Catchment CN:	74.0
Catchment IA (mm):	5.00

```
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       V    V   I    SSSSS  U   U    A    L             (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\b49
f3285-b7f2-476b-8379-07046e3e8b72\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\b49
f3285-b7f2-476b-8379-07046e3e8b72\sc

DATE: 07/25/2023                          TIME: 09:00:16

USER:



COMMENTS: _____________________________________________________________


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  ***********************************************
  ** SIMULATION : (1) 25mm Design Storm         **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\JBirchard\AppD
|                  |              ata\Local\Temp\
|                  |              3eb8d076-4e62-4c3a-b26f-53c9bf58a78b\afe4e812
| Ptotal= 24.97 mm |    Comments: 25MM BARRIE
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.10	0.00	1.20	2.81	2.30	8.44	3.40	1.76
0.20	1.29	1.30	3.22	2.40	6.21	3.50	1.65
0.30	1.36	1.40	3.77	2.50	4.91	3.60	1.55
0.40	1.44	1.50	4.55	2.60	4.06	3.70	1.46
0.50	1.53	1.60	5.77	2.70	3.47	3.80	1.39
0.60	1.63	1.70	7.86	2.80	3.03	3.90	1.32
0.70	1.75	1.80	12.27	2.90	2.70	4.00	1.26
0.80	1.89	1.90	26.17	3.00	2.43	4.10	1.20
0.90	2.06	2.00	72.58	3.10	2.22		
1.00	2.26	2.10	26.96	3.20	2.04		
1.10	2.50	2.20	13.05	3.30	1.89		

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

--------------------
| CALIB            |
| NASHYD   (  0202)|   Area    (ha)=   0.29   Curve Number   (CN)= 76.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.71   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.30

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	1.167	2.75	2.250	10.28	3.33	1.84
0.167	1.03	1.250	3.06	2.333	7.55	3.42	1.74
0.250	1.33	1.333	3.44	2.417	5.95	3.50	1.65
0.333	1.39	1.417	3.93	2.500	4.91	3.58	1.55
0.417	1.46	1.500	4.55	2.583	4.06	3.67	1.48
0.500	1.53	1.583	5.77	2.667	3.59	3.75	1.42
0.583	1.63	1.667	7.44	2.750	3.21	3.83	1.36
0.667	1.73	1.750	10.51	2.833	2.90	3.92	1.31
0.750	1.83	1.833	17.83	2.917	2.65	4.00	1.26
0.833	1.96	1.917	35.45	3.000	2.43	4.08	1.20
0.917	2.10	2.000	72.58	3.083	2.22		
1.000	2.26	2.083	26.96	3.167	2.08		
1.083	2.50	2.167	15.83	3.250	1.95		

```
    Unit Hyd Qpeak  (cms)=   0.037

    PEAK FLOW       (cms)=   0.003 (i)
    TIME TO PEAK    (hrs)=   2.333
    RUNOFF VOLUME    (mm)=   4.165
```

TOTAL RAINFALL (mm)= 24.951
RUNOFF COEFFICIENT = 0.167

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

CALIB					
STANDHYD (0204)	Area (ha)= 0.24				
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00	Dir. Conn.(%)= 36.00			

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	40.00	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	1.167	2.75	2.250	10.28	3.33	1.84
0.167	1.03	1.250	3.06	2.333	7.55	3.42	1.74
0.250	1.33	1.333	3.44	2.417	5.95	3.50	1.65
0.333	1.39	1.417	3.93	2.500	4.91	3.58	1.55
0.417	1.46	1.500	4.55	2.583	4.06	3.67	1.48
0.500	1.53	1.583	5.77	2.667	3.59	3.75	1.42
0.583	1.63	1.667	7.44	2.750	3.21	3.83	1.36
0.667	1.73	1.750	10.51	2.833	2.90	3.92	1.31
0.750	1.83	1.833	17.83	2.917	2.65	4.00	1.26
0.833	1.96	1.917	35.45	3.000	2.43	4.08	1.20
0.917	2.10	2.000	72.58	3.083	2.22		
1.000	2.26	2.083	26.96	3.167	2.08		
1.083	2.50	2.167	15.83	3.250	1.95		

Max.Eff.Inten.(mm/hr)=		72.58	30.18	
over (min)		5.00	10.00	
Storage Coeff. (min)=		1.36 (ii)	5.08 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.33	0.16	
				TOTALS
PEAK FLOW	(cms)=	0.02	0.01	0.021 (iii)
TIME TO PEAK	(hrs)=	2.00	2.08	2.00
RUNOFF VOLUME	(mm)=	22.95	6.95	12.69
TOTAL RAINFALL	(mm)=	24.95	24.95	24.95
RUNOFF COEFFICIENT	=	0.92	0.28	0.51

***** 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 (0206)	Area (ha)= 0.18				
ID= 1 DT= 5.0 min	Total Imp(%)= 66.00	Dir. Conn.(%)= 60.00			

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.12	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	34.64	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	1.167	2.75	2.250	10.28	3.33	1.84
0.167	1.03	1.250	3.06	2.333	7.55	3.42	1.74
0.250	1.33	1.333	3.44	2.417	5.95	3.50	1.65
0.333	1.39	1.417	3.93	2.500	4.91	3.58	1.55
0.417	1.46	1.500	4.55	2.583	4.06	3.67	1.48
0.500	1.53	1.583	5.77	2.667	3.59	3.75	1.42
0.583	1.63	1.667	7.44	2.750	3.21	3.83	1.36
0.667	1.73	1.750	10.51	2.833	2.90	3.92	1.31
0.750	1.83	1.833	17.83	2.917	2.65	4.00	1.26
0.833	1.96	1.917	35.45	3.000	2.43	4.08	1.20
0.917	2.10	2.000	72.58	3.083	2.22		
1.000	2.26	2.083	26.96	3.167	2.08		
1.083	2.50	2.167	15.83	3.250	1.95		

Max.Eff.Inten.(mm/hr)=		72.58	12.22	
over (min)		5.00	5.00	
Storage Coeff. (min)=		1.25 (ii)	4.25 (ii)	
Unit Hyd. Tpeak (min)=		5.00	5.00	
Unit Hyd. peak (cms)=		0.33	0.24	
				TOTALS
PEAK FLOW	(cms)=	0.02	0.00	0.024 (iii)
TIME TO PEAK	(hrs)=	2.00	2.00	2.00
RUNOFF VOLUME	(mm)=	22.95	4.44	15.54

TOTAL RAINFALL (mm)=	24.95	24.95	24.95
RUNOFF COEFFICIENT =	0.92	0.18	0.62

***** 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)= 0.08
ID= 1 DT= 5.0 min	Total Imp(%)= 69.00 Dir. Conn.(%)= 38.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.02
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	23.09	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	1.167	2.75	2.250	10.28	3.33	1.84
0.167	1.03	1.250	3.06	2.333	7.55	3.42	1.74
0.250	1.33	1.333	3.44	2.417	5.95	3.50	1.65
0.333	1.39	1.417	3.93	2.500	4.91	3.58	1.55
0.417	1.46	1.500	4.55	2.583	4.06	3.67	1.48
0.500	1.53	1.583	5.77	2.667	3.59	3.75	1.42
0.583	1.63	1.667	7.44	2.750	3.21	3.83	1.36
0.667	1.73	1.750	10.51	2.833	2.90	3.92	1.31
0.750	1.83	1.833	17.83	2.917	2.65	4.00	1.26
0.833	1.96	1.917	35.45	3.000	2.43	4.08	1.20
0.917	2.10	2.000	72.58	3.083	2.22		
1.000	2.26	2.083	26.96	3.167	2.08		
1.083	2.50	2.167	15.83	3.250	1.95		

Max.Eff.Inten.(mm/hr)=	72.58	35.74		
over (min)	5.00	5.00		
Storage Coeff. (min)=	0.98 (ii)	4.45 (ii)		
Unit Hyd. Tpeak (min)=	5.00	5.00		
Unit Hyd. peak (cms)=	0.34	0.23		
			TOTALS	
PEAK FLOW (cms)=	0.01	0.00	0.009 (iii)	
TIME TO PEAK (hrs)=	2.00	2.00	2.00	
RUNOFF VOLUME (mm)=	22.95	7.51	13.36	
TOTAL RAINFALL (mm)=	24.95	24.95	24.95	
RUNOFF COEFFICIENT =	0.92	0.30	0.54	

***** 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 (0205)	Area (ha)= 0.23
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 37.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	39.16	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	1.167	2.75	2.250	10.28	3.33	1.84
0.167	1.03	1.250	3.06	2.333	7.55	3.42	1.74
0.250	1.33	1.333	3.44	2.417	5.95	3.50	1.65
0.333	1.39	1.417	3.93	2.500	4.91	3.58	1.55
0.417	1.46	1.500	4.55	2.583	4.06	3.67	1.48
0.500	1.53	1.583	5.77	2.667	3.59	3.75	1.42
0.583	1.63	1.667	7.44	2.750	3.21	3.83	1.36
0.667	1.73	1.750	10.51	2.833	2.90	3.92	1.31
0.750	1.83	1.833	17.83	2.917	2.65	4.00	1.26
0.833	1.96	1.917	35.45	3.000	2.43	4.08	1.20
0.917	2.10	2.000	72.58	3.083	2.22		
1.000	2.26	2.083	26.96	3.167	2.08		
1.083	2.50	2.167	15.83	3.250	1.95		

Max.Eff.Inten.(mm/hr)=	72.58	27.73	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.34 (ii)	5.06 (ii)	

```
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.33         0.16
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.02         0.01          0.020 (iii)
     TIME TO PEAK    (hrs)=       2.00         2.08           2.00
     RUNOFF VOLUME    (mm)=      22.95         6.68          12.68
     TOTAL RAINFALL   (mm)=      24.95        24.95          24.95
     RUNOFF COEFFICIENT   =       0.92         0.27           0.51

***** 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.

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

--------------------
| ADD HYD  (  0904)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):     0.08   0.009     2.00    13.36
     + ID2= 2 (  0204):     0.24   0.021     2.00    12.69
       ================================================
       ID = 3 (  0904):     0.32   0.030     2.00    12.86

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

--------------------
| ADD HYD  (  0904)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0904):     0.32   0.030     2.00    12.86
     + ID2= 2 (  0205):     0.23   0.020     2.00    12.68
       ================================================
       ID = 1 (  0904):     0.55   0.050     2.00    12.79

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

--------------------
| ADD HYD  (  0904)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0904):     0.55   0.050     2.00    12.79
     + ID2= 2 (  0206):     0.18   0.024     2.00    15.54
       ================================================

       ID = 3 (  0904):     0.73   0.074     2.00    13.47

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0304)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  31.00   Dir. Conn.(%)=   5.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.16
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         0.50
     Length            (m)=      39.16       100.00
     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 | 1.167    2.75 | 2.250   10.28 |  3.33    1.84
     0.167    1.03 | 1.250    3.06 | 2.333    7.55 |  3.42    1.74
     0.250    1.33 | 1.333    3.44 | 2.417    5.95 |  3.50    1.65
     0.333    1.39 | 1.417    3.93 | 2.500    4.91 |  3.58    1.55
     0.417    1.46 | 1.500    4.55 | 2.583    4.06 |  3.67    1.48
     0.500    1.53 | 1.583    5.77 | 2.667    3.59 |  3.75    1.42
     0.583    1.63 | 1.667    7.44 | 2.750    3.21 |  3.83    1.36
     0.667    1.73 | 1.750   10.51 | 2.833    2.90 |  3.92    1.31
     0.750    1.83 | 1.833   17.83 | 2.917    2.65 |  4.00    1.26
     0.833    1.96 | 1.917   35.45 | 3.000    2.43 |  4.08    1.20
     0.917    2.10 | 2.000   72.58 | 3.083    2.22 |
     1.000    2.26 | 2.083   26.96 | 3.167    2.08 |
     1.083    2.50 | 2.167   15.83 | 3.250    1.95 |

     Max.Eff.Inten.(mm/hr)=      72.58         5.83
               over (min)        5.00        60.00
     Storage Coeff.  (min)=       1.34 (ii)   59.14 (ii)
     Unit Hyd. Tpeak (min)=       5.00        60.00
     Unit Hyd. peak  (cms)=       0.33         0.02
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.002 (iii)
     TIME TO PEAK    (hrs)=       2.00         3.00           2.00
     RUNOFF VOLUME    (mm)=      22.95         5.28           6.01
     TOTAL RAINFALL   (mm)=      24.95        24.95          24.95
     RUNOFF COEFFICIENT   =       0.92         0.21           0.24

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
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             YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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--------------------
| ADD HYD  (  0906)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0202):     0.29   0.003     2.33     4.17
      + ID2= 2 (  0304):     0.23   0.002     2.00     6.01
        ================================================
        ID = 3 (  0906):     0.52   0.004     2.33     4.98

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0906)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0906):     0.52   0.004     2.33     4.98
      + ID2= 2 (  0904):     0.73   0.074     2.00    13.47
        ================================================
        ID = 1 (  0906):     1.25   0.077     2.00     9.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=   5.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.09         0.14
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         0.70
     Length            (m)=      39.16       160.00
     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 | 1.167    2.75 | 2.250   10.28 |  3.33    1.84
               0.167    1.03 | 1.250    3.06 | 2.333    7.55 |  3.42    1.74
               0.250    1.33 | 1.333    3.44 | 2.417    5.95 |  3.50    1.65
               0.333    1.39 | 1.417    3.93 | 2.500    4.91 |  3.58    1.55
               0.417    1.46 | 1.500    4.55 | 2.583    4.06 |  3.67    1.48
               0.500    1.53 | 1.583    5.77 | 2.667    3.59 |  3.75    1.42
               0.583    1.63 | 1.667    7.44 | 2.750    3.21 |  3.83    1.36
               0.667    1.73 | 1.750   10.51 | 2.833    2.90 |  3.92    1.31
               0.750    1.83 | 1.833   17.83 | 2.917    2.65 |  4.00    1.26
               0.833    1.96 | 1.917   35.45 | 3.000    2.43 |  4.08    1.20
               0.917    2.10 | 2.000   72.58 | 3.083    2.22 |
               1.000    2.26 | 2.083   26.96 | 3.167    2.08 |
               1.083    2.50 | 2.167   15.83 | 3.250    1.95 |

     Max.Eff.Inten.(mm/hr)=      72.58         7.25
               over (min)         5.00        65.00
     Storage Coeff.  (min)=       1.34 (ii)   64.82 (ii)
     Unit Hyd. Tpeak (min)=       5.00        65.00
     Unit Hyd. peak  (cms)=       0.33         0.02
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.002 (iii)
     TIME TO PEAK    (hrs)=       2.00         3.08          2.00
     RUNOFF VOLUME    (mm)=      22.95         5.88          6.57
     TOTAL RAINFALL   (mm)=      24.95        24.95         24.95
     RUNOFF COEFFICIENT   =       0.92         0.24          0.26

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
             YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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 (  0303)|   Area    (ha)=   0.33
|ID= 1 DT= 5.0 min |   Total Imp(%)=  30.00   Dir. Conn.(%)=   5.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.10         0.23
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         0.70
     Length            (m)=      46.90       160.00
     Mannings n             =     0.013        0.250
```

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	1.167	2.75	2.250	10.28	3.33	1.84
0.167	1.03	1.250	3.06	2.333	7.55	3.42	1.74
0.250	1.33	1.333	3.44	2.417	5.95	3.50	1.65
0.333	1.39	1.417	3.93	2.500	4.91	3.58	1.55
0.417	1.46	1.500	4.55	2.583	4.06	3.67	1.48
0.500	1.53	1.583	5.77	2.667	3.59	3.75	1.42
0.583	1.63	1.667	7.44	2.750	3.21	3.83	1.36
0.667	1.73	1.750	10.51	2.833	2.90	3.92	1.31
0.750	1.83	1.833	17.83	2.917	2.65	4.00	1.26
0.833	1.96	1.917	35.45	3.000	2.43	4.08	1.20
0.917	2.10	2.000	72.58	3.083	2.22		
1.000	2.26	2.083	26.96	3.167	2.08		
1.083	2.50	2.167	15.83	3.250	1.95		

			TOTALS
Max.Eff.Inten.(mm/hr)=	72.58	5.65	
over (min)	5.00	75.00	
Storage Coeff. (min)=	1.50 (ii)	71.60 (ii)	
Unit Hyd. Tpeak (min)=	5.00	75.00	
Unit Hyd. peak (cms)=	0.33	0.02	
PEAK FLOW (cms)=	0.00	0.00	0.003 (iii)
TIME TO PEAK (hrs)=	2.00	3.25	2.00
RUNOFF VOLUME (mm)=	22.95	5.20	5.96
TOTAL RAINFALL (mm)=	24.95	24.95	24.95
RUNOFF COEFFICIENT =	0.92	0.21	0.24

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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.

ADD HYD (0903)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0201):	0.23	0.002	2.00	6.57
+ ID2= 2 (0303):	0.33	0.003	2.00	5.96
ID = 3 (0903):	0.56	0.006	2.00	6.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
       V    V   I    SSSSS  U   U    A    L              (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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

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

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

Output filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\b6d9c41f-d014-42bb-81f3-be852c6adf65\sc
Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\b6d9c41f-d014-42bb-81f3-be852c6adf65\sc

DATE: 07/25/2023 TIME: 09:00:16

USER:

COMMENTS: _____

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  **********************************************
  ** SIMULATION : (2) 2 Year Design Storm - Chi **
  **********************************************
```

CHICAGO STORM	Ptotal= 31.69 mm

IDF curve parameters: A= 365.657
B= 0.000
C= 0.699
used in: INTENSITY = A / (t + B)^C

Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.35

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	2.76	1.17	12.83	2.17	5.19	3.17	3.02
0.33	3.08	1.33	73.13	2.33	4.58	3.33	2.84
0.50	3.51	1.50	15.38	2.50	4.12	3.50	2.69
0.67	4.13	1.67	9.64	2.67	3.76	3.67	2.56
0.83	5.11	1.83	7.34	2.83	3.47	3.83	2.44
1.00	6.98	2.00	6.04	3.00	3.23	4.00	2.33

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

Area (ha)= 0.29 Curve Number (CN)= 76.5
Ia (mm)= 4.71 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.30

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.76	1.083	12.83	2.083	5.19	3.08	3.02
0.167	2.76	1.167	12.83	2.167	5.19	3.17	3.02
0.250	3.08	1.250	73.13	2.250	4.58	3.25	2.84
0.333	3.08	1.333	73.13	2.333	4.58	3.33	2.84
0.417	3.51	1.417	15.38	2.417	4.12	3.42	2.69
0.500	3.51	1.500	15.38	2.500	4.12	3.50	2.69
0.583	4.13	1.583	9.64	2.583	3.76	3.58	2.56
0.667	4.13	1.667	9.64	2.667	3.76	3.67	2.56
0.750	5.11	1.750	7.34	2.750	3.47	3.75	2.44
0.833	5.11	1.833	7.34	2.833	3.47	3.83	2.44
0.917	6.98	1.917	6.04	2.917	3.23	3.92	2.33
1.000	6.98	2.000	6.04	3.000	3.23	4.00	2.33

Unit Hyd Qpeak (cms)= 0.037

PEAK FLOW (cms)= 0.004 (i)
TIME TO PEAK (hrs)= 1.667
RUNOFF VOLUME (mm)= 6.929
TOTAL RAINFALL (mm)= 31.693
RUNOFF COEFFICIENT = 0.219

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

CALIB STANDHYD (0204) | ID= 1 DT= 5.0 min

Area (ha)= 0.24
Total Imp(%)= 65.00 Dir. Conn.(%)= 36.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.16	0.08
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	2.00	1.00
Length (m)=	40.00	8.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.76	1.083	12.83	2.083	5.19	3.08	3.02
0.167	2.76	1.167	12.83	2.167	5.19	3.17	3.02
0.250	3.08	1.250	73.13	2.250	4.58	3.25	2.84
0.333	3.08	1.333	73.13	2.333	4.58	3.33	2.84
0.417	3.51	1.417	15.38	2.417	4.12	3.42	2.69
0.500	3.51	1.500	15.38	2.500	4.12	3.50	2.69
0.583	4.13	1.583	9.64	2.583	3.76	3.58	2.56
0.667	4.13	1.667	9.64	2.667	3.76	3.67	2.56
0.750	5.11	1.750	7.34	2.750	3.47	3.75	2.44
0.833	5.11	1.833	7.34	2.833	3.47	3.83	2.44
0.917	6.98	1.917	6.04	2.917	3.23	3.92	2.33
1.000	6.98	2.000	6.04	3.000	3.23	4.00	2.33

Max.Eff.Inten.(mm/hr)=	73.13	39.84	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.36 (ii)	5.06 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.33	0.16	
			TOTALS
PEAK FLOW (cms)=	0.02	0.01	0.024 (iii)
TIME TO PEAK (hrs)=	1.33	1.42	1.33
RUNOFF VOLUME (mm)=	29.69	10.78	17.58
TOTAL RAINFALL (mm)=	31.69	31.69	31.69
RUNOFF COEFFICIENT =	0.94	0.34	0.55

***** 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 (0206)	Area (ha)= 0.18
ID= 1 DT= 5.0 min	Total Imp(%)= 66.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.12	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	34.64	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.76	1.083	12.83	2.083	5.19	3.08	3.02
0.167	2.76	1.167	12.83	2.167	5.19	3.17	3.02
0.250	3.08	1.250	73.13	2.250	4.58	3.25	2.84
0.333	3.08	1.333	73.13	2.333	4.58	3.33	2.84
0.417	3.51	1.417	15.38	2.417	4.12	3.42	2.69
0.500	3.51	1.500	15.38	2.500	4.12	3.50	2.69
0.583	4.13	1.583	9.64	2.583	3.76	3.58	2.56
0.667	4.13	1.667	9.64	2.667	3.76	3.67	2.56
0.750	5.11	1.750	7.34	2.750	3.47	3.75	2.44
0.833	5.11	1.833	7.34	2.833	3.47	3.83	2.44
0.917	6.98	1.917	6.04	2.917	3.23	3.92	2.33
1.000	6.98	2.000	6.04	3.000	3.23	4.00	2.33

Max.Eff.Inten.(mm/hr)=	73.13	15.67		
over (min)	5.00	5.00		
Storage Coeff. (min)=	1.24 (ii)	4.23 (ii)		
Unit Hyd. Tpeak (min)=	5.00	5.00		
Unit Hyd. peak (cms)=	0.33	0.24		
			TOTALS	
PEAK FLOW (cms)=	0.02	0.00	0.025 (iii)	
TIME TO PEAK (hrs)=	1.33	1.33	1.33	
RUNOFF VOLUME (mm)=	29.69	7.29	20.71	
TOTAL RAINFALL (mm)=	31.69	31.69	31.69	
RUNOFF COEFFICIENT =	0.94	0.23	0.65	

***** 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)= 0.08
ID= 1 DT= 5.0 min	Total Imp(%)= 69.00 Dir. Conn.(%)= 38.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.02
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	23.09	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.76	1.083	12.83	2.083	5.19	3.08	3.02
0.167	2.76	1.167	12.83	2.167	5.19	3.17	3.02
0.250	3.08	1.250	73.13	2.250	4.58	3.25	2.84
0.333	3.08	1.333	73.13	2.333	4.58	3.33	2.84
0.417	3.51	1.417	15.38	2.417	4.12	3.42	2.69
0.500	3.51	1.500	15.38	2.500	4.12	3.50	2.69
0.583	4.13	1.583	9.64	2.583	3.76	3.58	2.56
0.667	4.13	1.667	9.64	2.667	3.76	3.67	2.56
0.750	5.11	1.750	7.34	2.750	3.47	3.75	2.44
0.833	5.11	1.833	7.34	2.833	3.47	3.83	2.44
0.917	6.98	1.917	6.04	2.917	3.23	3.92	2.33
1.000	6.98	2.000	6.04	3.000	3.23	4.00	2.33

Max.Eff.Inten.(mm/hr)=	73.13	47.40		
over (min)	5.00	5.00		
Storage Coeff. (min)=	0.98 (ii)	4.43 (ii)		
Unit Hyd. Tpeak (min)=	5.00	5.00		
Unit Hyd. peak (cms)=	0.34	0.23		
			TOTALS	
PEAK FLOW (cms)=	0.01	0.00	0.009 (iii)	

```
     TIME TO PEAK    (hrs)=       1.33         1.33          1.33
     RUNOFF VOLUME    (mm)=      29.69        11.55         18.40
     TOTAL RAINFALL   (mm)=      31.69        31.69         31.69
     RUNOFF COEFFICIENT   =       0.94         0.36          0.58

***** 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.

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--------------------
| CALIB            |
| STANDHYD (  0205)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  37.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.15         0.08
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         1.00
     Length            (m)=      39.16         8.00
     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    2.76 | 1.083   12.83 | 2.083    5.19 |  3.08    3.02
              0.167    2.76 | 1.167   12.83 | 2.167    5.19 |  3.17    3.02
              0.250    3.08 | 1.250   73.13 | 2.250    4.58 |  3.25    2.84
              0.333    3.08 | 1.333   73.13 | 2.333    4.58 |  3.33    2.84
              0.417    3.51 | 1.417   15.38 | 2.417    4.12 |  3.42    2.69
              0.500    3.51 | 1.500   15.38 | 2.500    4.12 |  3.50    2.69
              0.583    4.13 | 1.583    9.64 | 2.583    3.76 |  3.58    2.56
              0.667    4.13 | 1.667    9.64 | 2.667    3.76 |  3.67    2.56
              0.750    5.11 | 1.750    7.34 | 2.750    3.47 |  3.75    2.44
              0.833    5.11 | 1.833    7.34 | 2.833    3.47 |  3.83    2.44
              0.917    6.98 | 1.917    6.04 | 2.917    3.23 |  3.92    2.33
              1.000    6.98 | 2.000    6.04 | 3.000    3.23 |  4.00    2.33

     Max.Eff.Inten.(mm/hr)=      73.13        36.52
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.34 (ii)    5.05 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.33         0.16
```

```
                                                              *TOTALS*
     PEAK FLOW       (cms)=       0.02         0.01           0.023 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42           1.33
     RUNOFF VOLUME    (mm)=      29.69        10.42          17.54
     TOTAL RAINFALL   (mm)=      31.69        31.69          31.69
     RUNOFF COEFFICIENT   =       0.94         0.33           0.55

***** 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.

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--------------------
| ADD HYD  (  0904)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):     0.08   0.009     1.33    18.40
     + ID2= 2 (  0204):     0.24   0.024     1.33    17.58
       ================================================
       ID = 3 (  0904):     0.32   0.033     1.33    17.79

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

--------------------
| ADD HYD  (  0904)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0904):     0.32   0.033     1.33    17.79
     + ID2= 2 (  0205):     0.23   0.023     1.33    17.54
       ================================================
       ID = 1 (  0904):     0.55   0.056     1.33    17.68

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0904)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0904):     0.55   0.056     1.33    17.68
     + ID2= 2 (  0206):     0.18   0.025     1.33    20.71
       ================================================
       ID = 3 (  0904):     0.73   0.081     1.33    18.43
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
STANDHYD (0304)	Area (ha)= 0.23
ID= 1 DT= 5.0 min	Total Imp(%)= 31.00 Dir. Conn.(%)= 5.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.16
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	0.50
Length	(m)=	39.16	100.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.76	1.083	12.83	2.083	5.19	3.08	3.02
0.167	2.76	1.167	12.83	2.167	5.19	3.17	3.02
0.250	3.08	1.250	73.13	2.250	4.58	3.25	2.84
0.333	3.08	1.333	73.13	2.333	4.58	3.33	2.84
0.417	3.51	1.417	15.38	2.417	4.12	3.42	2.69
0.500	3.51	1.500	15.38	2.500	4.12	3.50	2.69
0.583	4.13	1.583	9.64	2.583	3.76	3.58	2.56
0.667	4.13	1.667	9.64	2.667	3.76	3.67	2.56
0.750	5.11	1.750	7.34	2.750	3.47	3.75	2.44
0.833	5.11	1.833	7.34	2.833	3.47	3.83	2.44
0.917	6.98	1.917	6.04	2.917	3.23	3.92	2.33
1.000	6.98	2.000	6.04	3.000	3.23	4.00	2.33

				TOTALS
Max.Eff.Inten.(mm/hr)=		73.13	8.56	
over (min)		5.00	55.00	
Storage Coeff. (min)=		1.34 (ii)	50.90 (ii)	
Unit Hyd. Tpeak (min)=		5.00	55.00	
Unit Hyd. peak (cms)=		0.33	0.02	
PEAK FLOW	(cms)=	0.00	0.00	0.003 (iii)
TIME TO PEAK	(hrs)=	1.33	2.25	1.33
RUNOFF VOLUME	(mm)=	29.69	8.48	9.42
TOTAL RAINFALL	(mm)=	31.69	31.69	31.69
RUNOFF COEFFICIENT	=	0.94	0.27	0.30

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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.

ADD HYD (0906)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	0.29	0.004	1.67	6.93
+ ID2= 2 (0304):	0.23	0.003	1.33	9.42
ID = 3 (0906):	0.52	0.005	1.67	8.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0906)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0906):	0.52	0.005	1.67	8.03
+ ID2= 2 (0904):	0.73	0.081	1.33	18.43
ID = 1 (0906):	1.25	0.085	1.33	14.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
STANDHYD (0201)	Area (ha)= 0.23
ID= 1 DT= 5.0 min	Total Imp(%)= 38.00 Dir. Conn.(%)= 5.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.14
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	0.70
Length	(m)=	39.16	160.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.76	1.083	12.83	2.083	5.19	3.08	3.02
0.167	2.76	1.167	12.83	2.167	5.19	3.17	3.02

0.250	3.08	1.250	73.13	2.250	4.58	3.25	2.84
0.333	3.08	1.333	73.13	2.333	4.58	3.33	2.84
0.417	3.51	1.417	15.38	2.417	4.12	3.42	2.69
0.500	3.51	1.500	15.38	2.500	4.12	3.50	2.69
0.583	4.13	1.583	9.64	2.583	3.76	3.58	2.56
0.667	4.13	1.667	9.64	2.667	3.76	3.67	2.56
0.750	5.11	1.750	7.34	2.750	3.47	3.75	2.44
0.833	5.11	1.833	7.34	2.833	3.47	3.83	2.44
0.917	6.98	1.917	6.04	2.917	3.23	3.92	2.33
1.000	6.98	2.000	6.04	3.000	3.23	4.00	2.33

Max.Eff.Inten.(mm/hr)=	73.13	9.43	
over (min)	5.00	60.00	
Storage Coeff. (min)=	1.34 (ii)	58.48 (ii)	
Unit Hyd. Tpeak (min)=	5.00	60.00	
Unit Hyd. peak (cms)=	0.33	0.02	
			TOTALS
PEAK FLOW (cms)=	0.00	0.00	0.002 (iii)
TIME TO PEAK (hrs)=	1.33	2.33	1.33
RUNOFF VOLUME (mm)=	29.69	9.33	10.20
TOTAL RAINFALL (mm)=	31.69	31.69	31.69
RUNOFF COEFFICIENT =	0.94	0.29	0.32

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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 (0303)	Area (ha)=	0.33
ID= 1 DT= 5.0 min	Total Imp(%)=	30.00 Dir. Conn.(%)= 5.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.10	0.23
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	2.00	0.70
Length (m)=	46.90	160.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.76	1.083	12.83	2.083	5.19	3.08	3.02
0.167	2.76	1.167	12.83	2.167	5.19	3.17	3.02
0.250	3.08	1.250	73.13	2.250	4.58	3.25	2.84
0.333	3.08	1.333	73.13	2.333	4.58	3.33	2.84
0.417	3.51	1.417	15.38	2.417	4.12	3.42	2.69
0.500	3.51	1.500	15.38	2.500	4.12	3.50	2.69
0.583	4.13	1.583	9.64	2.583	3.76	3.58	2.56
0.667	4.13	1.667	9.64	2.667	3.76	3.67	2.56
0.750	5.11	1.750	7.34	2.750	3.47	3.75	2.44
0.833	5.11	1.833	7.34	2.833	3.47	3.83	2.44
0.917	6.98	1.917	6.04	2.917	3.23	3.92	2.33
1.000	6.98	2.000	6.04	3.000	3.23	4.00	2.33

Max.Eff.Inten.(mm/hr)=	73.13	7.44	
over (min)	5.00	65.00	
Storage Coeff. (min)=	1.49 (ii)	64.31 (ii)	
Unit Hyd. Tpeak (min)=	5.00	65.00	
Unit Hyd. peak (cms)=	0.33	0.02	
			TOTALS
PEAK FLOW (cms)=	0.00	0.00	0.004 (iii)
TIME TO PEAK (hrs)=	1.33	2.50	1.33
RUNOFF VOLUME (mm)=	29.69	8.37	9.32
TOTAL RAINFALL (mm)=	31.69	31.69	31.69
RUNOFF COEFFICIENT =	0.94	0.26	0.29

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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.

ADD HYD (0903)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0201):	0.23	0.002	1.33	10.20
+ ID2= 2 (0303):	0.33	0.004	1.33	9.32
ID = 3 (0903):	0.56	0.006	1.33	9.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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 FINISH
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       V    V   I    SSSSS  U   U    A    L             (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
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0f896-c78c-4061-a7c1-b8969840fa66\sc


DATE: 07/25/2023                          TIME: 09:00:16

USER:



COMMENTS: _____________________________________________________


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  ***********************************************
  ** SIMULATION : (3) 5 Year Design Storm - Chi **
  ***********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 484.627
| Ptotal= 42.00 mm |                          B=   0.000
--------------------                          C=   0.699
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.35

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.17    3.65 |  1.17   17.00 |  2.17    6.88 |  3.17    4.00
                0.33    4.08 |  1.33   96.92 |  2.33    6.07 |  3.33    3.77
                0.50    4.65 |  1.50   20.39 |  2.50    5.46 |  3.50    3.57
                0.67    5.48 |  1.67   12.78 |  2.67    4.98 |  3.67    3.39
                0.83    6.78 |  1.83    9.73 |  2.83    4.60 |  3.83    3.23
                1.00    9.25 |  2.00    8.01 |  3.00    4.27 |  4.00    3.09


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| CALIB            |
| NASHYD   (  0202)|   Area    (ha)=   0.29   Curve Number   (CN)= 76.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.71   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.30

         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    3.65 | 1.083   17.00 | 2.083    6.88 |  3.08    4.00
               0.167    3.65 | 1.167   17.00 | 2.167    6.88 |  3.17    4.00
               0.250    4.08 | 1.250   96.92 | 2.250    6.07 |  3.25    3.77
               0.333    4.08 | 1.333   96.92 | 2.333    6.07 |  3.33    3.77
               0.417    4.65 | 1.417   20.39 | 2.417    5.46 |  3.42    3.57
               0.500    4.65 | 1.500   20.39 | 2.500    5.46 |  3.50    3.57
               0.583    5.48 | 1.583   12.78 | 2.583    4.98 |  3.58    3.39
               0.667    5.48 | 1.667   12.78 | 2.667    4.98 |  3.67    3.39
               0.750    6.78 | 1.750    9.73 | 2.750    4.60 |  3.75    3.23
               0.833    6.78 | 1.833    9.73 | 2.833    4.60 |  3.83    3.23
               0.917    9.25 | 1.917    8.01 | 2.917    4.27 |  3.92    3.09
               1.000    9.25 | 2.000    8.01 | 3.000    4.27 |  4.00    3.09

     Unit Hyd Qpeak  (cms)=   0.037

     PEAK FLOW       (cms)=   0.007 (i)
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     TIME TO PEAK    (hrs)=   1.583
     RUNOFF VOLUME    (mm)=  12.054
     TOTAL RAINFALL   (mm)=  42.005
     RUNOFF COEFFICIENT   =   0.287

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

CALIB			
STANDHYD (0204)	Area (ha)= 0.24		
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00	Dir. Conn.(%)= 36.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	40.00	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.65	1.083	17.00	2.083	6.88	3.08	4.00
0.167	3.65	1.167	17.00	2.167	6.88	3.17	4.00
0.250	4.08	1.250	96.92	2.250	6.07	3.25	3.77
0.333	4.08	1.333	96.92	2.333	6.07	3.33	3.77
0.417	4.65	1.417	20.39	2.417	5.46	3.42	3.57
0.500	4.65	1.500	20.39	2.500	5.46	3.50	3.57
0.583	5.48	1.583	12.78	2.583	4.98	3.58	3.39
0.667	5.48	1.667	12.78	2.667	4.98	3.67	3.39
0.750	6.78	1.750	9.73	2.750	4.60	3.75	3.23
0.833	6.78	1.833	9.73	2.833	4.60	3.83	3.23
0.917	9.25	1.917	8.01	2.917	4.27	3.92	3.09
1.000	9.25	2.000	8.01	3.000	4.27	4.00	3.09

Max.Eff.Inten.(mm/hr)=	96.92	67.78		
over (min)	5.00	5.00		
Storage Coeff. (min)=	1.21 (ii)	4.52 (ii)		
Unit Hyd. Tpeak (min)=	5.00	5.00		
Unit Hyd. peak (cms)=	0.33	0.23		
			TOTALS	
PEAK FLOW (cms)=	0.02	0.02	0.039 (iii)	
TIME TO PEAK (hrs)=	1.33	1.33	1.33	
RUNOFF VOLUME (mm)=	40.00	17.51	25.60	
TOTAL RAINFALL (mm)=	42.00	42.00	42.00	
RUNOFF COEFFICIENT =	0.95	0.42	0.61	

```
***** 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 (0206)	Area (ha)= 0.18		
ID= 1 DT= 5.0 min	Total Imp(%)= 66.00	Dir. Conn.(%)= 60.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.12	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	34.64	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.65	1.083	17.00	2.083	6.88	3.08	4.00
0.167	3.65	1.167	17.00	2.167	6.88	3.17	4.00
0.250	4.08	1.250	96.92	2.250	6.07	3.25	3.77
0.333	4.08	1.333	96.92	2.333	6.07	3.33	3.77
0.417	4.65	1.417	20.39	2.417	5.46	3.42	3.57
0.500	4.65	1.500	20.39	2.500	5.46	3.50	3.57
0.583	5.48	1.583	12.78	2.583	4.98	3.58	3.39
0.667	5.48	1.667	12.78	2.667	4.98	3.67	3.39
0.750	6.78	1.750	9.73	2.750	4.60	3.75	3.23
0.833	6.78	1.833	9.73	2.833	4.60	3.83	3.23
0.917	9.25	1.917	8.01	2.917	4.27	3.92	3.09
1.000	9.25	2.000	8.01	3.000	4.27	4.00	3.09

Max.Eff.Inten.(mm/hr)=	96.92	28.90		
over (min)	5.00	5.00		
Storage Coeff. (min)=	1.11 (ii)	3.78 (ii)		
Unit Hyd. Tpeak (min)=	5.00	5.00		
Unit Hyd. peak (cms)=	0.34	0.25		
			TOTALS	
PEAK FLOW (cms)=	0.03	0.01	0.034 (iii)	
TIME TO PEAK (hrs)=	1.33	1.33	1.33	
RUNOFF VOLUME (mm)=	40.00	12.55	29.02	

```
     TOTAL RAINFALL   (mm)=      42.00        42.00          42.00
     RUNOFF COEFFICIENT   =       0.95         0.30           0.69

***** 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.

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--------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=   0.08
|ID= 1 DT= 5.0 min |   Total Imp(%)=  69.00   Dir. Conn.(%)=  38.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.06         0.02
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         1.00
     Length            (m)=      23.09         8.00
     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    3.65 | 1.083   17.00 | 2.083    6.88 |  3.08    4.00
              0.167    3.65 | 1.167   17.00 | 2.167    6.88 |  3.17    4.00
              0.250    4.08 | 1.250   96.92 | 2.250    6.07 |  3.25    3.77
              0.333    4.08 | 1.333   96.92 | 2.333    6.07 |  3.33    3.77
              0.417    4.65 | 1.417   20.39 | 2.417    5.46 |  3.42    3.57
              0.500    4.65 | 1.500   20.39 | 2.500    5.46 |  3.50    3.57
              0.583    5.48 | 1.583   12.78 | 2.583    4.98 |  3.58    3.39
              0.667    5.48 | 1.667   12.78 | 2.667    4.98 |  3.67    3.39
              0.750    6.78 | 1.750    9.73 | 2.750    4.60 |  3.75    3.23
              0.833    6.78 | 1.833    9.73 | 2.833    4.60 |  3.83    3.23
              0.917    9.25 | 1.917    8.01 | 2.917    4.27 |  3.92    3.09
              1.000    9.25 | 2.000    8.01 | 3.000    4.27 |  4.00    3.09

     Max.Eff.Inten.(mm/hr)=      96.92        79.59
               over (min)        5.00         5.00
     Storage Coeff.  (min)=     0.87 (ii)    3.96 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.24
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.01          0.014 (iii)

     TIME TO PEAK    (hrs)=       1.33         1.33           1.33
     RUNOFF VOLUME    (mm)=      40.01        18.55          26.66
     TOTAL RAINFALL   (mm)=      42.00        42.00          42.00
     RUNOFF COEFFICIENT   =       0.95         0.44           0.63

***** 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.

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--------------------
| CALIB            |
| STANDHYD (  0205)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  37.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.15         0.08
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         1.00
     Length            (m)=      39.16         8.00
     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    3.65 | 1.083   17.00 | 2.083    6.88 |  3.08    4.00
              0.167    3.65 | 1.167   17.00 | 2.167    6.88 |  3.17    4.00
              0.250    4.08 | 1.250   96.92 | 2.250    6.07 |  3.25    3.77
              0.333    4.08 | 1.333   96.92 | 2.333    6.07 |  3.33    3.77
              0.417    4.65 | 1.417   20.39 | 2.417    5.46 |  3.42    3.57
              0.500    4.65 | 1.500   20.39 | 2.500    5.46 |  3.50    3.57
              0.583    5.48 | 1.583   12.78 | 2.583    4.98 |  3.58    3.39
              0.667    5.48 | 1.667   12.78 | 2.667    4.98 |  3.67    3.39
              0.750    6.78 | 1.750    9.73 | 2.750    4.60 |  3.75    3.23
              0.833    6.78 | 1.833    9.73 | 2.833    4.60 |  3.83    3.23
              0.917    9.25 | 1.917    8.01 | 2.917    4.27 |  3.92    3.09
              1.000    9.25 | 2.000    8.01 | 3.000    4.27 |  4.00    3.09

     Max.Eff.Inten.(mm/hr)=      96.92        62.56
               over (min)        5.00         5.00
     Storage Coeff.  (min)=     1.20 (ii)    4.51 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.23
```

```
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.02         0.01          0.037 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.33           1.33
     RUNOFF VOLUME    (mm)=      40.00        17.00          25.49
     TOTAL RAINFALL   (mm)=      42.00        42.00          42.00
     RUNOFF COEFFICIENT   =       0.95         0.40           0.61

***** 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.

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--------------------
| ADD HYD  (  0904)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0203):     0.08   0.014     1.33    26.66
      + ID2= 2 (  0204):     0.24   0.039     1.33    25.60
        ================================================
        ID = 3 (  0904):     0.32   0.053     1.33    25.87

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

--------------------
| ADD HYD  (  0904)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0904):     0.32   0.053     1.33    25.87
      + ID2= 2 (  0205):     0.23   0.037     1.33    25.49
        ================================================
        ID = 1 (  0904):     0.55   0.090     1.33    25.71

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

--------------------
| ADD HYD  (  0904)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0904):     0.55   0.090     1.33    25.71
      + ID2= 2 (  0206):     0.18   0.034     1.33    29.02
        ================================================
        ID = 3 (  0904):     0.73   0.124     1.33    26.53

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0304)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  31.00   Dir. Conn.(%)=   5.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.16
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         0.50
     Length            (m)=      39.16       100.00
     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    3.65 | 1.083   17.00 | 2.083    6.88 |  3.08    4.00
              0.167    3.65 | 1.167   17.00 | 2.167    6.88 |  3.17    4.00
              0.250    4.08 | 1.250   96.92 | 2.250    6.07 |  3.25    3.77
              0.333    4.08 | 1.333   96.92 | 2.333    6.07 |  3.33    3.77
              0.417    4.65 | 1.417   20.39 | 2.417    5.46 |  3.42    3.57
              0.500    4.65 | 1.500   20.39 | 2.500    5.46 |  3.50    3.57
              0.583    5.48 | 1.583   12.78 | 2.583    4.98 |  3.58    3.39
              0.667    5.48 | 1.667   12.78 | 2.667    4.98 |  3.67    3.39
              0.750    6.78 | 1.750    9.73 | 2.750    4.60 |  3.75    3.23
              0.833    6.78 | 1.833    9.73 | 2.833    4.60 |  3.83    3.23
              0.917    9.25 | 1.917    8.01 | 2.917    4.27 |  3.92    3.09
              1.000    9.25 | 2.000    8.01 | 3.000    4.27 |  4.00    3.09

     Max.Eff.Inten.(mm/hr)=      96.92        16.91
               over (min)        5.00        40.00
     Storage Coeff.  (min)=       1.20 (ii)   38.94 (ii)
     Unit Hyd. Tpeak (min)=       5.00        40.00
     Unit Hyd. peak  (cms)=       0.33         0.03
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.005 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.92           1.92
     RUNOFF VOLUME    (mm)=      40.00        14.27          15.45
     TOTAL RAINFALL   (mm)=      42.00        42.00          42.00
     RUNOFF COEFFICIENT   =       0.95         0.34           0.37

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
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```
           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.

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--------------------
| ADD HYD  (  0906)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0202):     0.29   0.007     1.58    12.05
      + ID2= 2 (  0304):     0.23   0.005     1.92    15.45
        ================================================
        ID = 3 (  0906):     0.52   0.011     1.83    13.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0906)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0906):     0.52   0.011     1.83    13.56
      + ID2= 2 (  0904):     0.73   0.124     1.33    26.53
        ================================================
        ID = 1 (  0906):     1.25   0.131     1.33    21.13

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=   5.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.09         0.14
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         0.70
     Length            (m)=      39.16       160.00
     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    3.65 | 1.083   17.00 | 2.083    6.88 |  3.08    4.00
 0.167    3.65 | 1.167   17.00 | 2.167    6.88 |  3.17    4.00
 0.250    4.08 | 1.250   96.92 | 2.250    6.07 |  3.25    3.77
 0.333    4.08 | 1.333   96.92 | 2.333    6.07 |  3.33    3.77
 0.417    4.65 | 1.417   20.39 | 2.417    5.46 |  3.42    3.57
 0.500    4.65 | 1.500   20.39 | 2.500    5.46 |  3.50    3.57
 0.583    5.48 | 1.583   12.78 | 2.583    4.98 |  3.58    3.39
 0.667    5.48 | 1.667   12.78 | 2.667    4.98 |  3.67    3.39
 0.750    6.78 | 1.750    9.73 | 2.750    4.60 |  3.75    3.23
 0.833    6.78 | 1.833    9.73 | 2.833    4.60 |  3.83    3.23
 0.917    9.25 | 1.917    8.01 | 2.917    4.27 |  3.92    3.09
 1.000    9.25 | 2.000    8.01 | 3.000    4.27 |  4.00    3.09

     Max.Eff.Inten.(mm/hr)=      96.92        19.03
               over (min)         5.00        45.00
     Storage Coeff.  (min)=       1.20 (ii)   44.34 (ii)
     Unit Hyd. Tpeak (min)=       5.00        45.00
     Unit Hyd. peak  (cms)=       0.33         0.03
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.005 (iii)
     TIME TO PEAK    (hrs)=       1.33         2.00           2.00
     RUNOFF VOLUME    (mm)=      40.00        15.48          16.60
     TOTAL RAINFALL   (mm)=      42.00        42.00          42.00
     RUNOFF COEFFICIENT   =       0.95         0.37           0.40

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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 (  0303)|   Area    (ha)=   0.33
|ID= 1 DT= 5.0 min |   Total Imp(%)=  30.00   Dir. Conn.(%)=   5.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.10         0.23
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         0.70
     Length            (m)=      46.90       160.00
     Mannings n           =      0.013        0.250

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


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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.65	1.083	17.00	2.083	6.88	3.08	4.00
0.167	3.65	1.167	17.00	2.167	6.88	3.17	4.00
0.250	4.08	1.250	96.92	2.250	6.07	3.25	3.77
0.333	4.08	1.333	96.92	2.333	6.07	3.33	3.77
0.417	4.65	1.417	20.39	2.417	5.46	3.42	3.57
0.500	4.65	1.500	20.39	2.500	5.46	3.50	3.57
0.583	5.48	1.583	12.78	2.583	4.98	3.58	3.39
0.667	5.48	1.667	12.78	2.667	4.98	3.67	3.39
0.750	6.78	1.750	9.73	2.750	4.60	3.75	3.23
0.833	6.78	1.833	9.73	2.833	4.60	3.83	3.23
0.917	9.25	1.917	8.01	2.917	4.27	3.92	3.09
1.000	9.25	2.000	8.01	3.000	4.27	4.00	3.09

Max.Eff.Inten.(mm/hr)=	96.92	14.29	
over (min)	5.00	50.00	
Storage Coeff. (min)=	1.33 (ii)	49.71 (ii)	
Unit Hyd. Tpeak (min)=	5.00	50.00	
Unit Hyd. peak (cms)=	0.33	0.02	
			TOTALS
PEAK FLOW (cms)=	0.00	0.01	0.005 (iii)
TIME TO PEAK (hrs)=	1.33	2.17	2.17
RUNOFF VOLUME (mm)=	40.00	14.11	15.32
TOTAL RAINFALL (mm)=	42.00	42.00	42.00
RUNOFF COEFFICIENT =	0.95	0.34	0.36

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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.

ADD HYD (0903)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0201):	0.23	0.005	2.00	16.60
	+ ID2= 2 (0303):	0.33	0.005	2.17	15.32
	ID = 3 (0903):	0.56	0.010	2.08	15.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
       V    V   I    SSSSS  U   U    A    L             (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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

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

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

Output filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\1139407e-2b19-4327-b665-92ac45905195\sc
Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\1139407e-2b19-4327-b665-92ac45905195\sc

DATE: 07/25/2023 TIME: 09:00:16

USER:

COMMENTS: _____

****
** SIMULATION : (4) 10 Year Design Storm - Ch **
****

CHICAGO STORM	Ptotal= 48.83 mm	IDF curve parameters: A= 563.357	B= 0.000	C= 0.699

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

Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.35

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	4.25	1.17	19.77	2.17	8.00	3.17	4.65
0.33	4.74	1.33	112.66	2.33	7.06	3.33	4.38
0.50	5.41	1.50	23.70	2.50	6.35	3.50	4.15
0.67	6.37	1.67	14.86	2.67	5.79	3.67	3.94
0.83	7.88	1.83	11.31	2.83	5.34	3.83	3.75
1.00	10.75	2.00	9.31	3.00	4.97	4.00	3.59

CALIB / NASHYD (0202) / ID= 1 DT= 5.0 min	Area (ha)= 0.29	Curve Number (CN)= 76.5	Ia (mm)= 4.71	# of Linear Res.(N)= 3.00	U.H. Tp(hrs)= 0.30

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	4.25	1.083	19.77	2.083	8.00	3.08	4.65
0.167	4.25	1.167	19.77	2.167	8.00	3.17	4.65
0.250	4.74	1.250	112.66	2.250	7.06	3.25	4.38
0.333	4.74	1.333	112.66	2.333	7.06	3.33	4.38
0.417	5.41	1.417	23.70	2.417	6.35	3.42	4.15
0.500	5.41	1.500	23.70	2.500	6.35	3.50	4.15
0.583	6.37	1.583	14.86	2.583	5.79	3.58	3.94
0.667	6.37	1.667	14.86	2.667	5.79	3.67	3.94
0.750	7.88	1.750	11.31	2.750	5.34	3.75	3.75
0.833	7.88	1.833	11.31	2.833	5.34	3.83	3.75
0.917	10.75	1.917	9.31	2.917	4.97	3.92	3.59
1.000	10.75	2.000	9.31	3.000	4.97	4.00	3.59

Unit Hyd Qpeak (cms)=	0.037	
PEAK FLOW (cms)=	0.010 (i)	
TIME TO PEAK (hrs)=	1.583	
RUNOFF VOLUME (mm)=	15.927	
TOTAL RAINFALL (mm)=	48.829	
RUNOFF COEFFICIENT =	0.326	

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

CALIB / STANDHYD (0204) / ID= 1 DT= 5.0 min	Area (ha)= 0.24	Total Imp(%)= 65.00	Dir. Conn.(%)= 36.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	40.00	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	4.25	1.083	19.77	2.083	8.00	3.08	4.65
0.167	4.25	1.167	19.77	2.167	8.00	3.17	4.65
0.250	4.74	1.250	112.66	2.250	7.06	3.25	4.38
0.333	4.74	1.333	112.66	2.333	7.06	3.33	4.38
0.417	5.41	1.417	23.70	2.417	6.35	3.42	4.15
0.500	5.41	1.500	23.70	2.500	6.35	3.50	4.15
0.583	6.37	1.583	14.86	2.583	5.79	3.58	3.94
0.667	6.37	1.667	14.86	2.667	5.79	3.67	3.94
0.750	7.88	1.750	11.31	2.750	5.34	3.75	3.75
0.833	7.88	1.833	11.31	2.833	5.34	3.83	3.75
0.917	10.75	1.917	9.31	2.917	4.97	3.92	3.59
1.000	10.75	2.000	9.31	3.000	4.97	4.00	3.59

Max.Eff.Inten.(mm/hr)=		112.66	88.58	
over (min)		5.00	5.00	
Storage Coeff. (min)=		1.14 (ii)	4.26 (ii)	
Unit Hyd. Tpeak (min)=		5.00	5.00	
Unit Hyd. peak (cms)=		0.34	0.23	
				TOTALS
PEAK FLOW	(cms)=	0.03	0.02	0.048 (iii)
TIME TO PEAK	(hrs)=	1.33	1.33	1.33
RUNOFF VOLUME	(mm)=	46.83	22.39	31.18
TOTAL RAINFALL	(mm)=	48.83	48.83	48.83
RUNOFF COEFFICIENT	=	0.96	0.46	0.64

***** 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 (0206) | ID= 1 DT= 5.0 min |

Area (ha)= 0.18
Total Imp(%)= 66.00 Dir. Conn.(%)= 60.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.12	0.06
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	2.00	1.00
Length (m)=	34.64	8.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	4.25	1.083	19.77	2.083	8.00	3.08	4.65
0.167	4.25	1.167	19.77	2.167	8.00	3.17	4.65
0.250	4.74	1.250	112.66	2.250	7.06	3.25	4.38
0.333	4.74	1.333	112.66	2.333	7.06	3.33	4.38
0.417	5.41	1.417	23.70	2.417	6.35	3.42	4.15
0.500	5.41	1.500	23.70	2.500	6.35	3.50	4.15
0.583	6.37	1.583	14.86	2.583	5.79	3.58	3.94
0.667	6.37	1.667	14.86	2.667	5.79	3.67	3.94
0.750	7.88	1.750	11.31	2.750	5.34	3.75	3.75
0.833	7.88	1.833	11.31	2.833	5.34	3.83	3.75
0.917	10.75	1.917	9.31	2.917	4.97	3.92	3.59
1.000	10.75	2.000	9.31	3.000	4.97	4.00	3.59

Max.Eff.Inten.(mm/hr)=	112.66	39.15	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.05 (ii)	3.56 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.26	
			TOTALS
PEAK FLOW (cms)=	0.03	0.01	0.041 (iii)
TIME TO PEAK (hrs)=	1.33	1.33	1.33
RUNOFF VOLUME (mm)=	46.83	16.50	34.69
TOTAL RAINFALL (mm)=	48.83	48.83	48.83
RUNOFF COEFFICIENT =	0.96	0.34	0.71

***** 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)= 0.08
Total Imp(%)= 69.00 Dir. Conn.(%)= 38.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.06	0.02
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	2.00	1.00
Length (m)=	23.09	8.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	4.25	1.083	19.77	2.083	8.00	3.08	4.65
0.167	4.25	1.167	19.77	2.167	8.00	3.17	4.65
0.250	4.74	1.250	112.66	2.250	7.06	3.25	4.38
0.333	4.74	1.333	112.66	2.333	7.06	3.33	4.38
0.417	5.41	1.417	23.70	2.417	6.35	3.42	4.15
0.500	5.41	1.500	23.70	2.500	6.35	3.50	4.15
0.583	6.37	1.583	14.86	2.583	5.79	3.58	3.94
0.667	6.37	1.667	14.86	2.667	5.79	3.67	3.94
0.750	7.88	1.750	11.31	2.750	5.34	3.75	3.75
0.833	7.88	1.833	11.31	2.833	5.34	3.83	3.75
0.917	10.75	1.917	9.31	2.917	4.97	3.92	3.59
1.000	10.75	2.000	9.31	3.000	4.97	4.00	3.59

Max.Eff.Inten.(mm/hr)=	112.66	103.35	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.82 (ii)	3.73 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.25	
			TOTALS
PEAK FLOW (cms)=	0.01	0.01	0.017 (iii)
TIME TO PEAK (hrs)=	1.33	1.33	1.33
RUNOFF VOLUME (mm)=	46.83	23.60	32.38
TOTAL RAINFALL (mm)=	48.83	48.83	48.83
RUNOFF COEFFICIENT =	0.96	0.48	0.66

***** 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 (0205)	Area (ha)= 0.23
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 37.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	39.16	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	4.25	1.083	19.77	2.083	8.00	3.08	4.65
0.167	4.25	1.167	19.77	2.167	8.00	3.17	4.65
0.250	4.74	1.250	112.66	2.250	7.06	3.25	4.38
0.333	4.74	1.333	112.66	2.333	7.06	3.33	4.38
0.417	5.41	1.417	23.70	2.417	6.35	3.42	4.15
0.500	5.41	1.500	23.70	2.500	6.35	3.50	4.15
0.583	6.37	1.583	14.86	2.583	5.79	3.58	3.94
0.667	6.37	1.667	14.86	2.667	5.79	3.67	3.94
0.750	7.88	1.750	11.31	2.750	5.34	3.75	3.75
0.833	7.88	1.833	11.31	2.833	5.34	3.83	3.75
0.917	10.75	1.917	9.31	2.917	4.97	3.92	3.59
1.000	10.75	2.000	9.31	3.000	4.97	4.00	3.59

Max.Eff.Inten.(mm/hr)=	112.66	82.01		
over (min)	5.00	5.00		
Storage Coeff. (min)=	1.13 (ii)	4.25 (ii)		
Unit Hyd. Tpeak (min)=	5.00	5.00		
Unit Hyd. peak (cms)=	0.34	0.24		
			TOTALS	
PEAK FLOW (cms)=	0.03	0.02	0.046 (iii)	
TIME TO PEAK (hrs)=	1.33	1.33	1.33	
RUNOFF VOLUME (mm)=	46.83	21.79	31.04	
TOTAL RAINFALL (mm)=	48.83	48.83	48.83	
RUNOFF COEFFICIENT =	0.96	0.45	0.64	

***** 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.

ADD HYD (0904)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0203):	0.08	0.017	1.33	32.38
+ ID2= 2 (0204):	0.24	0.048	1.33	31.18
ID = 3 (0904):	0.32	0.065	1.33	31.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0904)					
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0904):	0.32	0.065	1.33	31.48
+ ID2= 2 (0205):	0.23	0.046	1.33	31.04
ID = 1 (0904):	0.55	0.110	1.33	31.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0904)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0904):	0.55	0.110	1.33	31.30
+ ID2= 2 (0206):	0.18	0.041	1.33	34.69
ID = 3 (0904):	0.73	0.151	1.33	32.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
STANDHYD (0304)	Area (ha)= 0.23

|ID= 1 DT= 5.0 min | Total Imp(%)= 31.00 Dir. Conn.(%)= 5.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.16
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	0.50
Length	(m)=	39.16	100.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	4.25	1.083	19.77	2.083	8.00	3.08	4.65
0.167	4.25	1.167	19.77	2.167	8.00	3.17	4.65
0.250	4.74	1.250	112.66	2.250	7.06	3.25	4.38
0.333	4.74	1.333	112.66	2.333	7.06	3.33	4.38
0.417	5.41	1.417	23.70	2.417	6.35	3.42	4.15
0.500	5.41	1.500	23.70	2.500	6.35	3.50	4.15
0.583	6.37	1.583	14.86	2.583	5.79	3.58	3.94
0.667	6.37	1.667	14.86	2.667	5.79	3.67	3.94
0.750	7.88	1.750	11.31	2.750	5.34	3.75	3.75
0.833	7.88	1.833	11.31	2.833	5.34	3.83	3.75
0.917	10.75	1.917	9.31	2.917	4.97	3.92	3.59
1.000	10.75	2.000	9.31	3.000	4.97	4.00	3.59

Max.Eff.Inten.(mm/hr)=		112.66	24.16	
over (min)		5.00	35.00	
Storage Coeff. (min)=		1.13 (ii)	33.84 (ii)	
Unit Hyd. Tpeak (min)=		5.00	35.00	
Unit Hyd. peak (cms)=		0.34	0.03	
				TOTALS
PEAK FLOW	(cms)=	0.00	0.01	0.007 (iii)
TIME TO PEAK	(hrs)=	1.33	1.83	1.83
RUNOFF VOLUME	(mm)=	46.83	18.57	19.89
TOTAL RAINFALL	(mm)=	48.83	48.83	48.83
RUNOFF COEFFICIENT	=	0.96	0.38	0.41

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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.

ADD HYD (0906)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0202):	0.29	0.010	1.58	15.93
	+ ID2= 2 (0304):	0.23	0.007	1.83	19.89
	ID = 3 (0906):	0.52	0.015	1.75	17.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0906)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0906):	0.52	0.015	1.75	17.68
	+ ID2= 2 (0904):	0.73	0.151	1.33	32.13
	ID = 1 (0906):	1.25	0.160	1.33	26.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
STANDHYD (0201)	Area	(ha)=	0.23	
ID= 1 DT= 5.0 min	Total Imp(%)=	38.00	Dir. Conn.(%)=	5.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.14
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	0.70
Length	(m)=	39.16	160.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	4.25	1.083	19.77	2.083	8.00	3.08	4.65
0.167	4.25	1.167	19.77	2.167	8.00	3.17	4.65
0.250	4.74	1.250	112.66	2.250	7.06	3.25	4.38
0.333	4.74	1.333	112.66	2.333	7.06	3.33	4.38
0.417	5.41	1.417	23.70	2.417	6.35	3.42	4.15
0.500	5.41	1.500	23.70	2.500	6.35	3.50	4.15
0.583	6.37	1.583	14.86	2.583	5.79	3.58	3.94

0.667	6.37	1.667	14.86	2.667	5.79	3.67	3.94
0.750	7.88	1.750	11.31	2.750	5.34	3.75	3.75
0.833	7.88	1.833	11.31	2.833	5.34	3.83	3.75
0.917	10.75	1.917	9.31	2.917	4.97	3.92	3.59
1.000	10.75	2.000	9.31	3.000	4.97	4.00	3.59

Max.Eff.Inten.(mm/hr)=	112.66	26.83	
over (min)	5.00	40.00	
Storage Coeff. (min)=	1.13 (ii)	38.73 (ii)	
Unit Hyd. Tpeak (min)=	5.00	40.00	
Unit Hyd. peak (cms)=	0.34	0.03	
			TOTALS
PEAK FLOW (cms)=	0.00	0.01	0.007 (iii)
TIME TO PEAK (hrs)=	1.33	1.92	1.92
RUNOFF VOLUME (mm)=	46.83	20.00	21.25
TOTAL RAINFALL (mm)=	48.83	48.83	48.83
RUNOFF COEFFICIENT =	0.96	0.41	0.44

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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 (0303)	Area (ha)=	0.33	
ID= 1 DT= 5.0 min	Total Imp(%)=	30.00	Dir. Conn.(%)= 5.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=		0.10	0.23
Dep. Storage (mm)=		2.00	5.00
Average Slope (%)=		2.00	0.70
Length (m)=		46.90	160.00
Mannings n =		0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	4.25	1.083	19.77	2.083	8.00	3.08	4.65
0.167	4.25	1.167	19.77	2.167	8.00	3.17	4.65
0.250	4.74	1.250	112.66	2.250	7.06	3.25	4.38
0.333	4.74	1.333	112.66	2.333	7.06	3.33	4.38
0.417	5.41	1.417	23.70	2.417	6.35	3.42	4.15
0.500	5.41	1.500	23.70	2.500	6.35	3.50	4.15
0.583	6.37	1.583	14.86	2.583	5.79	3.58	3.94
0.667	6.37	1.667	14.86	2.667	5.79	3.67	3.94
0.750	7.88	1.750	11.31	2.750	5.34	3.75	3.75
0.833	7.88	1.833	11.31	2.833	5.34	3.83	3.75
0.917	10.75	1.917	9.31	2.917	4.97	3.92	3.59
1.000	10.75	2.000	9.31	3.000	4.97	4.00	3.59

Max.Eff.Inten.(mm/hr)=	112.66	20.05	
over (min)	5.00	45.00	
Storage Coeff. (min)=	1.26 (ii)	43.51 (ii)	
Unit Hyd. Tpeak (min)=	5.00	45.00	
Unit Hyd. peak (cms)=	0.33	0.03	
			TOTALS
PEAK FLOW (cms)=	0.01	0.01	0.008 (iii)
TIME TO PEAK (hrs)=	1.33	2.00	2.00
RUNOFF VOLUME (mm)=	46.83	18.38	19.73
TOTAL RAINFALL (mm)=	48.83	48.83	48.83
RUNOFF COEFFICIENT =	0.96	0.38	0.40

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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.

ADD HYD (0903)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0201):	0.23	0.007	1.92	21.25
+ ID2= 2 (0303):	0.33	0.008	2.00	19.73
ID = 3 (0903):	0.56	0.014	2.00	20.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

V V I SSSSS U U A L (v 6.1.2001)
V V I SS U U A A L

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

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\57c
ca1c4-ccdf-4fba-8537-7144532611fd\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\57c
ca1c4-ccdf-4fba-8537-7144532611fd\sc


DATE: 07/25/2023                          TIME: 09:00:16

USER:



COMMENTS: _____________________________________________________________


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  ***********************************************
  ** SIMULATION : (5) 25 Year Design Storm - Ch **
  ***********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 663.082
| Ptotal= 57.47 mm |                          B=   0.000
--------------------                          C=   0.699
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.35
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	5.00	1.17	23.27	2.17	9.41	3.17	5.48
0.33	5.58	1.33	132.61	2.33	8.31	3.33	5.16
0.50	6.37	1.50	27.90	2.50	7.48	3.50	4.88
0.67	7.49	1.67	17.49	2.67	6.82	3.67	4.64
0.83	9.27	1.83	13.31	2.83	6.29	3.83	4.42
1.00	12.65	2.00	10.95	3.00	5.85	4.00	4.23

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--------------------
| CALIB            |
| NASHYD   (  0202)|   Area    (ha)=   0.29   Curve Number   (CN)= 76.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.71   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.30

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	5.00	1.083	23.27	2.083	9.41	3.08	5.48
0.167	5.00	1.167	23.27	2.167	9.41	3.17	5.48
0.250	5.58	1.250	132.61	2.250	8.31	3.25	5.16
0.333	5.58	1.333	132.61	2.333	8.31	3.33	5.16
0.417	6.37	1.417	27.90	2.417	7.48	3.42	4.88
0.500	6.37	1.500	27.90	2.500	7.48	3.50	4.88
0.583	7.49	1.583	17.49	2.583	6.82	3.58	4.64
0.667	7.49	1.667	17.49	2.667	6.82	3.67	4.64
0.750	9.27	1.750	13.31	2.750	6.29	3.75	4.42
0.833	9.27	1.833	13.31	2.833	6.29	3.83	4.42
0.917	12.65	1.917	10.95	2.917	5.85	3.92	4.23
1.000	12.65	2.000	10.95	3.000	5.85	4.00	4.23

```
    Unit Hyd Qpeak  (cms)=   0.037

    PEAK FLOW       (cms)=   0.014 (i)
    TIME TO PEAK    (hrs)=   1.583
    RUNOFF VOLUME    (mm)=  21.275
    TOTAL RAINFALL   (mm)=  57.473
    RUNOFF COEFFICIENT   =   0.370

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

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--------------------
| CALIB            |
```

| STANDHYD (0204)| Area (ha)= 0.24
|ID= 1 DT= 5.0 min | Total Imp(%)= 65.00 Dir. Conn.(%)= 36.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	40.00	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	5.00	1.083	23.27	2.083	9.41	3.08	5.48
0.167	5.00	1.167	23.27	2.167	9.41	3.17	5.48
0.250	5.58	1.250	132.61	2.250	8.31	3.25	5.16
0.333	5.58	1.333	132.61	2.333	8.31	3.33	5.16
0.417	6.37	1.417	27.90	2.417	7.48	3.42	4.88
0.500	6.37	1.500	27.90	2.500	7.48	3.50	4.88
0.583	7.49	1.583	17.49	2.583	6.82	3.58	4.64
0.667	7.49	1.667	17.49	2.667	6.82	3.67	4.64
0.750	9.27	1.750	13.31	2.750	6.29	3.75	4.42
0.833	9.27	1.833	13.31	2.833	6.29	3.83	4.42
0.917	12.65	1.917	10.95	2.917	5.85	3.92	4.23
1.000	12.65	2.000	10.95	3.000	5.85	4.00	4.23

				TOTALS
Max.Eff.Inten.(mm/hr)=		132.61	116.96	
over (min)		5.00	5.00	
Storage Coeff. (min)=		1.07 (ii)	3.99 (ii)	
Unit Hyd. Tpeak (min)=		5.00	5.00	
Unit Hyd. peak (cms)=		0.34	0.24	
PEAK FLOW	(cms)=	0.03	0.03	0.059 (iii)
TIME TO PEAK	(hrs)=	1.33	1.33	1.33
RUNOFF VOLUME	(mm)=	55.47	28.94	38.48
TOTAL RAINFALL	(mm)=	57.47	57.47	57.47
RUNOFF COEFFICIENT	=	0.97	0.50	0.67

***** 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 (0206)| Area (ha)= 0.18
ID= 1 DT= 5.0 min	Total Imp(%)= 66.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.12	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	34.64	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	5.00	1.083	23.27	2.083	9.41	3.08	5.48
0.167	5.00	1.167	23.27	2.167	9.41	3.17	5.48
0.250	5.58	1.250	132.61	2.250	8.31	3.25	5.16
0.333	5.58	1.333	132.61	2.333	8.31	3.33	5.16
0.417	6.37	1.417	27.90	2.417	7.48	3.42	4.88
0.500	6.37	1.500	27.90	2.500	7.48	3.50	4.88
0.583	7.49	1.583	17.49	2.583	6.82	3.58	4.64
0.667	7.49	1.667	17.49	2.667	6.82	3.67	4.64
0.750	9.27	1.750	13.31	2.750	6.29	3.75	4.42
0.833	9.27	1.833	13.31	2.833	6.29	3.83	4.42
0.917	12.65	1.917	10.95	2.917	5.85	3.92	4.23
1.000	12.65	2.000	10.95	3.000	5.85	4.00	4.23

				TOTALS
Max.Eff.Inten.(mm/hr)=		132.61	53.57	
over (min)		5.00	5.00	
Storage Coeff. (min)=		0.98 (ii)	3.34 (ii)	
Unit Hyd. Tpeak (min)=		5.00	5.00	
Unit Hyd. peak (cms)=		0.34	0.26	
PEAK FLOW	(cms)=	0.04	0.01	0.050 (iii)
TIME TO PEAK	(hrs)=	1.33	1.33	1.33
RUNOFF VOLUME	(mm)=	55.47	21.94	42.06
TOTAL RAINFALL	(mm)=	57.47	57.47	57.47
RUNOFF COEFFICIENT	=	0.97	0.38	0.73

***** 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.

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--------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=   0.08
|ID= 1 DT= 5.0 min |   Total Imp(%)=  69.00   Dir. Conn.(%)=  38.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.06         0.02
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         1.00
     Length            (m)=      23.09         8.00
     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    5.00 | 1.083   23.27 | 2.083    9.41 |  3.08    5.48
              0.167    5.00 | 1.167   23.27 | 2.167    9.41 |  3.17    5.48
              0.250    5.58 | 1.250  132.61 | 2.250    8.31 |  3.25    5.16
              0.333    5.58 | 1.333  132.61 | 2.333    8.31 |  3.33    5.16
              0.417    6.37 | 1.417   27.90 | 2.417    7.48 |  3.42    4.88
              0.500    6.37 | 1.500   27.90 | 2.500    7.48 |  3.50    4.88
              0.583    7.49 | 1.583   17.49 | 2.583    6.82 |  3.58    4.64
              0.667    7.49 | 1.667   17.49 | 2.667    6.82 |  3.67    4.64
              0.750    9.27 | 1.750   13.31 | 2.750    6.29 |  3.75    4.42
              0.833    9.27 | 1.833   13.31 | 2.833    6.29 |  3.83    4.42
              0.917   12.65 | 1.917   10.95 | 2.917    5.85 |  3.92    4.23
              1.000   12.65 | 2.000   10.95 | 3.000    5.85 |  4.00    4.23

     Max.Eff.Inten.(mm/hr)=     132.61       135.60
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      0.77 (ii)    3.49 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=      0.34         0.26
                                                        *TOTALS*
     PEAK FLOW       (cms)=      0.01         0.01         0.021 (iii)
     TIME TO PEAK    (hrs)=      1.33         1.33          1.33
     RUNOFF VOLUME    (mm)=     55.47        30.34         39.88
     TOTAL RAINFALL   (mm)=     57.47        57.47         57.47
     RUNOFF COEFFICIENT   =      0.97         0.53          0.69

***** 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.

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--------------------
| CALIB            |
| STANDHYD (  0205)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  37.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.15         0.08
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         1.00
     Length            (m)=      39.16         8.00
     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    5.00 | 1.083   23.27 | 2.083    9.41 |  3.08    5.48
              0.167    5.00 | 1.167   23.27 | 2.167    9.41 |  3.17    5.48
              0.250    5.58 | 1.250  132.61 | 2.250    8.31 |  3.25    5.16
              0.333    5.58 | 1.333  132.61 | 2.333    8.31 |  3.33    5.16
              0.417    6.37 | 1.417   27.90 | 2.417    7.48 |  3.42    4.88
              0.500    6.37 | 1.500   27.90 | 2.500    7.48 |  3.50    4.88
              0.583    7.49 | 1.583   17.49 | 2.583    6.82 |  3.58    4.64
              0.667    7.49 | 1.667   17.49 | 2.667    6.82 |  3.67    4.64
              0.750    9.27 | 1.750   13.31 | 2.750    6.29 |  3.75    4.42
              0.833    9.27 | 1.833   13.31 | 2.833    6.29 |  3.83    4.42
              0.917   12.65 | 1.917   10.95 | 2.917    5.85 |  3.92    4.23
              1.000   12.65 | 2.000   10.95 | 3.000    5.85 |  4.00    4.23

     Max.Eff.Inten.(mm/hr)=     132.61       108.64
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      1.06 (ii)    3.98 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=      0.34         0.24
                                                        *TOTALS*
     PEAK FLOW       (cms)=      0.03         0.03         0.057 (iii)
     TIME TO PEAK    (hrs)=      1.33         1.33          1.33
     RUNOFF VOLUME    (mm)=     55.47        28.24         38.31
     TOTAL RAINFALL   (mm)=     57.47        57.47         57.47
     RUNOFF COEFFICIENT   =      0.97         0.49          0.67

***** 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.

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

--------------------
| ADD HYD  (  0904)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):     0.08   0.021     1.33    39.88
     + ID2= 2 (  0204):     0.24   0.059     1.33    38.48
       ================================================
       ID = 3 (  0904):     0.32   0.080     1.33    38.83

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

--------------------
| ADD HYD  (  0904)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0904):     0.32   0.080     1.33    38.83
     + ID2= 2 (  0205):     0.23   0.057     1.33    38.31
       ================================================
       ID = 1 (  0904):     0.55   0.137     1.33    38.62

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

--------------------
| ADD HYD  (  0904)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0904):     0.55   0.137     1.33    38.62
     + ID2= 2 (  0206):     0.18   0.050     1.33    42.06
       ================================================
       ID = 3 (  0904):     0.73   0.187     1.33    39.46

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0304)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  31.00   Dir. Conn.(%)=   5.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.16
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope    (%)=       2.00         0.50
     Length           (m)=      39.16       100.00
     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    5.00 | 1.083   23.27 | 2.083    9.41 |  3.08    5.48
             0.167    5.00 | 1.167   23.27 | 2.167    9.41 |  3.17    5.48
             0.250    5.58 | 1.250  132.61 | 2.250    8.31 |  3.25    5.16
             0.333    5.58 | 1.333  132.61 | 2.333    8.31 |  3.33    5.16
             0.417    6.37 | 1.417   27.90 | 2.417    7.48 |  3.42    4.88
             0.500    6.37 | 1.500   27.90 | 2.500    7.48 |  3.50    4.88
             0.583    7.49 | 1.583   17.49 | 2.583    6.82 |  3.58    4.64
             0.667    7.49 | 1.667   17.49 | 2.667    6.82 |  3.67    4.64
             0.750    9.27 | 1.750   13.31 | 2.750    6.29 |  3.75    4.42
             0.833    9.27 | 1.833   13.31 | 2.833    6.29 |  3.83    4.42
             0.917   12.65 | 1.917   10.95 | 2.917    5.85 |  3.92    4.23
             1.000   12.65 | 2.000   10.95 | 3.000    5.85 |  4.00    4.23

     Max.Eff.Inten.(mm/hr)=     132.61        35.67
               over (min)        5.00        30.00
     Storage Coeff.  (min)=       1.06 (ii)   29.05 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.34         0.04
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.01          0.010 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.75           1.75
     RUNOFF VOLUME    (mm)=      55.47        24.43          25.91
     TOTAL RAINFALL   (mm)=      57.47        57.47          57.47
     RUNOFF COEFFICIENT   =       0.97         0.43           0.45

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
             YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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--------------------
| ADD HYD  (  0906)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
```

	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0202):	0.29	0.014	1.58	21.27
+ ID2= 2 (0304):	0.23	0.010	1.75	25.91
ID = 3 (0906):	0.52	0.023	1.67	23.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0906)				
3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0906):	0.52	0.023	1.67	23.32
+ ID2= 2 (0904):	0.73	0.187	1.33	39.46
ID = 1 (0906):	1.25	0.199	1.33	32.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB STANDHYD (0201) | ID= 1 DT= 5.0 min	Area (ha)= 0.23 Total Imp(%)= 38.00 Dir. Conn.(%)= 5.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.14
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	0.70
Length	(m)=	39.16	160.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	5.00	1.083	23.27	2.083	9.41	3.08	5.48
0.167	5.00	1.167	23.27	2.167	9.41	3.17	5.48
0.250	5.58	1.250	132.61	2.250	8.31	3.25	5.16
0.333	5.58	1.333	132.61	2.333	8.31	3.33	5.16
0.417	6.37	1.417	27.90	2.417	7.48	3.42	4.88
0.500	6.37	1.500	27.90	2.500	7.48	3.50	4.88
0.583	7.49	1.583	17.49	2.583	6.82	3.58	4.64
0.667	7.49	1.667	17.49	2.667	6.82	3.67	4.64
0.750	9.27	1.750	13.31	2.750	6.29	3.75	4.42
0.833	9.27	1.833	13.31	2.833	6.29	3.83	4.42
0.917	12.65	1.917	10.95	2.917	5.85	3.92	4.23
1.000	12.65	2.000	10.95	3.000	5.85	4.00	4.23

				TOTALS
Max.Eff.Inten.(mm/hr)=	132.61	38.54		
over (min)	5.00	35.00		
Storage Coeff. (min)=	1.06 (ii)	33.59 (ii)		
Unit Hyd. Tpeak (min)=	5.00	35.00		
Unit Hyd. peak (cms)=	0.34	0.03		
PEAK FLOW (cms)=	0.00	0.01		0.010 (iii)
TIME TO PEAK (hrs)=	1.33	1.83		1.83
RUNOFF VOLUME (mm)=	55.47	26.13		27.52
TOTAL RAINFALL (mm)=	57.47	57.47		57.47
RUNOFF COEFFICIENT =	0.97	0.45		0.48

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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 (0303) | ID= 1 DT= 5.0 min	Area (ha)= 0.33 Total Imp(%)= 30.00 Dir. Conn.(%)= 5.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.10	0.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	0.70
Length	(m)=	46.90	160.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	5.00	1.083	23.27	2.083	9.41	3.08	5.48
0.167	5.00	1.167	23.27	2.167	9.41	3.17	5.48
0.250	5.58	1.250	132.61	2.250	8.31	3.25	5.16
0.333	5.58	1.333	132.61	2.333	8.31	3.33	5.16
0.417	6.37	1.417	27.90	2.417	7.48	3.42	4.88
0.500	6.37	1.500	27.90	2.500	7.48	3.50	4.88
0.583	7.49	1.583	17.49	2.583	6.82	3.58	4.64
0.667	7.49	1.667	17.49	2.667	6.82	3.67	4.64

```
              0.750    9.27 | 1.750   13.31 | 2.750    6.29 |  3.75    4.42
              0.833    9.27 | 1.833   13.31 | 2.833    6.29 |  3.83    4.42
              0.917   12.65 | 1.917   10.95 | 2.917    5.85 |  3.92    4.23
              1.000   12.65 | 2.000   10.95 | 3.000    5.85 |  4.00    4.23

     Max.Eff.Inten.(mm/hr)=     132.61        28.82
               over (min)        5.00        40.00
     Storage Coeff.  (min)=       1.18 (ii)   37.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00        40.00
     Unit Hyd. peak  (cms)=       0.33         0.03
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.01         0.012 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.92          1.92
     RUNOFF VOLUME    (mm)=      55.47        24.20         25.70
     TOTAL RAINFALL   (mm)=      57.47        57.47         57.47
     RUNOFF COEFFICIENT   =       0.97         0.42          0.45

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
             YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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--------------------
| ADD HYD  (  0903)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0201):     0.23   0.010     1.83    27.52
      + ID2= 2 (  0303):     0.33   0.012     1.92    25.70
        ====================================================
        ID = 3 (  0903):     0.56   0.021     1.92    26.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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================================================================================
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       V    V   I    SSSSS  U   U    A    L             (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\a8b
0ea29-07d5-4ff8-ae97-641376479dd7\sc
  Summary filename:
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0ea29-07d5-4ff8-ae97-641376479dd7\sc


DATE: 07/25/2023                          TIME: 09:00:16

USER:


COMMENTS: _____________________________________________________

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  ***********************************************
  ** SIMULATION : (6) 50 Year Design Storm - Ch **
  ***********************************************

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| CHICAGO STORM    |    IDF curve parameters: A= 738.312
| Ptotal= 63.99 mm |                          B=   0.000
--------------------                          C=   0.699
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.35

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.17    5.56 |  1.17   25.91 |  2.17   10.48 |  3.17    6.10
                0.33    6.22 |  1.33  147.65 |  2.33    9.25 |  3.33    5.74
```

0.50	7.09	1.50	31.06	2.50	8.32	3.50	5.43
0.67	8.34	1.67	19.47	2.67	7.59	3.67	5.16
0.83	10.32	1.83	14.82	2.83	7.00	3.83	4.92
1.00	14.09	2.00	12.20	3.00	6.51	4.00	4.71

CALIB					
NASHYD (0202)	Area (ha)=	0.29	Curve Number (CN)=	76.5	
ID= 1 DT= 5.0 min	Ia (mm)=	4.71	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.30			

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	5.56	1.083	25.91	2.083	10.48	3.08	6.10
0.167	5.56	1.167	25.91	2.167	10.48	3.17	6.10
0.250	6.22	1.250	147.65	2.250	9.25	3.25	5.74
0.333	6.22	1.333	147.65	2.333	9.25	3.33	5.74
0.417	7.09	1.417	31.06	2.417	8.32	3.42	5.43
0.500	7.09	1.500	31.06	2.500	8.32	3.50	5.43
0.583	8.34	1.583	19.47	2.583	7.59	3.58	5.16
0.667	8.34	1.667	19.47	2.667	7.59	3.67	5.16
0.750	10.32	1.750	14.82	2.750	7.00	3.75	4.92
0.833	10.32	1.833	14.82	2.833	7.00	3.83	4.92
0.917	14.09	1.917	12.20	2.917	6.51	3.92	4.71
1.000	14.09	2.000	12.20	3.000	6.51	4.00	4.71

Unit Hyd Qpeak (cms)=	0.037	
PEAK FLOW (cms)=	0.017 (i)	
TIME TO PEAK (hrs)=	1.583	
RUNOFF VOLUME (mm)=	25.583	
TOTAL RAINFALL (mm)=	63.993	
RUNOFF COEFFICIENT =	0.400	

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

CALIB			
STANDHYD (0204)	Area (ha)=	0.24	
ID= 1 DT= 5.0 min	Total Imp(%)=	65.00	Dir. Conn.(%)= 36.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	40.00	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	5.56	1.083	25.91	2.083	10.48	3.08	6.10
0.167	5.56	1.167	25.91	2.167	10.48	3.17	6.10
0.250	6.22	1.250	147.65	2.250	9.25	3.25	5.74
0.333	6.22	1.333	147.65	2.333	9.25	3.33	5.74
0.417	7.09	1.417	31.06	2.417	8.32	3.42	5.43
0.500	7.09	1.500	31.06	2.500	8.32	3.50	5.43
0.583	8.34	1.583	19.47	2.583	7.59	3.58	5.16
0.667	8.34	1.667	19.47	2.667	7.59	3.67	5.16
0.750	10.32	1.750	14.82	2.750	7.00	3.75	4.92
0.833	10.32	1.833	14.82	2.833	7.00	3.83	4.92
0.917	14.09	1.917	12.20	2.917	6.51	3.92	4.71
1.000	14.09	2.000	12.20	3.000	6.51	4.00	4.71

Max.Eff.Inten.(mm/hr)=	147.65	139.59		
over (min)	5.00	5.00		
Storage Coeff. (min)=	1.02 (ii)	3.82 (ii)		
Unit Hyd. Tpeak (min)=	5.00	5.00		
Unit Hyd. peak (cms)=	0.34	0.25		
			TOTALS	
PEAK FLOW (cms)=	0.04	0.03	0.069 (iii)	
TIME TO PEAK (hrs)=	1.33	1.33	1.33	
RUNOFF VOLUME (mm)=	61.99	34.09	44.13	
TOTAL RAINFALL (mm)=	63.99	63.99	63.99	
RUNOFF COEFFICIENT =	0.97	0.53	0.69	

***** 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 (0206)	Area (ha)=	0.18			
ID= 1 DT= 5.0 min	Total Imp(%)=	66.00	Dir. Conn.(%)=	60.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.12	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	34.64	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	5.56	1.083	25.91	2.083	10.48	3.08	6.10
0.167	5.56	1.167	25.91	2.167	10.48	3.17	6.10
0.250	6.22	1.250	147.65	2.250	9.25	3.25	5.74
0.333	6.22	1.333	147.65	2.333	9.25	3.33	5.74
0.417	7.09	1.417	31.06	2.417	8.32	3.42	5.43
0.500	7.09	1.500	31.06	2.500	8.32	3.50	5.43
0.583	8.34	1.583	19.47	2.583	7.59	3.58	5.16
0.667	8.34	1.667	19.47	2.667	7.59	3.67	5.16
0.750	10.32	1.750	14.82	2.750	7.00	3.75	4.92
0.833	10.32	1.833	14.82	2.833	7.00	3.83	4.92
0.917	14.09	1.917	12.20	2.917	6.51	3.92	4.71
1.000	14.09	2.000	12.20	3.000	6.51	4.00	4.71

Max.Eff.Inten.(mm/hr)=		147.65	65.36	
over (min)		5.00	5.00	
Storage Coeff. (min)=		0.94 (ii)	3.20 (ii)	
Unit Hyd. Tpeak (min)=		5.00	5.00	
Unit Hyd. peak (cms)=		0.34	0.27	
				TOTALS
PEAK FLOW	(cms)=	0.04	0.01	0.056 (iii)
TIME TO PEAK	(hrs)=	1.33	1.33	1.33
RUNOFF VOLUME	(mm)=	61.99	26.32	47.72
TOTAL RAINFALL	(mm)=	63.99	63.99	63.99
RUNOFF COEFFICIENT	=	0.97	0.41	0.75

***** 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)= 0.08

|ID= 1 DT= 5.0 min | Total Imp(%)= 69.00 Dir. Conn.(%)= 38.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.02
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	23.09	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	5.56	1.083	25.91	2.083	10.48	3.08	6.10
0.167	5.56	1.167	25.91	2.167	10.48	3.17	6.10
0.250	6.22	1.250	147.65	2.250	9.25	3.25	5.74
0.333	6.22	1.333	147.65	2.333	9.25	3.33	5.74
0.417	7.09	1.417	31.06	2.417	8.32	3.42	5.43
0.500	7.09	1.500	31.06	2.500	8.32	3.50	5.43
0.583	8.34	1.583	19.47	2.583	7.59	3.58	5.16
0.667	8.34	1.667	19.47	2.667	7.59	3.67	5.16
0.750	10.32	1.750	14.82	2.750	7.00	3.75	4.92
0.833	10.32	1.833	14.82	2.833	7.00	3.83	4.92
0.917	14.09	1.917	12.20	2.917	6.51	3.92	4.71
1.000	14.09	2.000	12.20	3.000	6.51	4.00	4.71

Max.Eff.Inten.(mm/hr)=		147.65	161.20	
over (min)		5.00	5.00	
Storage Coeff. (min)=		0.74 (ii)	3.35 (ii)	
Unit Hyd. Tpeak (min)=		5.00	5.00	
Unit Hyd. peak (cms)=		0.34	0.26	
				TOTALS
PEAK FLOW	(cms)=	0.01	0.01	0.024 (iii)
TIME TO PEAK	(hrs)=	1.33	1.33	1.33
RUNOFF VOLUME	(mm)=	61.99	35.64	45.64
TOTAL RAINFALL	(mm)=	63.99	63.99	63.99
RUNOFF COEFFICIENT	=	0.97	0.56	0.71

***** 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 (0205)
ID= 1 DT= 5.0 min

Area (ha)= 0.23
Total Imp(%)= 64.00 Dir. Conn.(%)= 37.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	39.16	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	5.56	1.083	25.91	2.083	10.48	3.08	6.10
0.167	5.56	1.167	25.91	2.167	10.48	3.17	6.10
0.250	6.22	1.250	147.65	2.250	9.25	3.25	5.74
0.333	6.22	1.333	147.65	2.333	9.25	3.33	5.74
0.417	7.09	1.417	31.06	2.417	8.32	3.42	5.43
0.500	7.09	1.500	31.06	2.500	8.32	3.50	5.43
0.583	8.34	1.583	19.47	2.583	7.59	3.58	5.16
0.667	8.34	1.667	19.47	2.667	7.59	3.67	5.16
0.750	10.32	1.750	14.82	2.750	7.00	3.75	4.92
0.833	10.32	1.833	14.82	2.833	7.00	3.83	4.92
0.917	14.09	1.917	12.20	2.917	6.51	3.92	4.71
1.000	14.09	2.000	12.20	3.000	6.51	4.00	4.71

Max.Eff.Inten.(mm/hr)		147.65	129.93	
	over (min)	5.00	5.00	
Storage Coeff.	(min)=	1.01 (ii)	3.81 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	0.34	0.25	
				TOTALS
PEAK FLOW	(cms)=	0.03	0.03	0.065 (iii)
TIME TO PEAK	(hrs)=	1.33	1.33	1.33
RUNOFF VOLUME	(mm)=	61.99	33.33	43.93
TOTAL RAINFALL	(mm)=	63.99	63.99	63.99
RUNOFF COEFFICIENT	=	0.97	0.52	0.69

***** 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.

ADD HYD (0904)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0203):	0.08	0.024	1.33	45.64
+ ID2= 2 (0204):	0.24	0.069	1.33	44.13
ID = 3 (0904):	0.32	0.093	1.33	44.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0904)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0904):	0.32	0.093	1.33	44.51
+ ID2= 2 (0205):	0.23	0.065	1.33	43.93
ID = 1 (0904):	0.55	0.158	1.33	44.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0904)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0904):	0.55	0.158	1.33	44.27
+ ID2= 2 (0206):	0.18	0.056	1.33	47.72
ID = 3 (0904):	0.73	0.215	1.33	45.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0304)
ID= 1 DT= 5.0 min

Area (ha)= 0.23
Total Imp(%)= 31.00 Dir. Conn.(%)= 5.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.16
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	0.50
Length	(m)=	39.16	100.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	5.56	1.083	25.91	2.083	10.48	3.08	6.10
0.167	5.56	1.167	25.91	2.167	10.48	3.17	6.10
0.250	6.22	1.250	147.65	2.250	9.25	3.25	5.74
0.333	6.22	1.333	147.65	2.333	9.25	3.33	5.74
0.417	7.09	1.417	31.06	2.417	8.32	3.42	5.43
0.500	7.09	1.500	31.06	2.500	8.32	3.50	5.43
0.583	8.34	1.583	19.47	2.583	7.59	3.58	5.16
0.667	8.34	1.667	19.47	2.667	7.59	3.67	5.16
0.750	10.32	1.750	14.82	2.750	7.00	3.75	4.92
0.833	10.32	1.833	14.82	2.833	7.00	3.83	4.92
0.917	14.09	1.917	12.20	2.917	6.51	3.92	4.71
1.000	14.09	2.000	12.20	3.000	6.51	4.00	4.71

Max.Eff.Inten.(mm/hr)=	147.65	48.02		
over (min)	5.00	30.00		
Storage Coeff. (min)=	1.01 (ii)	25.87 (ii)		
Unit Hyd. Tpeak (min)=	5.00	30.00		
Unit Hyd. peak (cms)=	0.34	0.04		
			TOTALS	
PEAK FLOW (cms)=	0.00	0.01	0.013 (iii)	
TIME TO PEAK (hrs)=	1.33	1.75	1.75	
RUNOFF VOLUME (mm)=	61.99	29.11	30.69	
TOTAL RAINFALL (mm)=	63.99	63.99	63.99	
RUNOFF COEFFICIENT =	0.97	0.45	0.48	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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.

ADD HYD (0906)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	0.29	0.017	1.58	25.58
+ ID2= 2 (0304):	0.23	0.013	1.75	30.69
ID = 3 (0906):	0.52	0.028	1.67	27.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0906)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0906):	0.52	0.028	1.67	27.84
+ ID2= 2 (0904):	0.73	0.215	1.33	45.12
ID = 1 (0906):	1.25	0.230	1.33	37.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB / STANDHYD (0201) / ID= 1 DT= 5.0 min	Area (ha)= 0.23	Total Imp(%)= 38.00	Dir. Conn.(%)= 5.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.14
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	0.70
Length	(m)=	39.16	160.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	5.56	1.083	25.91	2.083	10.48	3.08	6.10
0.167	5.56	1.167	25.91	2.167	10.48	3.17	6.10
0.250	6.22	1.250	147.65	2.250	9.25	3.25	5.74
0.333	6.22	1.333	147.65	2.333	9.25	3.33	5.74
0.417	7.09	1.417	31.06	2.417	8.32	3.42	5.43
0.500	7.09	1.500	31.06	2.500	8.32	3.50	5.43
0.583	8.34	1.583	19.47	2.583	7.59	3.58	5.16
0.667	8.34	1.667	19.47	2.667	7.59	3.67	5.16
0.750	10.32	1.750	14.82	2.750	7.00	3.75	4.92
0.833	10.32	1.833	14.82	2.833	7.00	3.83	4.92
0.917	14.09	1.917	12.20	2.917	6.51	3.92	4.71
1.000	14.09	2.000	12.20	3.000	6.51	4.00	4.71

Max.Eff.Inten.(mm/hr)=	147.65	51.12	
over (min)	5.00	35.00	
Storage Coeff. (min)=	1.01 (ii)	30.07 (ii)	
Unit Hyd. Tpeak (min)=	5.00	35.00	

```
     Unit Hyd. peak  (cms)=       0.34         0.04
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.01          0.012 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.83           1.83
     RUNOFF VOLUME    (mm)=      61.99        31.00          32.48
     TOTAL RAINFALL   (mm)=      63.99        63.99          63.99
     RUNOFF COEFFICIENT   =       0.97         0.48           0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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| CALIB            |
| STANDHYD (  0303)|   Area    (ha)=   0.33
|ID= 1 DT= 5.0 min |   Total Imp(%)=  30.00   Dir. Conn.(%)=   5.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.10         0.23
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         0.70
     Length            (m)=      46.90       160.00
     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    5.56 | 1.083   25.91 | 2.083   10.48 |  3.08    6.10
               0.167    5.56 | 1.167   25.91 | 2.167   10.48 |  3.17    6.10
               0.250    6.22 | 1.250  147.65 | 2.250    9.25 |  3.25    5.74
               0.333    6.22 | 1.333  147.65 | 2.333    9.25 |  3.33    5.74
               0.417    7.09 | 1.417   31.06 | 2.417    8.32 |  3.42    5.43
               0.500    7.09 | 1.500   31.06 | 2.500    8.32 |  3.50    5.43
               0.583    8.34 | 1.583   19.47 | 2.583    7.59 |  3.58    5.16
               0.667    8.34 | 1.667   19.47 | 2.667    7.59 |  3.67    5.16
               0.750   10.32 | 1.750   14.82 | 2.750    7.00 |  3.75    4.92
               0.833   10.32 | 1.833   14.82 | 2.833    7.00 |  3.83    4.92
               0.917   14.09 | 1.917   12.20 | 2.917    6.51 |  3.92    4.71
               1.000   14.09 | 2.000   12.20 | 3.000    6.51 |  4.00    4.71
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     Max.Eff.Inten.(mm/hr)=     147.65        37.65
               over (min)          5.00        35.00
     Storage Coeff.  (min)=       1.13 (ii)   33.96 (ii)
     Unit Hyd. Tpeak (min)=       5.00        35.00
     Unit Hyd. peak  (cms)=       0.34         0.03
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.01          0.015 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.83           1.83
     RUNOFF VOLUME    (mm)=      61.99        28.85          30.45
     TOTAL RAINFALL   (mm)=      63.99        63.99          63.99
     RUNOFF COEFFICIENT   =       0.97         0.45           0.48

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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| ADD HYD  (  0903)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0201):     0.23   0.012     1.83    32.48
     + ID2= 2 (  0303):     0.33   0.015     1.83    30.45
       ================================================
       ID = 3 (  0903):     0.56   0.027     1.83    31.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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       V    V   I    SSSSS  U   U    A    L              (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

Output filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\1195d7bc-acaa-4e99-aa64-42996d55ac10\sc
Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\1195d7bc-acaa-4e99-aa64-42996d55ac10\sc

DATE: 07/25/2023 TIME: 09:00:16

USER:

COMMENTS: _____

** SIMULATION : (7) 100 Year Design Storm - C **

CHICAGO STORM	Ptotal= 70.36 mm

IDF curve parameters: A= 811.794
B= 0.000
C= 0.699
used in: INTENSITY = A / (t + B)^C

Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.35

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	6.12	1.17	28.48	2.17	11.52	3.17	6.70
0.33	6.83	1.33	162.35	2.33	10.17	3.33	6.31
0.50	7.80	1.50	34.15	2.50	9.15	3.50	5.97
0.67	9.17	1.67	21.41	2.67	8.35	3.67	5.68
0.83	11.35	1.83	16.30	2.83	7.70	3.83	5.41
1.00	15.49	2.00	13.41	3.00	7.16	4.00	5.17

CALIB NASHYD (0202) ID= 1 DT= 5.0 min	Area (ha)= 0.29 Curve Number (CN)= 76.5 Ia (mm)= 4.71 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.30

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.12	1.083	28.48	2.083	11.52	3.08	6.70
0.167	6.12	1.167	28.48	2.167	11.52	3.17	6.70
0.250	6.83	1.250	162.35	2.250	10.17	3.25	6.31
0.333	6.83	1.333	162.35	2.333	10.17	3.33	6.31
0.417	7.80	1.417	34.15	2.417	9.15	3.42	5.97
0.500	7.80	1.500	34.15	2.500	9.15	3.50	5.97
0.583	9.17	1.583	21.41	2.583	8.35	3.58	5.68
0.667	9.17	1.667	21.41	2.667	8.35	3.67	5.68
0.750	11.35	1.750	16.30	2.750	7.70	3.75	5.41
0.833	11.35	1.833	16.30	2.833	7.70	3.83	5.41
0.917	15.49	1.917	13.41	2.917	7.16	3.92	5.17
1.000	15.49	2.000	13.41	3.000	7.16	4.00	5.17

Unit Hyd Qpeak (cms)= 0.037

PEAK FLOW (cms)= 0.020 (i)
TIME TO PEAK (hrs)= 1.583
RUNOFF VOLUME (mm)= 29.985
TOTAL RAINFALL (mm)= 70.362
RUNOFF COEFFICIENT = 0.426

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

CALIB STANDHYD (0204) ID= 1 DT= 5.0 min	Area (ha)= 0.24 Total Imp(%)= 65.00 Dir. Conn.(%)= 36.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	40.00	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.12	1.083	28.48	2.083	11.52	3.08	6.70
0.167	6.12	1.167	28.48	2.167	11.52	3.17	6.70
0.250	6.83	1.250	162.35	2.250	10.17	3.25	6.31
0.333	6.83	1.333	162.35	2.333	10.17	3.33	6.31
0.417	7.80	1.417	34.15	2.417	9.15	3.42	5.97
0.500	7.80	1.500	34.15	2.500	9.15	3.50	5.97
0.583	9.17	1.583	21.41	2.583	8.35	3.58	5.68
0.667	9.17	1.667	21.41	2.667	8.35	3.67	5.68
0.750	11.35	1.750	16.30	2.750	7.70	3.75	5.41
0.833	11.35	1.833	16.30	2.833	7.70	3.83	5.41
0.917	15.49	1.917	13.41	2.917	7.16	3.92	5.17
1.000	15.49	2.000	13.41	3.000	7.16	4.00	5.17

Max.Eff.Inten.(mm/hr)=	162.35	162.55	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.99 (ii)	3.68 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.25	
			TOTALS
PEAK FLOW (cms)=	0.04	0.04	0.078 (iii)
TIME TO PEAK (hrs)=	1.33	1.33	1.33
RUNOFF VOLUME (mm)=	68.36	39.28	49.74
TOTAL RAINFALL (mm)=	70.36	70.36	70.36
RUNOFF COEFFICIENT =	0.97	0.56	0.71

***** 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 (0206) | Area (ha)= 0.18
ID= 1 DT= 5.0 min | Total Imp(%)= 66.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.12	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	34.64	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.12	1.083	28.48	2.083	11.52	3.08	6.70
0.167	6.12	1.167	28.48	2.167	11.52	3.17	6.70
0.250	6.83	1.250	162.35	2.250	10.17	3.25	6.31
0.333	6.83	1.333	162.35	2.333	10.17	3.33	6.31
0.417	7.80	1.417	34.15	2.417	9.15	3.42	5.97
0.500	7.80	1.500	34.15	2.500	9.15	3.50	5.97
0.583	9.17	1.583	21.41	2.583	8.35	3.58	5.68
0.667	9.17	1.667	21.41	2.667	8.35	3.67	5.68
0.750	11.35	1.750	16.30	2.750	7.70	3.75	5.41
0.833	11.35	1.833	16.30	2.833	7.70	3.83	5.41
0.917	15.49	1.917	13.41	2.917	7.16	3.92	5.17
1.000	15.49	2.000	13.41	3.000	7.16	4.00	5.17

Max.Eff.Inten.(mm/hr)=	162.35	77.53	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.90 (ii)	3.08 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.27	
			TOTALS
PEAK FLOW (cms)=	0.05	0.01	0.063 (iii)
TIME TO PEAK (hrs)=	1.33	1.33	1.33
RUNOFF VOLUME (mm)=	68.36	30.79	53.33
TOTAL RAINFALL (mm)=	70.36	70.36	70.36
RUNOFF COEFFICIENT =	0.97	0.44	0.76

***** 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)= 0.08
ID= 1 DT= 5.0 min | Total Imp(%)= 69.00 Dir. Conn.(%)= 38.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.02
Dep. Storage	(mm)=	2.00	5.00

Average Slope	(%)=	2.00	1.00
Length	(m)=	23.09	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.12	1.083	28.48	2.083	11.52	3.08	6.70
0.167	6.12	1.167	28.48	2.167	11.52	3.17	6.70
0.250	6.83	1.250	162.35	2.250	10.17	3.25	6.31
0.333	6.83	1.333	162.35	2.333	10.17	3.33	6.31
0.417	7.80	1.417	34.15	2.417	9.15	3.42	5.97
0.500	7.80	1.500	34.15	2.500	9.15	3.50	5.97
0.583	9.17	1.583	21.41	2.583	8.35	3.58	5.68
0.667	9.17	1.667	21.41	2.667	8.35	3.67	5.68
0.750	11.35	1.750	16.30	2.750	7.70	3.75	5.41
0.833	11.35	1.833	16.30	2.833	7.70	3.83	5.41
0.917	15.49	1.917	13.41	2.917	7.16	3.92	5.17
1.000	15.49	2.000	13.41	3.000	7.16	4.00	5.17

Max.Eff.Inten.(mm/hr)=		162.35	187.06	
over (min)		5.00	5.00	
Storage Coeff. (min)=		0.71 (ii)	3.22 (ii)	
Unit Hyd. Tpeak (min)=		5.00	5.00	
Unit Hyd. peak (cms)=		0.34	0.27	
				TOTALS
PEAK FLOW	(cms)=	0.01	0.01	0.027 (iii)
TIME TO PEAK	(hrs)=	1.33	1.33	1.33
RUNOFF VOLUME	(mm)=	68.36	40.94	51.35
TOTAL RAINFALL	(mm)=	70.36	70.36	70.36
RUNOFF COEFFICIENT	=	0.97	0.58	0.73

***** 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 (0205)	Area (ha)= 0.23
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 37.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.15	0.08
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	2.00	1.00
Length (m)=	39.16	8.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.12	1.083	28.48	2.083	11.52	3.08	6.70
0.167	6.12	1.167	28.48	2.167	11.52	3.17	6.70
0.250	6.83	1.250	162.35	2.250	10.17	3.25	6.31
0.333	6.83	1.333	162.35	2.333	10.17	3.33	6.31
0.417	7.80	1.417	34.15	2.417	9.15	3.42	5.97
0.500	7.80	1.500	34.15	2.500	9.15	3.50	5.97
0.583	9.17	1.583	21.41	2.583	8.35	3.58	5.68
0.667	9.17	1.667	21.41	2.667	8.35	3.67	5.68
0.750	11.35	1.750	16.30	2.750	7.70	3.75	5.41
0.833	11.35	1.833	16.30	2.833	7.70	3.83	5.41
0.917	15.49	1.917	13.41	2.917	7.16	3.92	5.17
1.000	15.49	2.000	13.41	3.000	7.16	4.00	5.17

Max.Eff.Inten.(mm/hr)=		162.35	151.56	
over (min)		5.00	5.00	
Storage Coeff. (min)=		0.97 (ii)	3.67 (ii)	
Unit Hyd. Tpeak (min)=		5.00	5.00	
Unit Hyd. peak (cms)=		0.34	0.25	
				TOTALS
PEAK FLOW	(cms)=	0.04	0.04	0.074 (iii)
TIME TO PEAK	(hrs)=	1.33	1.33	1.33
RUNOFF VOLUME	(mm)=	68.36	38.45	49.52
TOTAL RAINFALL	(mm)=	70.36	70.36	70.36
RUNOFF COEFFICIENT	=	0.97	0.55	0.70

***** 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.

ADD HYD (0904)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.

```
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0203):     0.08   0.027     1.33    51.35
      + ID2= 2 (  0204):     0.24   0.078     1.33    49.74
        ================================================
        ID = 3 (  0904):     0.32   0.105     1.33    50.15

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

--------------------
| ADD HYD  (  0904)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0904):     0.32   0.105     1.33    50.15
      + ID2= 2 (  0205):     0.23   0.074     1.33    49.52
        ================================================
        ID = 1 (  0904):     0.55   0.179     1.33    49.88

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

--------------------
| ADD HYD  (  0904)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0904):     0.55   0.179     1.33    49.88
      + ID2= 2 (  0206):     0.18   0.063     1.33    53.33
        ================================================
        ID = 3 (  0904):     0.73   0.242     1.33    50.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0304)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  31.00   Dir. Conn.(%)=   5.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.16
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         0.50
     Length            (m)=      39.16       100.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    6.12 | 1.083   28.48 | 2.083   11.52 |  3.08    6.70
                0.167    6.12 | 1.167   28.48 | 2.167   11.52 |  3.17    6.70
                0.250    6.83 | 1.250  162.35 | 2.250   10.17 |  3.25    6.31
                0.333    6.83 | 1.333  162.35 | 2.333   10.17 |  3.33    6.31
                0.417    7.80 | 1.417   34.15 | 2.417    9.15 |  3.42    5.97
                0.500    7.80 | 1.500   34.15 | 2.500    9.15 |  3.50    5.97
                0.583    9.17 | 1.583   21.41 | 2.583    8.35 |  3.58    5.68
                0.667    9.17 | 1.667   21.41 | 2.667    8.35 |  3.67    5.68
                0.750   11.35 | 1.750   16.30 | 2.750    7.70 |  3.75    5.41
                0.833   11.35 | 1.833   16.30 | 2.833    7.70 |  3.83    5.41
                0.917   15.49 | 1.917   13.41 | 2.917    7.16 |  3.92    5.17
                1.000   15.49 | 2.000   13.41 | 3.000    7.16 |  4.00    5.17

     Max.Eff.Inten.(mm/hr)=     162.35        56.27
               over (min)        5.00        25.00
     Storage Coeff.  (min)=       0.97 (ii)   24.31 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.34         0.05
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.02          0.016 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.67           1.67
     RUNOFF VOLUME    (mm)=      68.36        33.85          35.52
     TOTAL RAINFALL   (mm)=      70.36        70.36          70.36
     RUNOFF COEFFICIENT   =       0.97         0.48           0.50

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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--------------------
| ADD HYD  (  0906)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0202):     0.29   0.020     1.58    29.99
      + ID2= 2 (  0304):     0.23   0.016     1.67    35.52
        ================================================
        ID = 3 (  0906):     0.52   0.035     1.67    32.43

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ADD HYD  (  0906)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0906):     0.52   0.035     1.67    32.43
     + ID2= 2 (  0904):     0.73   0.242     1.33    50.73
       ================================================
       ID = 1 (  0906):     1.25   0.261     1.33    43.12

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=   5.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.09         0.14
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         0.70
     Length            (m)=      39.16       160.00
     Mannings n           =      0.013        0.250

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


                         ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    6.12 | 1.083   28.48 | 2.083   11.52 |  3.08    6.70
              0.167    6.12 | 1.167   28.48 | 2.167   11.52 |  3.17    6.70
              0.250    6.83 | 1.250  162.35 | 2.250   10.17 |  3.25    6.31
              0.333    6.83 | 1.333  162.35 | 2.333   10.17 |  3.33    6.31
              0.417    7.80 | 1.417   34.15 | 2.417    9.15 |  3.42    5.97
              0.500    7.80 | 1.500   34.15 | 2.500    9.15 |  3.50    5.97
              0.583    9.17 | 1.583   21.41 | 2.583    8.35 |  3.58    5.68
              0.667    9.17 | 1.667   21.41 | 2.667    8.35 |  3.67    5.68
              0.750   11.35 | 1.750   16.30 | 2.750    7.70 |  3.75    5.41
              0.833   11.35 | 1.833   16.30 | 2.833    7.70 |  3.83    5.41
              0.917   15.49 | 1.917   13.41 | 2.917    7.16 |  3.92    5.17
              1.000   15.49 | 2.000   13.41 | 3.000    7.16 |  4.00    5.17

     Max.Eff.Inten.(mm/hr)=     162.35        59.58
               over (min)         5.00        30.00
     Storage Coeff.  (min)=       0.97 (ii)   28.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.34         0.04
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.01         0.015 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.75          1.75
     RUNOFF VOLUME    (mm)=      68.36        35.92         37.47
     TOTAL RAINFALL   (mm)=      70.36        70.36         70.36
     RUNOFF COEFFICIENT   =       0.97         0.51          0.53

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
             YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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 (  0303)|   Area    (ha)=   0.33
|ID= 1 DT= 5.0 min |   Total Imp(%)=  30.00   Dir. Conn.(%)=   5.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.10         0.23
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         0.70
     Length            (m)=      46.90       160.00
     Mannings n           =      0.013        0.250

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


                         ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    6.12 | 1.083   28.48 | 2.083   11.52 |  3.08    6.70
              0.167    6.12 | 1.167   28.48 | 2.167   11.52 |  3.17    6.70
              0.250    6.83 | 1.250  162.35 | 2.250   10.17 |  3.25    6.31
              0.333    6.83 | 1.333  162.35 | 2.333   10.17 |  3.33    6.31
              0.417    7.80 | 1.417   34.15 | 2.417    9.15 |  3.42    5.97
              0.500    7.80 | 1.500   34.15 | 2.500    9.15 |  3.50    5.97
              0.583    9.17 | 1.583   21.41 | 2.583    8.35 |  3.58    5.68
              0.667    9.17 | 1.667   21.41 | 2.667    8.35 |  3.67    5.68
              0.750   11.35 | 1.750   16.30 | 2.750    7.70 |  3.75    5.41
              0.833   11.35 | 1.833   16.30 | 2.833    7.70 |  3.83    5.41
              0.917   15.49 | 1.917   13.41 | 2.917    7.16 |  3.92    5.17
              1.000   15.49 | 2.000   13.41 | 3.000    7.16 |  4.00    5.17

     Max.Eff.Inten.(mm/hr)=     162.35        48.95
               over (min)         5.00        35.00
     Storage Coeff.  (min)=       1.09 (ii)   30.65 (ii)
     Unit Hyd. Tpeak (min)=       5.00        35.00
     Unit Hyd. peak  (cms)=       0.34         0.04
```

```
                                                  *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.02          0.019 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.83           1.83
     RUNOFF VOLUME    (mm)=      68.36        33.57          35.26
     TOTAL RAINFALL   (mm)=      70.36        70.36          70.36
     RUNOFF COEFFICIENT   =       0.97         0.48           0.50

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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--------------------
| ADD HYD  (  0903)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0201):     0.23   0.015     1.75    37.47
      + ID2= 2 (  0303):     0.33   0.019     1.83    35.26
        ================================================
        ID = 3 (  0903):     0.56   0.033     1.83    36.17

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

       V    V   I    SSSSS  U   U    A    L             (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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

```
  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\5de
6679f-3b8b-4a52-8420-01fbfa132d6f\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\5de
6679f-3b8b-4a52-8420-01fbfa132d6f\sc


DATE: 07/25/2023                          TIME: 09:00:16

USER:



COMMENTS: _____________________________________________________________

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  ***********************************************
  ** SIMULATION : (8) Timmins Design Storm      **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\JBirchard\AppD
|                  |              ata\Local\Temp\
|                  |              3eb8d076-4e62-4c3a-b26f-53c9bf58a78b\3c4d485d
| Ptotal=193.00 mm |    Comments: TIMMINS
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                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   15.00 |  4.00    3.00 |  7.00   43.00 | 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   20.00 |  5.00    5.00 |  8.00   20.00 | 11.00   13.00
                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
                3.00   10.00 |  6.00   20.00 |  9.00   23.00 | 12.00    8.00

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--------------------
| CALIB            |
| NASHYD   (  0202)|   Area    (ha)=   0.29   Curve Number   (CN)= 76.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.71   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.30
```

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	15.00	3.083	3.00	6.083	43.00	9.08	13.00
0.167	15.00	3.167	3.00	6.167	43.00	9.17	13.00
0.250	15.00	3.250	3.00	6.250	43.00	9.25	13.00
0.333	15.00	3.333	3.00	6.333	43.00	9.33	13.00
0.417	15.00	3.417	3.00	6.417	43.00	9.42	13.00
0.500	15.00	3.500	3.00	6.500	43.00	9.50	13.00
0.583	15.00	3.583	3.00	6.583	43.00	9.58	13.00
0.667	15.00	3.667	3.00	6.667	43.00	9.67	13.00
0.750	15.00	3.750	3.00	6.750	43.00	9.75	13.00
0.833	15.00	3.833	3.00	6.833	43.00	9.83	13.00
0.917	15.00	3.917	3.00	6.917	43.00	9.92	13.00
1.000	15.00	4.000	3.00	7.000	43.00	10.00	13.00
1.083	20.00	4.083	5.00	7.083	20.00	10.08	13.00
1.167	20.00	4.167	5.00	7.167	20.00	10.17	13.00
1.250	20.00	4.250	5.00	7.250	20.00	10.25	13.00
1.333	20.00	4.333	5.00	7.333	20.00	10.33	13.00
1.417	20.00	4.417	5.00	7.417	20.00	10.42	13.00
1.500	20.00	4.500	5.00	7.500	20.00	10.50	13.00
1.583	20.00	4.583	5.00	7.583	20.00	10.58	13.00
1.667	20.00	4.667	5.00	7.667	20.00	10.67	13.00
1.750	20.00	4.750	5.00	7.750	20.00	10.75	13.00
1.833	20.00	4.833	5.00	7.833	20.00	10.83	13.00
1.917	20.00	4.917	5.00	7.917	20.00	10.92	13.00
2.000	20.00	5.000	5.00	8.000	20.00	11.00	13.00
2.083	10.00	5.083	20.00	8.083	23.00	11.08	8.00
2.167	10.00	5.167	20.00	8.167	23.00	11.17	8.00
2.250	10.00	5.250	20.00	8.250	23.00	11.25	8.00
2.333	10.00	5.333	20.00	8.333	23.00	11.33	8.00
2.417	10.00	5.417	20.00	8.417	23.00	11.42	8.00
2.500	10.00	5.500	20.00	8.500	23.00	11.50	8.00
2.583	10.00	5.583	20.00	8.583	23.00	11.58	8.00
2.667	10.00	5.667	20.00	8.667	23.00	11.67	8.00
2.750	10.00	5.750	20.00	8.750	23.00	11.75	8.00
2.833	10.00	5.833	20.00	8.833	23.00	11.83	8.00
2.917	10.00	5.917	20.00	8.917	23.00	11.92	8.00
3.000	10.00	6.000	20.00	9.000	23.00	12.00	8.00

Unit Hyd Qpeak (cms)= 0.037

PEAK FLOW (cms)= 0.027 (i)
TIME TO PEAK (hrs)= 7.000
RUNOFF VOLUME (mm)= 133.070
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.689

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

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| CALIB            |
| STANDHYD (  0204)|   Area    (ha)=   0.24
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  36.00
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		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	40.00	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	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	71.17		
over (min)	5.00	10.00		
Storage Coeff. (min)=	1.68 (ii)	6.26 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.32	0.15		
			TOTALS	
PEAK FLOW (cms)=	0.01	0.02	0.027 (iii)	
TIME TO PEAK (hrs)=	6.50	7.00	7.00	
RUNOFF VOLUME (mm)=	191.00	151.42	165.66	
TOTAL RAINFALL (mm)=	193.00	193.00	193.00	
RUNOFF COEFFICIENT =	0.99	0.78	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 (0206)	Area (ha)= 0.18
ID= 1 DT= 5.0 min	Total Imp(%)= 66.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.12	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	34.64	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	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	41.99		
over (min)	5.00	10.00		
Storage Coeff. (min)=	1.54 (ii)	5.23 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.33	0.16		
			TOTALS	
PEAK FLOW (cms)=	0.01	0.01	0.020 (iii)	
TIME TO PEAK (hrs)=	6.50	7.00	7.00	
RUNOFF VOLUME (mm)=	191.00	134.64	168.44	

TOTAL RAINFALL (mm)=	193.00	193.00	193.00
RUNOFF COEFFICIENT =	0.99	0.70	0.87

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0203)	Area (ha)= 0.08
ID= 1 DT= 5.0 min	Total Imp(%)= 69.00 Dir. Conn.(%)= 38.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.02
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	23.09	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

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

				TOTALS
Max.Eff.Inten.(mm/hr)=	43.00	78.83		
over (min)	5.00	10.00		
Storage Coeff. (min)=	1.21 (ii)	5.48 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.33	0.16		
PEAK FLOW (cms)=	0.00	0.01		0.009 (iii)
TIME TO PEAK (hrs)=	6.50	7.00		7.00
RUNOFF VOLUME (mm)=	191.00	154.35		168.24
TOTAL RAINFALL (mm)=	193.00	193.00		193.00
RUNOFF COEFFICIENT =	0.99	0.80		0.87

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0205)	Area (ha)= 0.23
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 37.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	39.16	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	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	67.65	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.66 (ii)	6.24 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.32	0.15	
			TOTALS
PEAK FLOW (cms)=	0.01	0.02	0.026 (iii)
TIME TO PEAK (hrs)=	6.50	7.00	7.00
RUNOFF VOLUME (mm)=	191.00	149.93	165.10
TOTAL RAINFALL (mm)=	193.00	193.00	193.00
RUNOFF COEFFICIENT =	0.99	0.78	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.

ADD HYD (0904)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0203):	0.08	0.009	7.00	168.24
+ ID2= 2 (0204):	0.24	0.027	7.00	165.66
ID = 3 (0904):	0.32	0.036	7.00	166.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0904)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0904):	0.32	0.036	7.00	166.31
+ ID2= 2 (0205):	0.23	0.026	7.00	165.10
ID = 1 (0904):	0.55	0.062	7.00	165.80

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0904)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0904):	0.55	0.062	7.00	165.80
+ ID2= 2 (0206):	0.18	0.020	7.00	168.44
ID = 3 (0904):	0.73	0.082	7.00	166.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD (  0304)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  31.00   Dir. Conn.(%)=   5.00
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                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.16
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         0.50
     Length            (m)=      39.16       100.00
     Mannings n             =    0.013        0.250

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	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        50.39
               over (min)         5.00        30.00
     Storage Coeff.  (min)=       1.66 (ii)   26.04 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.32         0.04
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.02          0.020 (iii)
     TIME TO PEAK    (hrs)=       6.50         7.08          7.00
     RUNOFF VOLUME    (mm)=     191.00       141.08        143.51
     TOTAL RAINFALL   (mm)=     193.00       193.00        193.00
     RUNOFF COEFFICIENT   =       0.99         0.73          0.74

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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

--------------------
| ADD HYD  (  0906)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0202):     0.29   0.027     7.00   133.07
     + ID2= 2 (  0304):     0.23   0.020     7.00   143.51
       ==================================================
       ID = 3 (  0906):     0.52   0.047     7.00   137.69

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

--------------------
| ADD HYD  (  0906)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0906):     0.52   0.047     7.00   137.69
     + ID2= 2 (  0904):     0.73   0.082     7.00   166.45
       ==================================================
       ID = 1 (  0906):     1.25   0.129     7.00   154.49
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0201)	Area (ha)=	0.23	
ID= 1 DT= 5.0 min	Total Imp(%)=	38.00	Dir. Conn.(%)= 5.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.14
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	0.70
Length	(m)=	39.16	160.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

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

				TOTALS
Max.Eff.Inten.(mm/hr)=		43.00	57.14	
over (min)		5.00	30.00	
Storage Coeff. (min)=		1.66 (ii)	29.45 (ii)	
Unit Hyd. Tpeak (min)=		5.00	30.00	
Unit Hyd. peak (cms)=		0.32	0.04	
PEAK FLOW	(cms)=	0.00	0.02	0.020 (iii)
TIME TO PEAK	(hrs)=	6.50	7.17	7.00
RUNOFF VOLUME	(mm)=	191.00	145.17	147.40
TOTAL RAINFALL	(mm)=	193.00	193.00	193.00
RUNOFF COEFFICIENT	=	0.99	0.75	0.76

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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 (0303)	Area (ha)=	0.33	
ID= 1 DT= 5.0 min	Total Imp(%)=	30.00	Dir. Conn.(%)= 5.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.10	0.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	0.70
Length	(m)=	46.90	160.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	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	49.31	
over (min)	5.00	35.00	
Storage Coeff. (min)=	1.85 (ii)	31.33 (ii)	
Unit Hyd. Tpeak (min)=	5.00	35.00	
Unit Hyd. peak (cms)=	0.32	0.03	
			TOTALS
PEAK FLOW (cms)=	0.00	0.03	0.027 (iii)
TIME TO PEAK (hrs)=	6.50	7.17	7.00
RUNOFF VOLUME (mm)=	191.00	140.51	142.98
TOTAL RAINFALL (mm)=	193.00	193.00	193.00
RUNOFF COEFFICIENT =	0.99	0.73	0.74

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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.

ADD HYD (0903) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0201):	0.23	0.020	7.00	147.40
+ ID2= 2 (0303):	0.33	0.027	7.00	142.98
ID = 3 (0903):	0.56	0.048	7.00	144.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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       V    V   I    SSSSS  U   U    A    L             (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\190
1cb87-ce4c-48ca-adc4-5c50ee06bf19\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\190
1cb87-ce4c-48ca-adc4-5c50ee06bf19\sc


DATE: 07/25/2023                          TIME: 10:13:53

USER:



COMMENTS: _____________________________________________________________


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  ***********************************************
  ** SIMULATION : (1) 2 Year Design Storm - SCS **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\JBirchard\AppD
|                  |              ata\Local\Temp\
|                  |              ddb5ea80-a20e-4ff4-9c74-beb6735bad9d\7793d5b3
| Ptotal= 54.40 mm |    Comments: 2yr 24hr 15min SCS
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	6.50	0.98	12.75	7.83	19.00	0.98
0.50	0.60	6.75	0.98	13.00	4.03	19.25	0.98
0.75	0.60	7.00	0.98	13.25	4.03	19.50	0.98
1.00	0.60	7.25	0.98	13.50	2.94	19.75	0.98
1.25	0.60	7.50	1.20	13.75	2.94	20.00	0.98
1.50	0.60	7.75	1.20	14.00	2.28	20.25	0.98
1.75	0.60	8.00	1.20	14.25	2.28	20.50	0.65
2.00	0.60	8.25	1.20	14.50	1.63	20.75	0.65
2.25	0.60	8.50	1.41	14.75	1.63	21.00	0.65
2.50	0.71	8.75	1.41	15.00	1.63	21.25	0.65
2.75	0.71	9.00	1.52	15.25	1.63	21.50	0.65
3.00	0.71	9.25	1.52	15.50	1.63	21.75	0.65
3.25	0.71	9.50	1.74	15.75	1.63	22.00	0.65
3.50	0.71	9.75	1.74	16.00	1.63	22.25	0.65
3.75	0.71	10.00	1.96	16.25	1.63	22.50	0.65
4.00	0.71	10.25	1.96	16.50	0.98	22.75	0.65
4.25	0.71	10.50	2.50	16.75	0.98	23.00	0.65
4.50	0.87	10.75	2.50	17.00	0.98	23.25	0.65
4.75	0.87	11.00	3.37	17.25	0.98	23.50	0.65
5.00	0.87	11.25	3.37	17.50	0.98	23.75	0.65
5.25	0.87	11.50	5.22	17.75	0.98	24.00	0.65
5.50	0.87	11.75	5.22	18.00	0.98	24.25	0.65
5.75	0.87	12.00	16.10	18.25	0.98		
6.00	0.87	12.25	66.59	18.50	0.98		
6.25	0.87	12.50	7.83	18.75	0.98		

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| CALIB            |
| STANDHYD (  0303)|   Area    (ha)=   0.33
|ID= 1 DT= 5.0 min |   Total Imp(%)=  30.00   Dir. Conn.(%)=   5.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.10          0.23
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       2.00          0.70
     Length            (m)=      46.90        160.00
     Mannings n             =     0.013         0.250

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

                                  ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
```

hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.167	0.87	12.250	66.59	18.33	0.98
0.167	0.00	6.250	0.87	12.333	7.84	18.42	0.98
0.250	0.00	6.333	0.98	12.417	7.83	18.50	0.98
0.333	0.60	6.417	0.98	12.500	7.83	18.58	0.98
0.417	0.60	6.500	0.98	12.583	7.83	18.67	0.98
0.500	0.60	6.583	0.98	12.667	7.83	18.75	0.98
0.583	0.60	6.667	0.98	12.750	7.83	18.83	0.98
0.667	0.60	6.750	0.98	12.833	4.03	18.92	0.98
0.750	0.60	6.833	0.98	12.917	4.03	19.00	0.98
0.833	0.60	6.917	0.98	13.000	4.03	19.08	0.98
0.917	0.60	7.000	0.98	13.083	4.03	19.17	0.98
1.000	0.60	7.083	0.98	13.167	4.03	19.25	0.98
1.083	0.60	7.167	0.98	13.250	4.03	19.33	0.98
1.167	0.60	7.250	0.98	13.333	2.94	19.42	0.98
1.250	0.60	7.333	1.20	13.417	2.94	19.50	0.98
1.333	0.60	7.417	1.20	13.500	2.94	19.58	0.98
1.417	0.60	7.500	1.20	13.583	2.94	19.67	0.98
1.500	0.60	7.583	1.20	13.667	2.94	19.75	0.98
1.583	0.60	7.667	1.20	13.750	2.94	19.83	0.98
1.667	0.60	7.750	1.20	13.833	2.28	19.92	0.98
1.750	0.60	7.833	1.20	13.917	2.28	20.00	0.98
1.833	0.60	7.917	1.20	14.000	2.28	20.08	0.98
1.917	0.60	8.000	1.20	14.083	2.28	20.17	0.98
2.000	0.60	8.083	1.20	14.167	2.28	20.25	0.98
2.083	0.60	8.167	1.20	14.250	2.28	20.33	0.65
2.167	0.60	8.250	1.20	14.333	1.63	20.42	0.65
2.250	0.60	8.333	1.41	14.417	1.63	20.50	0.65
2.333	0.71	8.417	1.41	14.500	1.63	20.58	0.65
2.417	0.71	8.500	1.41	14.583	1.63	20.67	0.65
2.500	0.71	8.583	1.41	14.667	1.63	20.75	0.65
2.583	0.71	8.667	1.41	14.750	1.63	20.83	0.65
2.667	0.71	8.750	1.41	14.833	1.63	20.92	0.65
2.750	0.71	8.833	1.52	14.917	1.63	21.00	0.65
2.833	0.71	8.917	1.52	15.000	1.63	21.08	0.65
2.917	0.71	9.000	1.52	15.083	1.63	21.17	0.65
3.000	0.71	9.083	1.52	15.167	1.63	21.25	0.65
3.083	0.71	9.167	1.52	15.250	1.63	21.33	0.65
3.167	0.71	9.250	1.52	15.333	1.63	21.42	0.65
3.250	0.71	9.333	1.74	15.417	1.63	21.50	0.65
3.333	0.71	9.417	1.74	15.500	1.63	21.58	0.65
3.417	0.71	9.500	1.74	15.583	1.63	21.67	0.65
3.500	0.71	9.583	1.74	15.667	1.63	21.75	0.65
3.583	0.71	9.667	1.74	15.750	1.63	21.83	0.65
3.667	0.71	9.750	1.74	15.833	1.63	21.92	0.65
3.750	0.71	9.833	1.96	15.917	1.63	22.00	0.65
3.833	0.71	9.917	1.96	16.000	1.63	22.08	0.65
3.917	0.71	10.000	1.96	16.083	1.63	22.17	0.65
4.000	0.71	10.083	1.96	16.167	1.63	22.25	0.65
4.083	0.71	10.167	1.96	16.250	1.63	22.33	0.65
4.167	0.71	10.250	1.96	16.333	0.98	22.42	0.65
4.250	0.71	10.333	2.50	16.417	0.98	22.50	0.65
4.333	0.87	10.417	2.50	16.500	0.98	22.58	0.65
4.417	0.87	10.500	2.50	16.583	0.98	22.67	0.65
4.500	0.87	10.583	2.50	16.667	0.98	22.75	0.65
4.583	0.87	10.667	2.50	16.750	0.98	22.83	0.65
4.667	0.87	10.750	2.50	16.833	0.98	22.92	0.65
4.750	0.87	10.833	3.37	16.917	0.98	23.00	0.65
4.833	0.87	10.917	3.37	17.000	0.98	23.08	0.65
4.917	0.87	11.000	3.37	17.083	0.98	23.17	0.65
5.000	0.87	11.083	3.37	17.167	0.98	23.25	0.65
5.083	0.87	11.167	3.37	17.250	0.98	23.33	0.65
5.167	0.87	11.250	3.37	17.333	0.98	23.42	0.65
5.250	0.87	11.333	5.22	17.417	0.98	23.50	0.65
5.333	0.87	11.417	5.22	17.500	0.98	23.58	0.65
5.417	0.87	11.500	5.22	17.583	0.98	23.67	0.65
5.500	0.87	11.583	5.22	17.667	0.98	23.75	0.65
5.583	0.87	11.667	5.22	17.750	0.98	23.83	0.65
5.667	0.87	11.750	5.22	17.833	0.98	23.92	0.65
5.750	0.87	11.833	16.10	17.917	0.98	24.00	0.65
5.833	0.87	11.917	16.10	18.000	0.98	24.08	0.65
5.917	0.87	12.000	16.10	18.083	0.98	24.17	0.65
6.000	0.87	12.083	66.58	18.167	0.98	24.25	0.65
6.083	0.87	12.167	66.59	18.250	0.98		

Max.Eff.Inten.(mm/hr)=	66.59	18.12	
over (min)	5.00	50.00	
Storage Coeff. (min)=	1.55 (ii)	45.55 (ii)	
Unit Hyd. Tpeak (min)=	5.00	50.00	
Unit Hyd. peak (cms)=	0.33	0.02	
			TOTALS
PEAK FLOW (cms)=	0.00	0.01	0.007 (iii)
TIME TO PEAK (hrs)=	12.25	12.92	12.92
RUNOFF VOLUME (mm)=	52.40	22.08	23.51
TOTAL RAINFALL (mm)=	54.40	54.40	54.40
RUNOFF COEFFICIENT =	0.96	0.41	0.43

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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 (0201)| Area (ha)= 0.23
|ID= 1 DT= 5.0 min | Total Imp(%)= 38.00 Dir. Conn.(%)= 5.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.14
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	0.70
Length	(m)=	39.16	160.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.87	12.250	66.59	18.33	0.98
0.167	0.00	6.250	0.87	12.333	7.84	18.42	0.98
0.250	0.00	6.333	0.98	12.417	7.83	18.50	0.98
0.333	0.60	6.417	0.98	12.500	7.83	18.58	0.98
0.417	0.60	6.500	0.98	12.583	7.83	18.67	0.98
0.500	0.60	6.583	0.98	12.667	7.83	18.75	0.98
0.583	0.60	6.667	0.98	12.750	7.83	18.83	0.98
0.667	0.60	6.750	0.98	12.833	4.03	18.92	0.98
0.750	0.60	6.833	0.98	12.917	4.03	19.00	0.98
0.833	0.60	6.917	0.98	13.000	4.03	19.08	0.98
0.917	0.60	7.000	0.98	13.083	4.03	19.17	0.98
1.000	0.60	7.083	0.98	13.167	4.03	19.25	0.98
1.083	0.60	7.167	0.98	13.250	4.03	19.33	0.98
1.167	0.60	7.250	0.98	13.333	2.94	19.42	0.98
1.250	0.60	7.333	1.20	13.417	2.94	19.50	0.98
1.333	0.60	7.417	1.20	13.500	2.94	19.58	0.98
1.417	0.60	7.500	1.20	13.583	2.94	19.67	0.98
1.500	0.60	7.583	1.20	13.667	2.94	19.75	0.98
1.583	0.60	7.667	1.20	13.750	2.94	19.83	0.98
1.667	0.60	7.750	1.20	13.833	2.28	19.92	0.98
1.750	0.60	7.833	1.20	13.917	2.28	20.00	0.98
1.833	0.60	7.917	1.20	14.000	2.28	20.08	0.98
1.917	0.60	8.000	1.20	14.083	2.28	20.17	0.98
2.000	0.60	8.083	1.20	14.167	2.28	20.25	0.98
2.083	0.60	8.167	1.20	14.250	2.28	20.33	0.65
2.167	0.60	8.250	1.20	14.333	1.63	20.42	0.65
2.250	0.60	8.333	1.41	14.417	1.63	20.50	0.65
2.333	0.71	8.417	1.41	14.500	1.63	20.58	0.65
2.417	0.71	8.500	1.41	14.583	1.63	20.67	0.65
2.500	0.71	8.583	1.41	14.667	1.63	20.75	0.65
2.583	0.71	8.667	1.41	14.750	1.63	20.83	0.65
2.667	0.71	8.750	1.41	14.833	1.63	20.92	0.65
2.750	0.71	8.833	1.52	14.917	1.63	21.00	0.65
2.833	0.71	8.917	1.52	15.000	1.63	21.08	0.65
2.917	0.71	9.000	1.52	15.083	1.63	21.17	0.65
3.000	0.71	9.083	1.52	15.167	1.63	21.25	0.65
3.083	0.71	9.167	1.52	15.250	1.63	21.33	0.65
3.167	0.71	9.250	1.52	15.333	1.63	21.42	0.65
3.250	0.71	9.333	1.74	15.417	1.63	21.50	0.65
3.333	0.71	9.417	1.74	15.500	1.63	21.58	0.65
3.417	0.71	9.500	1.74	15.583	1.63	21.67	0.65
3.500	0.71	9.583	1.74	15.667	1.63	21.75	0.65
3.583	0.71	9.667	1.74	15.750	1.63	21.83	0.65
3.667	0.71	9.750	1.74	15.833	1.63	21.92	0.65
3.750	0.71	9.833	1.96	15.917	1.63	22.00	0.65
3.833	0.71	9.917	1.96	16.000	1.63	22.08	0.65
3.917	0.71	10.000	1.96	16.083	1.63	22.17	0.65
4.000	0.71	10.083	1.96	16.167	1.63	22.25	0.65
4.083	0.71	10.167	1.96	16.250	1.63	22.33	0.65
4.167	0.71	10.250	1.96	16.333	0.98	22.42	0.65
4.250	0.71	10.333	2.50	16.417	0.98	22.50	0.65
4.333	0.87	10.417	2.50	16.500	0.98	22.58	0.65
4.417	0.87	10.500	2.50	16.583	0.98	22.67	0.65
4.500	0.87	10.583	2.50	16.667	0.98	22.75	0.65
4.583	0.87	10.667	2.50	16.750	0.98	22.83	0.65
4.667	0.87	10.750	2.50	16.833	0.98	22.92	0.65
4.750	0.87	10.833	3.37	16.917	0.98	23.00	0.65
4.833	0.87	10.917	3.37	17.000	0.98	23.08	0.65
4.917	0.87	11.000	3.37	17.083	0.98	23.17	0.65
5.000	0.87	11.083	3.37	17.167	0.98	23.25	0.65
5.083	0.87	11.167	3.37	17.250	0.98	23.33	0.65
5.167	0.87	11.250	3.37	17.333	0.98	23.42	0.65
5.250	0.87	11.333	5.22	17.417	0.98	23.50	0.65
5.333	0.87	11.417	5.22	17.500	0.98	23.58	0.65
5.417	0.87	11.500	5.22	17.583	0.98	23.67	0.65
5.500	0.87	11.583	5.22	17.667	0.98	23.75	0.65
5.583	0.87	11.667	5.22	17.750	0.98	23.83	0.65
5.667	0.87	11.750	5.22	17.833	0.98	23.92	0.65
5.750	0.87	11.833	16.10	17.917	0.98	24.00	0.65
5.833	0.87	11.917	16.10	18.000	0.98	24.08	0.65
5.917	0.87	12.000	16.10	18.083	0.98	24.17	0.65
6.000	0.87	12.083	66.58	18.167	0.98	24.25	0.65
6.083	0.87	12.167	66.59	18.250	0.98		

Max.Eff.Inten.	(mm/hr)=	66.59	24.15	
over	(min)	5.00	45.00	
Storage Coeff.	(min)=	1.39 (ii)	40.61 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	45.00	
Unit Hyd. peak	(cms)=	0.33	0.03	
				TOTALS
PEAK FLOW	(cms)=	0.00	0.01	0.006 (iii)
TIME TO PEAK	(hrs)=	12.25	12.83	12.83
RUNOFF VOLUME	(mm)=	52.40	23.91	25.23
TOTAL RAINFALL	(mm)=	54.40	54.40	54.40

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     RUNOFF COEFFICIENT   =       0.96         0.44          0.46

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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--------------------
| ADD HYD  (  0903)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0201):     0.23   0.006    12.83    25.23
     + ID2= 2 (  0303):     0.33   0.007    12.92    23.51
       ================================================
       ID = 3 (  0903):     0.56   0.013    12.92    24.22

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| CALIB            |
| NASHYD   (  0202)|   Area    (ha)=   0.16   Curve Number   (CN)= 76.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.71   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.30

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.87	12.250	66.59	18.33	0.98
0.167	0.00	6.250	0.87	12.333	7.84	18.42	0.98
0.250	0.00	6.333	0.98	12.417	7.83	18.50	0.98
0.333	0.60	6.417	0.98	12.500	7.83	18.58	0.98
0.417	0.60	6.500	0.98	12.583	7.83	18.67	0.98
0.500	0.60	6.583	0.98	12.667	7.83	18.75	0.98
0.583	0.60	6.667	0.98	12.750	7.83	18.83	0.98
0.667	0.60	6.750	0.98	12.833	4.03	18.92	0.98
0.750	0.60	6.833	0.98	12.917	4.03	19.00	0.98
0.833	0.60	6.917	0.98	13.000	4.03	19.08	0.98
0.917	0.60	7.000	0.98	13.083	4.03	19.17	0.98
1.000	0.60	7.083	0.98	13.167	4.03	19.25	0.98
1.083	0.60	7.167	0.98	13.250	4.03	19.33	0.98
1.167	0.60	7.250	0.98	13.333	2.94	19.42	0.98
1.250	0.60	7.333	1.20	13.417	2.94	19.50	0.98
1.333	0.60	7.417	1.20	13.500	2.94	19.58	0.98
1.417	0.60	7.500	1.20	13.583	2.94	19.67	0.98
1.500	0.60	7.583	1.20	13.667	2.94	19.75	0.98
1.583	0.60	7.667	1.20	13.750	2.94	19.83	0.98
1.667	0.60	7.750	1.20	13.833	2.28	19.92	0.98
1.750	0.60	7.833	1.20	13.917	2.28	20.00	0.98
1.833	0.60	7.917	1.20	14.000	2.28	20.08	0.98
1.917	0.60	8.000	1.20	14.083	2.28	20.17	0.98
2.000	0.60	8.083	1.20	14.167	2.28	20.25	0.98
2.083	0.60	8.167	1.20	14.250	2.28	20.33	0.65
2.167	0.60	8.250	1.20	14.333	1.63	20.42	0.65
2.250	0.60	8.333	1.41	14.417	1.63	20.50	0.65
2.333	0.71	8.417	1.41	14.500	1.63	20.58	0.65
2.417	0.71	8.500	1.41	14.583	1.63	20.67	0.65
2.500	0.71	8.583	1.41	14.667	1.63	20.75	0.65
2.583	0.71	8.667	1.41	14.750	1.63	20.83	0.65
2.667	0.71	8.750	1.41	14.833	1.63	20.92	0.65
2.750	0.71	8.833	1.52	14.917	1.63	21.00	0.65
2.833	0.71	8.917	1.52	15.000	1.63	21.08	0.65
2.917	0.71	9.000	1.52	15.083	1.63	21.17	0.65
3.000	0.71	9.083	1.52	15.167	1.63	21.25	0.65
3.083	0.71	9.167	1.52	15.250	1.63	21.33	0.65
3.167	0.71	9.250	1.52	15.333	1.63	21.42	0.65
3.250	0.71	9.333	1.74	15.417	1.63	21.50	0.65
3.333	0.71	9.417	1.74	15.500	1.63	21.58	0.65
3.417	0.71	9.500	1.74	15.583	1.63	21.67	0.65
3.500	0.71	9.583	1.74	15.667	1.63	21.75	0.65
3.583	0.71	9.667	1.74	15.750	1.63	21.83	0.65
3.667	0.71	9.750	1.74	15.833	1.63	21.92	0.65
3.750	0.71	9.833	1.96	15.917	1.63	22.00	0.65
3.833	0.71	9.917	1.96	16.000	1.63	22.08	0.65
3.917	0.71	10.000	1.96	16.083	1.63	22.17	0.65
4.000	0.71	10.083	1.96	16.167	1.63	22.25	0.65
4.083	0.71	10.167	1.96	16.250	1.63	22.33	0.65
4.167	0.71	10.250	1.96	16.333	0.98	22.42	0.65
4.250	0.71	10.333	2.50	16.417	0.98	22.50	0.65
4.333	0.87	10.417	2.50	16.500	0.98	22.58	0.65
4.417	0.87	10.500	2.50	16.583	0.98	22.67	0.65
4.500	0.87	10.583	2.50	16.667	0.98	22.75	0.65
4.583	0.87	10.667	2.50	16.750	0.98	22.83	0.65
4.667	0.87	10.750	2.50	16.833	0.98	22.92	0.65
4.750	0.87	10.833	3.37	16.917	0.98	23.00	0.65
4.833	0.87	10.917	3.37	17.000	0.98	23.08	0.65
4.917	0.87	11.000	3.37	17.083	0.98	23.17	0.65
5.000	0.87	11.083	3.37	17.167	0.98	23.25	0.65
5.083	0.87	11.167	3.37	17.250	0.98	23.33	0.65
5.167	0.87	11.250	3.37	17.333	0.98	23.42	0.65
5.250	0.87	11.333	5.22	17.417	0.98	23.50	0.65

5.333	0.87	11.417	5.22	17.500	0.98	23.58	0.65	0.917	0.60	7.000	0.98	13.083	4.03	19.17	0.98
5.417	0.87	11.500	5.22	17.583	0.98	23.67	0.65	1.000	0.60	7.083	0.98	13.167	4.03	19.25	0.98
5.500	0.87	11.583	5.22	17.667	0.98	23.75	0.65	1.083	0.60	7.167	0.98	13.250	4.03	19.33	0.98
5.583	0.87	11.667	5.22	17.750	0.98	23.83	0.65	1.167	0.60	7.250	0.98	13.333	2.94	19.42	0.98
5.667	0.87	11.750	5.22	17.833	0.98	23.92	0.65	1.250	0.60	7.333	1.20	13.417	2.94	19.50	0.98
5.750	0.87	11.833	16.10	17.917	0.98	24.00	0.65	1.333	0.60	7.417	1.20	13.500	2.94	19.58	0.98
5.833	0.87	11.917	16.10	18.000	0.98	24.08	0.65	1.417	0.60	7.500	1.20	13.583	2.94	19.67	0.98
5.917	0.87	12.000	16.10	18.083	0.98	24.17	0.65	1.500	0.60	7.583	1.20	13.667	2.94	19.75	0.98
6.000	0.87	12.083	66.58	18.167	0.98	24.25	0.65	1.583	0.60	7.667	1.20	13.750	2.94	19.83	0.98
6.083	0.87	12.167	66.59	18.250	0.98			1.667	0.60	7.750	1.20	13.833	2.28	19.92	0.98
								1.750	0.60	7.833	1.20	13.917	2.28	20.00	0.98
								1.833	0.60	7.917	1.20	14.000	2.28	20.08	0.98
								1.917	0.60	8.000	1.20	14.083	2.28	20.17	0.98
								2.000	0.60	8.083	1.20	14.167	2.28	20.25	0.98
								2.083	0.60	8.167	1.20	14.250	2.28	20.33	0.65
								2.167	0.60	8.250	1.20	14.333	1.63	20.42	0.65
								2.250	0.60	8.333	1.41	14.417	1.63	20.50	0.65
								2.333	0.71	8.417	1.41	14.500	1.63	20.58	0.65
								2.417	0.71	8.500	1.41	14.583	1.63	20.67	0.65
								2.500	0.71	8.583	1.41	14.667	1.63	20.75	0.65
								2.583	0.71	8.667	1.41	14.750	1.63	20.83	0.65
								2.667	0.71	8.750	1.41	14.833	1.63	20.92	0.65
								2.750	0.71	8.833	1.52	14.917	1.63	21.00	0.65
								2.833	0.71	8.917	1.52	15.000	1.63	21.08	0.65
								2.917	0.71	9.000	1.52	15.083	1.63	21.17	0.65
								3.000	0.71	9.083	1.52	15.167	1.63	21.25	0.65
								3.083	0.71	9.167	1.52	15.250	1.63	21.33	0.65
								3.167	0.71	9.250	1.52	15.333	1.63	21.42	0.65
								3.250	0.71	9.333	1.74	15.417	1.63	21.50	0.65
								3.333	0.71	9.417	1.74	15.500	1.63	21.58	0.65
								3.417	0.71	9.500	1.74	15.583	1.63	21.67	0.65
								3.500	0.71	9.583	1.74	15.667	1.63	21.75	0.65
								3.583	0.71	9.667	1.74	15.750	1.63	21.83	0.65
								3.667	0.71	9.750	1.74	15.833	1.63	21.92	0.65
								3.750	0.71	9.833	1.96	15.917	1.63	22.00	0.65
								3.833	0.71	9.917	1.96	16.000	1.63	22.08	0.65
								3.917	0.71	10.000	1.96	16.083	1.63	22.17	0.65
								4.000	0.71	10.083	1.96	16.167	1.63	22.25	0.65
								4.083	0.71	10.167	1.96	16.250	1.63	22.33	0.65
								4.167	0.71	10.250	1.96	16.333	0.98	22.42	0.65
								4.250	0.71	10.333	2.50	16.417	0.98	22.50	0.65
								4.333	0.87	10.417	2.50	16.500	0.98	22.58	0.65
								4.417	0.87	10.500	2.50	16.583	0.98	22.67	0.65
								4.500	0.87	10.583	2.50	16.667	0.98	22.75	0.65
								4.583	0.87	10.667	2.50	16.750	0.98	22.83	0.65
								4.667	0.87	10.750	2.50	16.833	0.98	22.92	0.65
								4.750	0.87	10.833	3.37	16.917	0.98	23.00	0.65
								4.833	0.87	10.917	3.37	17.000	0.98	23.08	0.65
								4.917	0.87	11.000	3.37	17.083	0.98	23.17	0.65
								5.000	0.87	11.083	3.37	17.167	0.98	23.25	0.65

Unit Hyd Qpeak (cms)= 0.020

PEAK FLOW (cms)= 0.006 (i)
TIME TO PEAK (hrs)= 12.417
RUNOFF VOLUME (mm)= 19.321
TOTAL RAINFALL (mm)= 54.400
RUNOFF COEFFICIENT = 0.355

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

CALIB	
STANDHYD (0204)	Area (ha)= 0.24
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 36.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	40.00	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.87	12.250	66.59	18.33	0.98
0.167	0.00	6.250	0.87	12.333	7.84	18.42	0.98
0.250	0.00	6.333	0.98	12.417	7.83	18.50	0.98
0.333	0.60	6.417	0.98	12.500	7.83	18.58	0.98
0.417	0.60	6.500	0.98	12.583	7.83	18.67	0.98
0.500	0.60	6.583	0.98	12.667	7.83	18.75	0.98
0.583	0.60	6.667	0.98	12.750	7.83	18.83	0.98
0.667	0.60	6.750	0.98	12.833	4.03	18.92	0.98
0.750	0.60	6.833	0.98	12.917	4.03	19.00	0.98
0.833	0.60	6.917	0.98	13.000	4.03	19.08	0.98

5.083	0.87	11.167	3.37	17.250	0.98	23.33	0.65
5.167	0.87	11.250	3.37	17.333	0.98	23.42	0.65
5.250	0.87	11.333	5.22	17.417	0.98	23.50	0.65
5.333	0.87	11.417	5.22	17.500	0.98	23.58	0.65
5.417	0.87	11.500	5.22	17.583	0.98	23.67	0.65
5.500	0.87	11.583	5.22	17.667	0.98	23.75	0.65
5.583	0.87	11.667	5.22	17.750	0.98	23.83	0.65
5.667	0.87	11.750	5.22	17.833	0.98	23.92	0.65
5.750	0.87	11.833	16.10	17.917	0.98	24.00	0.65
5.833	0.87	11.917	16.10	18.000	0.98	24.08	0.65
5.917	0.87	12.000	16.10	18.083	0.98	24.17	0.65
6.000	0.87	12.083	66.58	18.167	0.98	24.25	0.65
6.083	0.87	12.167	66.59	18.250	0.98		

Max.Eff.Inten.(mm/hr)=	66.59	72.05	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.41 (ii)	5.26 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.33	0.16	
			TOTALS
PEAK FLOW (cms)=	0.02	0.01	0.030 (iii)
TIME TO PEAK (hrs)=	12.25	12.25	12.25
RUNOFF VOLUME (mm)=	52.40	26.57	35.85
TOTAL RAINFALL (mm)=	54.40	54.40	54.40
RUNOFF COEFFICIENT =	0.96	0.49	0.66

***** 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 (0205)
ID= 1 DT= 5.0 min

Area (ha)= 0.23
Total Imp(%)= 64.00 Dir. Conn.(%)= 37.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	39.16	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.87	12.250	66.59	18.33	0.98
0.167	0.00	6.250	0.87	12.333	7.84	18.42	0.98
0.250	0.00	6.333	0.98	12.417	7.83	18.50	0.98
0.333	0.60	6.417	0.98	12.500	7.83	18.58	0.98
0.417	0.60	6.500	0.98	12.583	7.83	18.67	0.98
0.500	0.60	6.583	0.98	12.667	7.83	18.75	0.98
0.583	0.60	6.667	0.98	12.750	7.83	18.83	0.98
0.667	0.60	6.750	0.98	12.833	4.03	18.92	0.98
0.750	0.60	6.833	0.98	12.917	4.03	19.00	0.98
0.833	0.60	6.917	0.98	13.000	4.03	19.08	0.98
0.917	0.60	7.000	0.98	13.083	4.03	19.17	0.98
1.000	0.60	7.083	0.98	13.167	4.03	19.25	0.98
1.083	0.60	7.167	0.98	13.250	4.03	19.33	0.98
1.167	0.60	7.250	0.98	13.333	2.94	19.42	0.98
1.250	0.60	7.333	1.20	13.417	2.94	19.50	0.98
1.333	0.60	7.417	1.20	13.500	2.94	19.58	0.98
1.417	0.60	7.500	1.20	13.583	2.94	19.67	0.98
1.500	0.60	7.583	1.20	13.667	2.94	19.75	0.98
1.583	0.60	7.667	1.20	13.750	2.94	19.83	0.98
1.667	0.60	7.750	1.20	13.833	2.28	19.92	0.98
1.750	0.60	7.833	1.20	13.917	2.28	20.00	0.98
1.833	0.60	7.917	1.20	14.000	2.28	20.08	0.98
1.917	0.60	8.000	1.20	14.083	2.28	20.17	0.98
2.000	0.60	8.083	1.20	14.167	2.28	20.25	0.98
2.083	0.60	8.167	1.20	14.250	2.28	20.33	0.65
2.167	0.60	8.250	1.20	14.333	1.63	20.42	0.65
2.250	0.60	8.333	1.41	14.417	1.63	20.50	0.65
2.333	0.71	8.417	1.41	14.500	1.63	20.58	0.65
2.417	0.71	8.500	1.41	14.583	1.63	20.67	0.65
2.500	0.71	8.583	1.41	14.667	1.63	20.75	0.65
2.583	0.71	8.667	1.41	14.750	1.63	20.83	0.65
2.667	0.71	8.750	1.41	14.833	1.63	20.92	0.65
2.750	0.71	8.833	1.52	14.917	1.63	21.00	0.65
2.833	0.71	8.917	1.52	15.000	1.63	21.08	0.65
2.917	0.71	9.000	1.52	15.083	1.63	21.17	0.65
3.000	0.71	9.083	1.52	15.167	1.63	21.25	0.65
3.083	0.71	9.167	1.52	15.250	1.63	21.33	0.65
3.167	0.71	9.250	1.52	15.333	1.63	21.42	0.65
3.250	0.71	9.333	1.74	15.417	1.63	21.50	0.65
3.333	0.71	9.417	1.74	15.500	1.63	21.58	0.65
3.417	0.71	9.500	1.74	15.583	1.63	21.67	0.65
3.500	0.71	9.583	1.74	15.667	1.63	21.75	0.65
3.583	0.71	9.667	1.74	15.750	1.63	21.83	0.65
3.667	0.71	9.750	1.74	15.833	1.63	21.92	0.65
3.750	0.71	9.833	1.96	15.917	1.63	22.00	0.65
3.833	0.71	9.917	1.96	16.000	1.63	22.08	0.65
3.917	0.71	10.000	1.96	16.083	1.63	22.17	0.65

4.000	0.71	10.083	1.96	16.167	1.63	22.25	0.65
4.083	0.71	10.167	1.96	16.250	1.63	22.33	0.65
4.167	0.71	10.250	1.96	16.333	0.98	22.42	0.65
4.250	0.71	10.333	2.50	16.417	0.98	22.50	0.65
4.333	0.87	10.417	2.50	16.500	0.98	22.58	0.65
4.417	0.87	10.500	2.50	16.583	0.98	22.67	0.65
4.500	0.87	10.583	2.50	16.667	0.98	22.75	0.65
4.583	0.87	10.667	2.50	16.750	0.98	22.83	0.65
4.667	0.87	10.750	2.50	16.833	0.98	22.92	0.65
4.750	0.87	10.833	3.37	16.917	0.98	23.00	0.65
4.833	0.87	10.917	3.37	17.000	0.98	23.08	0.65
4.917	0.87	11.000	3.37	17.083	0.98	23.17	0.65
5.000	0.87	11.083	3.37	17.167	0.98	23.25	0.65
5.083	0.87	11.167	3.37	17.250	0.98	23.33	0.65
5.167	0.87	11.250	3.37	17.333	0.98	23.42	0.65
5.250	0.87	11.333	5.22	17.417	0.98	23.50	0.65
5.333	0.87	11.417	5.22	17.500	0.98	23.58	0.65
5.417	0.87	11.500	5.22	17.583	0.98	23.67	0.65
5.500	0.87	11.583	5.22	17.667	0.98	23.75	0.65
5.583	0.87	11.667	5.22	17.750	0.98	23.83	0.65
5.667	0.87	11.750	5.22	17.833	0.98	23.92	0.65
5.750	0.87	11.833	16.10	17.917	0.98	24.00	0.65
5.833	0.87	11.917	16.10	18.000	0.98	24.08	0.65
5.917	0.87	12.000	16.10	18.083	0.98	24.17	0.65
6.000	0.87	12.083	66.58	18.167	0.98	24.25	0.65
6.083	0.87	12.167	66.59	18.250	0.98		

Max.Eff.Inten.(mm/hr)=	66.59	67.30	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.39 (ii)	5.24 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.33	0.16	
			TOTALS
PEAK FLOW (cms)=	0.02	0.01	0.029 (iii)
TIME TO PEAK (hrs)=	12.25	12.25	12.25
RUNOFF VOLUME (mm)=	52.40	25.91	35.70
TOTAL RAINFALL (mm)=	54.40	54.40	54.40
RUNOFF COEFFICIENT =	0.96	0.48	0.66

***** 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 (0206)	Area (ha)= 0.18
ID= 1 DT= 5.0 min	Total Imp(%)= 66.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.12	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	34.64	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.87	12.250	66.59	18.33	0.98
0.167	0.00	6.250	0.87	12.333	7.84	18.42	0.98
0.250	0.00	6.333	0.98	12.417	7.83	18.50	0.98
0.333	0.60	6.417	0.98	12.500	7.83	18.58	0.98
0.417	0.60	6.500	0.98	12.583	7.83	18.67	0.98
0.500	0.60	6.583	0.98	12.667	7.83	18.75	0.98
0.583	0.60	6.667	0.98	12.750	7.83	18.83	0.98
0.667	0.60	6.750	0.98	12.833	4.03	18.92	0.98
0.750	0.60	6.833	0.98	12.917	4.03	19.00	0.98
0.833	0.60	6.917	0.98	13.000	4.03	19.08	0.98
0.917	0.60	7.000	0.98	13.083	4.03	19.17	0.98
1.000	0.60	7.083	0.98	13.167	4.03	19.25	0.98
1.083	0.60	7.167	0.98	13.250	4.03	19.33	0.98
1.167	0.60	7.250	0.98	13.333	2.94	19.42	0.98
1.250	0.60	7.333	1.20	13.417	2.94	19.50	0.98
1.333	0.60	7.417	1.20	13.500	2.94	19.58	0.98
1.417	0.60	7.500	1.20	13.583	2.94	19.67	0.98
1.500	0.60	7.583	1.20	13.667	2.94	19.75	0.98
1.583	0.60	7.667	1.20	13.750	2.94	19.83	0.98
1.667	0.60	7.750	1.20	13.833	2.28	19.92	0.98
1.750	0.60	7.833	1.20	13.917	2.28	20.00	0.98
1.833	0.60	7.917	1.20	14.000	2.28	20.08	0.98
1.917	0.60	8.000	1.20	14.083	2.28	20.17	0.98
2.000	0.60	8.083	1.20	14.167	2.28	20.25	0.98
2.083	0.60	8.167	1.20	14.250	2.28	20.33	0.65
2.167	0.60	8.250	1.20	14.333	1.63	20.42	0.65
2.250	0.60	8.333	1.41	14.417	1.63	20.50	0.65
2.333	0.71	8.417	1.41	14.500	1.63	20.58	0.65
2.417	0.71	8.500	1.41	14.583	1.63	20.67	0.65
2.500	0.71	8.583	1.41	14.667	1.63	20.75	0.65
2.583	0.71	8.667	1.41	14.750	1.63	20.83	0.65
2.667	0.71	8.750	1.41	14.833	1.63	20.92	0.65
2.750	0.71	8.833	1.52	14.917	1.63	21.00	0.65
2.833	0.71	8.917	1.52	15.000	1.63	21.08	0.65

2.917	0.71	9.000	1.52	15.083	1.63	21.17	0.65
3.000	0.71	9.083	1.52	15.167	1.63	21.25	0.65
3.083	0.71	9.167	1.52	15.250	1.63	21.33	0.65
3.167	0.71	9.250	1.52	15.333	1.63	21.42	0.65
3.250	0.71	9.333	1.74	15.417	1.63	21.50	0.65
3.333	0.71	9.417	1.74	15.500	1.63	21.58	0.65
3.417	0.71	9.500	1.74	15.583	1.63	21.67	0.65
3.500	0.71	9.583	1.74	15.667	1.63	21.75	0.65
3.583	0.71	9.667	1.74	15.750	1.63	21.83	0.65
3.667	0.71	9.750	1.74	15.833	1.63	21.92	0.65
3.750	0.71	9.833	1.96	15.917	1.63	22.00	0.65
3.833	0.71	9.917	1.96	16.000	1.63	22.08	0.65
3.917	0.71	10.000	1.96	16.083	1.63	22.17	0.65
4.000	0.71	10.083	1.96	16.167	1.63	22.25	0.65
4.083	0.71	10.167	1.96	16.250	1.63	22.33	0.65
4.167	0.71	10.250	1.96	16.333	0.98	22.42	0.65
4.250	0.71	10.333	2.50	16.417	0.98	22.50	0.65
4.333	0.87	10.417	2.50	16.500	0.98	22.58	0.65
4.417	0.87	10.500	2.50	16.583	0.98	22.67	0.65
4.500	0.87	10.583	2.50	16.667	0.98	22.75	0.65
4.583	0.87	10.667	2.50	16.750	0.98	22.83	0.65
4.667	0.87	10.750	2.50	16.833	0.98	22.92	0.65
4.750	0.87	10.833	3.37	16.917	0.98	23.00	0.65
4.833	0.87	10.917	3.37	17.000	0.98	23.08	0.65
4.917	0.87	11.000	3.37	17.083	0.98	23.17	0.65
5.000	0.87	11.083	3.37	17.167	0.98	23.25	0.65
5.083	0.87	11.167	3.37	17.250	0.98	23.33	0.65
5.167	0.87	11.250	3.37	17.333	0.98	23.42	0.65
5.250	0.87	11.333	5.22	17.417	0.98	23.50	0.65
5.333	0.87	11.417	5.22	17.500	0.98	23.58	0.65
5.417	0.87	11.500	5.22	17.583	0.98	23.67	0.65
5.500	0.87	11.583	5.22	17.667	0.98	23.75	0.65
5.583	0.87	11.667	5.22	17.750	0.98	23.83	0.65
5.667	0.87	11.750	5.22	17.833	0.98	23.92	0.65
5.750	0.87	11.833	16.10	17.917	0.98	24.00	0.65
5.833	0.87	11.917	16.10	18.000	0.98	24.08	0.65
5.917	0.87	12.000	16.10	18.083	0.98	24.17	0.65
6.000	0.87	12.083	66.58	18.167	0.98	24.25	0.65
6.083	0.87	12.167	66.59	18.250	0.98		

Max.Eff.Inten.(mm/hr)=	66.59	34.99	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.29 (ii)	4.39 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.33	0.23	
			TOTALS
PEAK FLOW (cms)=	0.02	0.01	0.026 (iii)
TIME TO PEAK (hrs)=	12.25	12.25	12.25
RUNOFF VOLUME (mm)=	52.40	19.96	39.42
TOTAL RAINFALL (mm)=	54.40	54.40	54.40
RUNOFF COEFFICIENT =	0.96	0.37	0.72

***** 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)= 0.08
ID= 1 DT= 5.0 min | Total Imp(%)= 69.00 Dir. Conn.(%)= 38.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.02
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	23.09	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.87	12.250	66.59	18.33	0.98
0.167	0.00	6.250	0.87	12.333	7.84	18.42	0.98
0.250	0.00	6.333	0.98	12.417	7.83	18.50	0.98
0.333	0.60	6.417	0.98	12.500	7.83	18.58	0.98
0.417	0.60	6.500	0.98	12.583	7.83	18.67	0.98
0.500	0.60	6.583	0.98	12.667	7.83	18.75	0.98
0.583	0.60	6.667	0.98	12.750	7.83	18.83	0.98
0.667	0.60	6.750	0.98	12.833	4.03	18.92	0.98
0.750	0.60	6.833	0.98	12.917	4.03	19.00	0.98
0.833	0.60	6.917	0.98	13.000	4.03	19.08	0.98
0.917	0.60	7.000	0.98	13.083	4.03	19.17	0.98
1.000	0.60	7.083	0.98	13.167	4.03	19.25	0.98
1.083	0.60	7.167	0.98	13.250	4.03	19.33	0.98
1.167	0.60	7.250	0.98	13.333	2.94	19.42	0.98
1.250	0.60	7.333	1.20	13.417	2.94	19.50	0.98
1.333	0.60	7.417	1.20	13.500	2.94	19.58	0.98
1.417	0.60	7.500	1.20	13.583	2.94	19.67	0.98
1.500	0.60	7.583	1.20	13.667	2.94	19.75	0.98
1.583	0.60	7.667	1.20	13.750	2.94	19.83	0.98
1.667	0.60	7.750	1.20	13.833	2.28	19.92	0.98
1.750	0.60	7.833	1.20	13.917	2.28	20.00	0.98

1.833	0.60	7.917	1.20	14.000	2.28	20.08	0.98
1.917	0.60	8.000	1.20	14.083	2.28	20.17	0.98
2.000	0.60	8.083	1.20	14.167	2.28	20.25	0.98
2.083	0.60	8.167	1.20	14.250	2.28	20.33	0.65
2.167	0.60	8.250	1.20	14.333	1.63	20.42	0.65
2.250	0.60	8.333	1.41	14.417	1.63	20.50	0.65
2.333	0.71	8.417	1.41	14.500	1.63	20.58	0.65
2.417	0.71	8.500	1.41	14.583	1.63	20.67	0.65
2.500	0.71	8.583	1.41	14.667	1.63	20.75	0.65
2.583	0.71	8.667	1.41	14.750	1.63	20.83	0.65
2.667	0.71	8.750	1.41	14.833	1.63	20.92	0.65
2.750	0.71	8.833	1.52	14.917	1.63	21.00	0.65
2.833	0.71	8.917	1.52	15.000	1.63	21.08	0.65
2.917	0.71	9.000	1.52	15.083	1.63	21.17	0.65
3.000	0.71	9.083	1.52	15.167	1.63	21.25	0.65
3.083	0.71	9.167	1.52	15.250	1.63	21.33	0.65
3.167	0.71	9.250	1.52	15.333	1.63	21.42	0.65
3.250	0.71	9.333	1.74	15.417	1.63	21.50	0.65
3.333	0.71	9.417	1.74	15.500	1.63	21.58	0.65
3.417	0.71	9.500	1.74	15.583	1.63	21.67	0.65
3.500	0.71	9.583	1.74	15.667	1.63	21.75	0.65
3.583	0.71	9.667	1.74	15.750	1.63	21.83	0.65
3.667	0.71	9.750	1.74	15.833	1.63	21.92	0.65
3.750	0.71	9.833	1.96	15.917	1.63	22.00	0.65
3.833	0.71	9.917	1.96	16.000	1.63	22.08	0.65
3.917	0.71	10.000	1.96	16.083	1.63	22.17	0.65
4.000	0.71	10.083	1.96	16.167	1.63	22.25	0.65
4.083	0.71	10.167	1.96	16.250	1.63	22.33	0.65
4.167	0.71	10.250	1.96	16.333	0.98	22.42	0.65
4.250	0.71	10.333	2.50	16.417	0.98	22.50	0.65
4.333	0.87	10.417	2.50	16.500	0.98	22.58	0.65
4.417	0.87	10.500	2.50	16.583	0.98	22.67	0.65
4.500	0.87	10.583	2.50	16.667	0.98	22.75	0.65
4.583	0.87	10.667	2.50	16.750	0.98	22.83	0.65
4.667	0.87	10.750	2.50	16.833	0.98	22.92	0.65
4.750	0.87	10.833	3.37	16.917	0.98	23.00	0.65
4.833	0.87	10.917	3.37	17.000	0.98	23.08	0.65
4.917	0.87	11.000	3.37	17.083	0.98	23.17	0.65
5.000	0.87	11.083	3.37	17.167	0.98	23.25	0.65
5.083	0.87	11.167	3.37	17.250	0.98	23.33	0.65
5.167	0.87	11.250	3.37	17.333	0.98	23.42	0.65
5.250	0.87	11.333	5.22	17.417	0.98	23.50	0.65
5.333	0.87	11.417	5.22	17.500	0.98	23.58	0.65
5.417	0.87	11.500	5.22	17.583	0.98	23.67	0.65
5.500	0.87	11.583	5.22	17.667	0.98	23.75	0.65
5.583	0.87	11.667	5.22	17.750	0.98	23.83	0.65
5.667	0.87	11.750	5.22	17.833	0.98	23.92	0.65
5.750	0.87	11.833	16.10	17.917	0.98	24.00	0.65
5.833	0.87	11.917	16.10	18.000	0.98	24.08	0.65
5.917	0.87	12.000	16.10	18.083	0.98	24.17	0.65
6.000	0.87	12.083	66.58	18.167	0.98	24.25	0.65
6.083	0.87	12.167	66.59	18.250	0.98		

Max.Eff.Inten.(mm/hr)=	66.59	82.62	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.01 (ii)	4.60 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.23	
			TOTALS
PEAK FLOW (cms)=	0.01	0.01	0.011 (iii)
TIME TO PEAK (hrs)=	12.25	12.25	12.25
RUNOFF VOLUME (mm)=	52.40	27.91	37.20
TOTAL RAINFALL (mm)=	54.40	54.40	54.40
RUNOFF COEFFICIENT =	0.96	0.51	0.68

***** 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.

ADD HYD (0904) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0203):	0.08	0.011	12.25	37.20
+ ID2= 2 (0204):	0.24	0.030	12.25	35.85
ID = 3 (0904):	0.32	0.042	12.25	36.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0904) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0904):	0.32	0.042	12.25	36.19
+ ID2= 2 (0205):	0.23	0.029	12.25	35.70
ID = 1 (0904):	0.55	0.071	12.25	35.99

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0904)|
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
---|---|---|---|---
| | (ha) (cms) (hrs) (mm)
ID1= 1 (0904): | 0.55 0.071 12.25 35.99
+ ID2= 2 (0206): | 0.18 0.026 12.25 39.42
ID = 3 (0904): | 0.73 0.097 12.25 36.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB |
| STANDHYD (0304)| Area (ha)= 0.23
|ID= 1 DT= 5.0 min | Total Imp(%)= 31.00 Dir. Conn.(%)= 5.00

| | IMPERVIOUS | PERVIOUS (i)
---|---|---|---
Surface Area (ha)= | 0.07 | 0.16
Dep. Storage (mm)= | 2.00 | 5.00
Average Slope (%)= | 2.00 | 0.50
Length (m)= | 39.16 | 100.00
Mannings n = | 0.013 | 0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	0.87	12.250	66.59	18.33	0.98
0.167	0.00	6.250	0.87	12.333	7.84	18.42	0.98
0.250	0.00	6.333	0.98	12.417	7.83	18.50	0.98
0.333	0.60	6.417	0.98	12.500	7.83	18.58	0.98
0.417	0.60	6.500	0.98	12.583	7.83	18.67	0.98
0.500	0.60	6.583	0.98	12.667	7.83	18.75	0.98
0.583	0.60	6.667	0.98	12.750	7.83	18.83	0.98
0.667	0.60	6.750	0.98	12.833	4.03	18.92	0.98
0.750	0.60	6.833	0.98	12.917	4.03	19.00	0.98
0.833	0.60	6.917	0.98	13.000	4.03	19.08	0.98
0.917	0.60	7.000	0.98	13.083	4.03	19.17	0.98
1.000	0.60	7.083	0.98	13.167	4.03	19.25	0.98
1.083	0.60	7.167	0.98	13.250	4.03	19.33	0.98
1.167	0.60	7.250	0.98	13.333	2.94	19.42	0.98
1.250	0.60	7.333	1.20	13.417	2.94	19.50	0.98
1.333	0.60	7.417	1.20	13.500	2.94	19.58	0.98
1.417	0.60	7.500	1.20	13.583	2.94	19.67	0.98
1.500	0.60	7.583	1.20	13.667	2.94	19.75	0.98
1.583	0.60	7.667	1.20	13.750	2.94	19.83	0.98
1.667	0.60	7.750	1.20	13.833	2.28	19.92	0.98
1.750	0.60	7.833	1.20	13.917	2.28	20.00	0.98
1.833	0.60	7.917	1.20	14.000	2.28	20.08	0.98
1.917	0.60	8.000	1.20	14.083	2.28	20.17	0.98
2.000	0.60	8.083	1.20	14.167	2.28	20.25	0.98
2.083	0.60	8.167	1.20	14.250	2.28	20.33	0.65
2.167	0.60	8.250	1.20	14.333	1.63	20.42	0.65
2.250	0.60	8.333	1.41	14.417	1.63	20.50	0.65
2.333	0.71	8.417	1.41	14.500	1.63	20.58	0.65
2.417	0.71	8.500	1.41	14.583	1.63	20.67	0.65
2.500	0.71	8.583	1.41	14.667	1.63	20.75	0.65
2.583	0.71	8.667	1.41	14.750	1.63	20.83	0.65
2.667	0.71	8.750	1.41	14.833	1.63	20.92	0.65
2.750	0.71	8.833	1.52	14.917	1.63	21.00	0.65
2.833	0.71	8.917	1.52	15.000	1.63	21.08	0.65
2.917	0.71	9.000	1.52	15.083	1.63	21.17	0.65
3.000	0.71	9.083	1.52	15.167	1.63	21.25	0.65
3.083	0.71	9.167	1.52	15.250	1.63	21.33	0.65
3.167	0.71	9.250	1.52	15.333	1.63	21.42	0.65
3.250	0.71	9.333	1.74	15.417	1.63	21.50	0.65
3.333	0.71	9.417	1.74	15.500	1.63	21.58	0.65
3.417	0.71	9.500	1.74	15.583	1.63	21.67	0.65
3.500	0.71	9.583	1.74	15.667	1.63	21.75	0.65
3.583	0.71	9.667	1.74	15.750	1.63	21.83	0.65
3.667	0.71	9.750	1.74	15.833	1.63	21.92	0.65
3.750	0.71	9.833	1.96	15.917	1.63	22.00	0.65
3.833	0.71	9.917	1.96	16.000	1.63	22.08	0.65
3.917	0.71	10.000	1.96	16.083	1.63	22.17	0.65
4.000	0.71	10.083	1.96	16.167	1.63	22.25	0.65
4.083	0.71	10.167	1.96	16.250	1.63	22.33	0.65
4.167	0.71	10.250	1.96	16.333	0.98	22.42	0.65
4.250	0.71	10.333	2.50	16.417	0.98	22.50	0.65
4.333	0.87	10.417	2.50	16.500	0.98	22.58	0.65
4.417	0.87	10.500	2.50	16.583	0.98	22.67	0.65
4.500	0.87	10.583	2.50	16.667	0.98	22.75	0.65
4.583	0.87	10.667	2.50	16.750	0.98	22.83	0.65
4.667	0.87	10.750	2.50	16.833	0.98	22.92	0.65
4.750	0.87	10.833	3.37	16.917	0.98	23.00	0.65
4.833	0.87	10.917	3.37	17.000	0.98	23.08	0.65
4.917	0.87	11.000	3.37	17.083	0.98	23.17	0.65
5.000	0.87	11.083	3.37	17.167	0.98	23.25	0.65
5.083	0.87	11.167	3.37	17.250	0.98	23.33	0.65
5.167	0.87	11.250	3.37	17.333	0.98	23.42	0.65
5.250	0.87	11.333	5.22	17.417	0.98	23.50	0.65
5.333	0.87	11.417	5.22	17.500	0.98	23.58	0.65
5.417	0.87	11.500	5.22	17.583	0.98	23.67	0.65
5.500	0.87	11.583	5.22	17.667	0.98	23.75	0.65
5.583	0.87	11.667	5.22	17.750	0.98	23.83	0.65
5.667	0.87	11.750	5.22	17.833	0.98	23.92	0.65
5.750	0.87	11.833	16.10	17.917	0.98	24.00	0.65
5.833	0.87	11.917	16.10	18.000	0.98	24.08	0.65
5.917	0.87	12.000	16.10	18.083	0.98	24.17	0.65
6.000	0.87	12.083	66.58	18.167	0.98	24.25	0.65

```
              6.083    0.87 |12.167   66.59 |18.250    0.98 |

     Max.Eff.Inten.(mm/hr)=      66.59        22.13
               over (min)         5.00        40.00
     Storage Coeff.  (min)=       1.39 (ii)   35.28 (ii)
     Unit Hyd. Tpeak (min)=       5.00        40.00
     Unit Hyd. peak  (cms)=       0.33         0.03
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.01         0.006 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.75         12.75
     RUNOFF VOLUME    (mm)=      52.40        22.30         23.71
     TOTAL RAINFALL   (mm)=      54.40        54.40         54.40
     RUNOFF COEFFICIENT   =       0.96         0.41          0.44

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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

--------------------
| ADD HYD  (  0906)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0202):     0.16   0.006    12.42    19.32
      + ID2= 2 (  0304):     0.23   0.006    12.75    23.71
        ================================================
        ID = 3 (  0906):     0.39   0.010    12.58    21.91

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

--------------------
| ADD HYD  (  0906)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0906):     0.39   0.010    12.58    21.91
      + ID2= 2 (  0904):     0.73   0.097    12.25    36.83
        ================================================
        ID = 1 (  0906):     1.12   0.105    12.25    31.64

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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       V    V   I    SSSSS  U   U    A    L              (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\54d
c4ff8-2052-4789-bce3-57a1e2b83be2\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\54d
c4ff8-2052-4789-bce3-57a1e2b83be2\sc


DATE: 07/25/2023                          TIME: 10:13:53

USER:


COMMENTS: _____________________________________________________________

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  ***********************************************
  ** SIMULATION : (2) 5 Year Design Storm - SCS **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\JBirchard\AppD
|                  |              ata\Local\Temp\
|                  |              ddb5ea80-a20e-4ff4-9c74-beb6735bad9d\f65a105d
```

| Ptotal= 72.10 mm | Comments: 5yr 24hr 15min SCS

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	6.50	1.30	12.75	10.38	19.00	1.30
0.50	0.79	6.75	1.30	13.00	5.34	19.25	1.30
0.75	0.79	7.00	1.30	13.25	5.34	19.50	1.30
1.00	0.79	7.25	1.30	13.50	3.89	19.75	1.30
1.25	0.79	7.50	1.59	13.75	3.89	20.00	1.30
1.50	0.79	7.75	1.59	14.00	3.03	20.25	1.30
1.75	0.79	8.00	1.59	14.25	3.03	20.50	0.87
2.00	0.79	8.25	1.59	14.50	2.16	20.75	0.87
2.25	0.79	8.50	1.87	14.75	2.16	21.00	0.87
2.50	0.94	8.75	1.87	15.00	2.16	21.25	0.87
2.75	0.94	9.00	2.02	15.25	2.16	21.50	0.87
3.00	0.94	9.25	2.02	15.50	2.16	21.75	0.87
3.25	0.94	9.50	2.31	15.75	2.16	22.00	0.87
3.50	0.94	9.75	2.31	16.00	2.16	22.25	0.87
3.75	0.94	10.00	2.60	16.25	2.16	22.50	0.87
4.00	0.94	10.25	2.60	16.50	1.30	22.75	0.87
4.25	0.94	10.50	3.32	16.75	1.30	23.00	0.87
4.50	1.15	10.75	3.32	17.00	1.30	23.25	0.87
4.75	1.15	11.00	4.47	17.25	1.30	23.50	0.87
5.00	1.15	11.25	4.47	17.50	1.30	23.75	0.87
5.25	1.15	11.50	6.92	17.75	1.30	24.00	0.87
5.50	1.15	11.75	6.92	18.00	1.30	24.25	0.87
5.75	1.15	12.00	21.34	18.25	1.30		
6.00	1.15	12.25	88.25	18.50	1.30		
6.25	1.15	12.50	10.38	18.75	1.30		

| CALIB |
| STANDHYD (0303) | Area (ha)= 0.33
|ID= 1 DT= 5.0 min | Total Imp(%)= 30.00 Dir. Conn.(%)= 5.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.10	0.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	0.70
Length	(m)=	46.90	160.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.15	12.250	88.25	18.33	1.30
0.167	0.00	6.250	1.15	12.333	10.39	18.42	1.30
0.250	0.00	6.333	1.30	12.417	10.38	18.50	1.30
0.333	0.79	6.417	1.30	12.500	10.38	18.58	1.30
0.417	0.79	6.500	1.30	12.583	10.38	18.67	1.30
0.500	0.79	6.583	1.30	12.667	10.38	18.75	1.30
0.583	0.79	6.667	1.30	12.750	10.38	18.83	1.30
0.667	0.79	6.750	1.30	12.833	5.34	18.92	1.30
0.750	0.79	6.833	1.30	12.917	5.34	19.00	1.30
0.833	0.79	6.917	1.30	13.000	5.34	19.08	1.30
0.917	0.79	7.000	1.30	13.083	5.34	19.17	1.30
1.000	0.79	7.083	1.30	13.167	5.34	19.25	1.30
1.083	0.79	7.167	1.30	13.250	5.34	19.33	1.30
1.167	0.79	7.250	1.30	13.333	3.89	19.42	1.30
1.250	0.79	7.333	1.59	13.417	3.89	19.50	1.30
1.333	0.79	7.417	1.59	13.500	3.89	19.58	1.30
1.417	0.79	7.500	1.59	13.583	3.89	19.67	1.30
1.500	0.79	7.583	1.59	13.667	3.89	19.75	1.30
1.583	0.79	7.667	1.59	13.750	3.89	19.83	1.30
1.667	0.79	7.750	1.59	13.833	3.03	19.92	1.30
1.750	0.79	7.833	1.59	13.917	3.03	20.00	1.30
1.833	0.79	7.917	1.59	14.000	3.03	20.08	1.30
1.917	0.79	8.000	1.59	14.083	3.03	20.17	1.30
2.000	0.79	8.083	1.59	14.167	3.03	20.25	1.30
2.083	0.79	8.167	1.59	14.250	3.03	20.33	0.87
2.167	0.79	8.250	1.59	14.333	2.16	20.42	0.87
2.250	0.79	8.333	1.87	14.417	2.16	20.50	0.87
2.333	0.94	8.417	1.87	14.500	2.16	20.58	0.87
2.417	0.94	8.500	1.87	14.583	2.16	20.67	0.87
2.500	0.94	8.583	1.87	14.667	2.16	20.75	0.87
2.583	0.94	8.667	1.87	14.750	2.16	20.83	0.87
2.667	0.94	8.750	1.87	14.833	2.16	20.92	0.87
2.750	0.94	8.833	2.02	14.917	2.16	21.00	0.87
2.833	0.94	8.917	2.02	15.000	2.16	21.08	0.87
2.917	0.94	9.000	2.02	15.083	2.16	21.17	0.87
3.000	0.94	9.083	2.02	15.167	2.16	21.25	0.87
3.083	0.94	9.167	2.02	15.250	2.16	21.33	0.87
3.167	0.94	9.250	2.02	15.333	2.16	21.42	0.87
3.250	0.94	9.333	2.31	15.417	2.16	21.50	0.87
3.333	0.94	9.417	2.31	15.500	2.16	21.58	0.87
3.417	0.94	9.500	2.31	15.583	2.16	21.67	0.87
3.500	0.94	9.583	2.31	15.667	2.16	21.75	0.87
3.583	0.94	9.667	2.31	15.750	2.16	21.83	0.87
3.667	0.94	9.750	2.31	15.833	2.16	21.92	0.87
3.750	0.94	9.833	2.60	15.917	2.16	22.00	0.87
3.833	0.94	9.917	2.60	16.000	2.16	22.08	0.87
3.917	0.94	10.000	2.60	16.083	2.16	22.17	0.87
4.000	0.94	10.083	2.60	16.167	2.16	22.25	0.87
4.083	0.94	10.167	2.60	16.250	2.16	22.33	0.87
4.167	0.94	10.250	2.60	16.333	1.30	22.42	0.87

4.250	0.94	10.333	3.32	16.417	1.30	22.50	0.87
4.333	1.15	10.417	3.32	16.500	1.30	22.58	0.87
4.417	1.15	10.500	3.32	16.583	1.30	22.67	0.87
4.500	1.15	10.583	3.32	16.667	1.30	22.75	0.87
4.583	1.15	10.667	3.32	16.750	1.30	22.83	0.87
4.667	1.15	10.750	3.32	16.833	1.30	22.92	0.87
4.750	1.15	10.833	4.47	16.917	1.30	23.00	0.87
4.833	1.15	10.917	4.47	17.000	1.30	23.08	0.87
4.917	1.15	11.000	4.47	17.083	1.30	23.17	0.87
5.000	1.15	11.083	4.47	17.167	1.30	23.25	0.87
5.083	1.15	11.167	4.47	17.250	1.30	23.33	0.87
5.167	1.15	11.250	4.47	17.333	1.30	23.42	0.87
5.250	1.15	11.333	6.92	17.417	1.30	23.50	0.87
5.333	1.15	11.417	6.92	17.500	1.30	23.58	0.87
5.417	1.15	11.500	6.92	17.583	1.30	23.67	0.87
5.500	1.15	11.583	6.92	17.667	1.30	23.75	0.87
5.583	1.15	11.667	6.92	17.750	1.30	23.83	0.87
5.667	1.15	11.750	6.92	17.833	1.30	23.92	0.87
5.750	1.15	11.833	21.34	17.917	1.30	24.00	0.87
5.833	1.15	11.917	21.34	18.000	1.30	24.08	0.87
5.917	1.15	12.000	21.34	18.083	1.30	24.17	0.87
6.000	1.15	12.083	88.24	18.167	1.30	24.25	0.86
6.083	1.15	12.167	88.25	18.250	1.30		

Max.Eff.Inten.(mm/hr)=	88.25	34.63	
over (min)	5.00	40.00	
Storage Coeff. (min)=	1.38 (ii)	35.34 (ii)	
Unit Hyd. Tpeak (min)=	5.00	40.00	
Unit Hyd. peak (cms)=	0.33	0.03	
			TOTALS
PEAK FLOW (cms)=	0.00	0.01	0.014 (iii)
TIME TO PEAK (hrs)=	12.25	12.75	12.75
RUNOFF VOLUME (mm)=	70.10	34.89	36.58
TOTAL RAINFALL (mm)=	72.10	72.10	72.10
RUNOFF COEFFICIENT =	0.97	0.48	0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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 (0201)	Area (ha)= 0.23

|ID= 1 DT= 5.0 min | Total Imp(%)= 38.00 Dir. Conn.(%)= 5.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.14
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	0.70
Length	(m)=	39.16	160.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.15	12.250	88.25	18.33	1.30
0.167	0.00	6.250	1.15	12.333	10.39	18.42	1.30
0.250	0.00	6.333	1.30	12.417	10.38	18.50	1.30
0.333	0.79	6.417	1.30	12.500	10.38	18.58	1.30
0.417	0.79	6.500	1.30	12.583	10.38	18.67	1.30
0.500	0.79	6.583	1.30	12.667	10.38	18.75	1.30
0.583	0.79	6.667	1.30	12.750	10.38	18.83	1.30
0.667	0.79	6.750	1.30	12.833	5.34	18.92	1.30
0.750	0.79	6.833	1.30	12.917	5.34	19.00	1.30
0.833	0.79	6.917	1.30	13.000	5.34	19.08	1.30
0.917	0.79	7.000	1.30	13.083	5.34	19.17	1.30
1.000	0.79	7.083	1.30	13.167	5.34	19.25	1.30
1.083	0.79	7.167	1.30	13.250	5.34	19.33	1.30
1.167	0.79	7.250	1.30	13.333	3.89	19.42	1.30
1.250	0.79	7.333	1.59	13.417	3.89	19.50	1.30
1.333	0.79	7.417	1.59	13.500	3.89	19.58	1.30
1.417	0.79	7.500	1.59	13.583	3.89	19.67	1.30
1.500	0.79	7.583	1.59	13.667	3.89	19.75	1.30
1.583	0.79	7.667	1.59	13.750	3.89	19.83	1.30
1.667	0.79	7.750	1.59	13.833	3.03	19.92	1.30
1.750	0.79	7.833	1.59	13.917	3.03	20.00	1.30
1.833	0.79	7.917	1.59	14.000	3.03	20.08	1.30
1.917	0.79	8.000	1.59	14.083	3.03	20.17	1.30
2.000	0.79	8.083	1.59	14.167	3.03	20.25	1.30
2.083	0.79	8.167	1.59	14.250	3.03	20.33	0.87
2.167	0.79	8.250	1.59	14.333	2.16	20.42	0.87
2.250	0.79	8.333	1.87	14.417	2.16	20.50	0.87
2.333	0.94	8.417	1.87	14.500	2.16	20.58	0.87
2.417	0.94	8.500	1.87	14.583	2.16	20.67	0.87
2.500	0.94	8.583	1.87	14.667	2.16	20.75	0.87
2.583	0.94	8.667	1.87	14.750	2.16	20.83	0.87
2.667	0.94	8.750	1.87	14.833	2.16	20.92	0.87
2.750	0.94	8.833	2.02	14.917	2.16	21.00	0.87
2.833	0.94	8.917	2.02	15.000	2.16	21.08	0.87
2.917	0.94	9.000	2.02	15.083	2.16	21.17	0.87

3.000	0.94	9.083	2.02	15.167	2.16	21.25	0.87
3.083	0.94	9.167	2.02	15.250	2.16	21.33	0.87
3.167	0.94	9.250	2.02	15.333	2.16	21.42	0.87
3.250	0.94	9.333	2.31	15.417	2.16	21.50	0.87
3.333	0.94	9.417	2.31	15.500	2.16	21.58	0.87
3.417	0.94	9.500	2.31	15.583	2.16	21.67	0.87
3.500	0.94	9.583	2.31	15.667	2.16	21.75	0.87
3.583	0.94	9.667	2.31	15.750	2.16	21.83	0.87
3.667	0.94	9.750	2.31	15.833	2.16	21.92	0.87
3.750	0.94	9.833	2.60	15.917	2.16	22.00	0.87
3.833	0.94	9.917	2.60	16.000	2.16	22.08	0.87
3.917	0.94	10.000	2.60	16.083	2.16	22.17	0.87
4.000	0.94	10.083	2.60	16.167	2.16	22.25	0.87
4.083	0.94	10.167	2.60	16.250	2.16	22.33	0.87
4.167	0.94	10.250	2.60	16.333	1.30	22.42	0.87
4.250	0.94	10.333	3.32	16.417	1.30	22.50	0.87
4.333	1.15	10.417	3.32	16.500	1.30	22.58	0.87
4.417	1.15	10.500	3.32	16.583	1.30	22.67	0.87
4.500	1.15	10.583	3.32	16.667	1.30	22.75	0.87
4.583	1.15	10.667	3.32	16.750	1.30	22.83	0.87
4.667	1.15	10.750	3.32	16.833	1.30	22.92	0.87
4.750	1.15	10.833	4.47	16.917	1.30	23.00	0.87
4.833	1.15	10.917	4.47	17.000	1.30	23.08	0.87
4.917	1.15	11.000	4.47	17.083	1.30	23.17	0.87
5.000	1.15	11.083	4.47	17.167	1.30	23.25	0.87
5.083	1.15	11.167	4.47	17.250	1.30	23.33	0.87
5.167	1.15	11.250	4.47	17.333	1.30	23.42	0.87
5.250	1.15	11.333	6.92	17.417	1.30	23.50	0.87
5.333	1.15	11.417	6.92	17.500	1.30	23.58	0.87
5.417	1.15	11.500	6.92	17.583	1.30	23.67	0.87
5.500	1.15	11.583	6.92	17.667	1.30	23.75	0.87
5.583	1.15	11.667	6.92	17.750	1.30	23.83	0.87
5.667	1.15	11.750	6.92	17.833	1.30	23.92	0.87
5.750	1.15	11.833	21.34	17.917	1.30	24.00	0.87
5.833	1.15	11.917	21.34	18.000	1.30	24.08	0.87
5.917	1.15	12.000	21.34	18.083	1.30	24.17	0.87
6.000	1.15	12.083	88.24	18.167	1.30	24.25	0.86
6.083	1.15	12.167	88.25	18.250	1.30		

Max.Eff.Inten.(mm/hr)=	88.25	47.20	
over (min)	5.00	35.00	
Storage Coeff. (min)=	1.24 (ii)	31.24 (ii)	
Unit Hyd. Tpeak (min)=	5.00	35.00	
Unit Hyd. peak (cms)=	0.33	0.03	
			TOTALS
PEAK FLOW (cms)=	0.00	0.01	0.012 (iii)
TIME TO PEAK (hrs)=	12.25	12.67	12.67
RUNOFF VOLUME (mm)=	70.10	37.29	38.85
TOTAL RAINFALL (mm)=	72.10	72.10	72.10
RUNOFF COEFFICIENT =	0.97	0.52	0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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.

ADD HYD (0903)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0201):	0.23	0.012	12.67	38.85
	+ ID2= 2 (0303):	0.33	0.014	12.75	36.58
	ID = 3 (0903):	0.56	0.026	12.75	37.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB / NASHYD (0202) / ID= 1 DT= 5.0 min				
	Area (ha)=	0.16	Curve Number (CN)=	76.5
	Ia (mm)=	4.71	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.30		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.15	12.250	88.25	18.33	1.30
0.167	0.00	6.250	1.15	12.333	10.39	18.42	1.30
0.250	0.00	6.333	1.30	12.417	10.38	18.50	1.30
0.333	0.79	6.417	1.30	12.500	10.38	18.58	1.30
0.417	0.79	6.500	1.30	12.583	10.38	18.67	1.30
0.500	0.79	6.583	1.30	12.667	10.38	18.75	1.30
0.583	0.79	6.667	1.30	12.750	10.38	18.83	1.30
0.667	0.79	6.750	1.30	12.833	5.34	18.92	1.30
0.750	0.79	6.833	1.30	12.917	5.34	19.00	1.30
0.833	0.79	6.917	1.30	13.000	5.34	19.08	1.30
0.917	0.79	7.000	1.30	13.083	5.34	19.17	1.30
1.000	0.79	7.083	1.30	13.167	5.34	19.25	1.30
1.083	0.79	7.167	1.30	13.250	5.34	19.33	1.30
1.167	0.79	7.250	1.30	13.333	3.89	19.42	1.30

1.250	0.79	7.333	1.59	13.417	3.89	19.50	1.30
1.333	0.79	7.417	1.59	13.500	3.89	19.58	1.30
1.417	0.79	7.500	1.59	13.583	3.89	19.67	1.30
1.500	0.79	7.583	1.59	13.667	3.89	19.75	1.30
1.583	0.79	7.667	1.59	13.750	3.89	19.83	1.30
1.667	0.79	7.750	1.59	13.833	3.03	19.92	1.30
1.750	0.79	7.833	1.59	13.917	3.03	20.00	1.30
1.833	0.79	7.917	1.59	14.000	3.03	20.08	1.30
1.917	0.79	8.000	1.59	14.083	3.03	20.17	1.30
2.000	0.79	8.083	1.59	14.167	3.03	20.25	1.30
2.083	0.79	8.167	1.59	14.250	3.03	20.33	0.87
2.167	0.79	8.250	1.59	14.333	2.16	20.42	0.87
2.250	0.79	8.333	1.87	14.417	2.16	20.50	0.87
2.333	0.94	8.417	1.87	14.500	2.16	20.58	0.87
2.417	0.94	8.500	1.87	14.583	2.16	20.67	0.87
2.500	0.94	8.583	1.87	14.667	2.16	20.75	0.87
2.583	0.94	8.667	1.87	14.750	2.16	20.83	0.87
2.667	0.94	8.750	1.87	14.833	2.16	20.92	0.87
2.750	0.94	8.833	2.02	14.917	2.16	21.00	0.87
2.833	0.94	8.917	2.02	15.000	2.16	21.08	0.87
2.917	0.94	9.000	2.02	15.083	2.16	21.17	0.87
3.000	0.94	9.083	2.02	15.167	2.16	21.25	0.87
3.083	0.94	9.167	2.02	15.250	2.16	21.33	0.87
3.167	0.94	9.250	2.02	15.333	2.16	21.42	0.87
3.250	0.94	9.333	2.31	15.417	2.16	21.50	0.87
3.333	0.94	9.417	2.31	15.500	2.16	21.58	0.87
3.417	0.94	9.500	2.31	15.583	2.16	21.67	0.87
3.500	0.94	9.583	2.31	15.667	2.16	21.75	0.87
3.583	0.94	9.667	2.31	15.750	2.16	21.83	0.87
3.667	0.94	9.750	2.31	15.833	2.16	21.92	0.87
3.750	0.94	9.833	2.60	15.917	2.16	22.00	0.87
3.833	0.94	9.917	2.60	16.000	2.16	22.08	0.87
3.917	0.94	10.000	2.60	16.083	2.16	22.17	0.87
4.000	0.94	10.083	2.60	16.167	2.16	22.25	0.87
4.083	0.94	10.167	2.60	16.250	2.16	22.33	0.87
4.167	0.94	10.250	2.60	16.333	1.30	22.42	0.87
4.250	0.94	10.333	3.32	16.417	1.30	22.50	0.87
4.333	1.15	10.417	3.32	16.500	1.30	22.58	0.87
4.417	1.15	10.500	3.32	16.583	1.30	22.67	0.87
4.500	1.15	10.583	3.32	16.667	1.30	22.75	0.87
4.583	1.15	10.667	3.32	16.750	1.30	22.83	0.87
4.667	1.15	10.750	3.32	16.833	1.30	22.92	0.87
4.750	1.15	10.833	4.47	16.917	1.30	23.00	0.87
4.833	1.15	10.917	4.47	17.000	1.30	23.08	0.87
4.917	1.15	11.000	4.47	17.083	1.30	23.17	0.87
5.000	1.15	11.083	4.47	17.167	1.30	23.25	0.87
5.083	1.15	11.167	4.47	17.250	1.30	23.33	0.87
5.167	1.15	11.250	4.47	17.333	1.30	23.42	0.87
5.250	1.15	11.333	6.92	17.417	1.30	23.50	0.87
5.333	1.15	11.417	6.92	17.500	1.30	23.58	0.87
5.417	1.15	11.500	6.92	17.583	1.30	23.67	0.87
5.500	1.15	11.583	6.92	17.667	1.30	23.75	0.87
5.583	1.15	11.667	6.92	17.750	1.30	23.83	0.87
5.667	1.15	11.750	6.92	17.833	1.30	23.92	0.87
5.750	1.15	11.833	21.34	17.917	1.30	24.00	0.87
5.833	1.15	11.917	21.34	18.000	1.30	24.08	0.87
5.917	1.15	12.000	21.34	18.083	1.30	24.17	0.87
6.000	1.15	12.083	88.24	18.167	1.30	24.25	0.86
6.083	1.15	12.167	88.25	18.250	1.30		

Unit Hyd Qpeak (cms)= 0.020

PEAK FLOW (cms)= 0.010 (i)
TIME TO PEAK (hrs)= 12.417
RUNOFF VOLUME (mm)= 31.214
TOTAL RAINFALL (mm)= 72.100
RUNOFF COEFFICIENT = 0.433

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

CALIB	
STANDHYD (0204)	Area (ha)= 0.24
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 36.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	40.00	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.15	12.250	88.25	18.33	1.30
0.167	0.00	6.250	1.15	12.333	10.39	18.42	1.30
0.250	0.00	6.333	1.30	12.417	10.38	18.50	1.30
0.333	0.79	6.417	1.30	12.500	10.38	18.58	1.30
0.417	0.79	6.500	1.30	12.583	10.38	18.67	1.30
0.500	0.79	6.583	1.30	12.667	10.38	18.75	1.30
0.583	0.79	6.667	1.30	12.750	10.38	18.83	1.30
0.667	0.79	6.750	1.30	12.833	5.34	18.92	1.30
0.750	0.79	6.833	1.30	12.917	5.34	19.00	1.30
0.833	0.79	6.917	1.30	13.000	5.34	19.08	1.30
0.917	0.79	7.000	1.30	13.083	5.34	19.17	1.30

1.000	0.79	7.083	1.30	13.167	5.34	19.25	1.30
1.083	0.79	7.167	1.30	13.250	5.34	19.33	1.30
1.167	0.79	7.250	1.30	13.333	3.89	19.42	1.30
1.250	0.79	7.333	1.59	13.417	3.89	19.50	1.30
1.333	0.79	7.417	1.59	13.500	3.89	19.58	1.30
1.417	0.79	7.500	1.59	13.583	3.89	19.67	1.30
1.500	0.79	7.583	1.59	13.667	3.89	19.75	1.30
1.583	0.79	7.667	1.59	13.750	3.89	19.83	1.30
1.667	0.79	7.750	1.59	13.833	3.03	19.92	1.30
1.750	0.79	7.833	1.59	13.917	3.03	20.00	1.30
1.833	0.79	7.917	1.59	14.000	3.03	20.08	1.30
1.917	0.79	8.000	1.59	14.083	3.03	20.17	1.30
2.000	0.79	8.083	1.59	14.167	3.03	20.25	1.30
2.083	0.79	8.167	1.59	14.250	3.03	20.33	0.87
2.167	0.79	8.250	1.59	14.333	2.16	20.42	0.87
2.250	0.79	8.333	1.87	14.417	2.16	20.50	0.87
2.333	0.94	8.417	1.87	14.500	2.16	20.58	0.87
2.417	0.94	8.500	1.87	14.583	2.16	20.67	0.87
2.500	0.94	8.583	1.87	14.667	2.16	20.75	0.87
2.583	0.94	8.667	1.87	14.750	2.16	20.83	0.87
2.667	0.94	8.750	1.87	14.833	2.16	20.92	0.87
2.750	0.94	8.833	2.02	14.917	2.16	21.00	0.87
2.833	0.94	8.917	2.02	15.000	2.16	21.08	0.87
2.917	0.94	9.000	2.02	15.083	2.16	21.17	0.87
3.000	0.94	9.083	2.02	15.167	2.16	21.25	0.87
3.083	0.94	9.167	2.02	15.250	2.16	21.33	0.87
3.167	0.94	9.250	2.02	15.333	2.16	21.42	0.87
3.250	0.94	9.333	2.31	15.417	2.16	21.50	0.87
3.333	0.94	9.417	2.31	15.500	2.16	21.58	0.87
3.417	0.94	9.500	2.31	15.583	2.16	21.67	0.87
3.500	0.94	9.583	2.31	15.667	2.16	21.75	0.87
3.583	0.94	9.667	2.31	15.750	2.16	21.83	0.87
3.667	0.94	9.750	2.31	15.833	2.16	21.92	0.87
3.750	0.94	9.833	2.60	15.917	2.16	22.00	0.87
3.833	0.94	9.917	2.60	16.000	2.16	22.08	0.87
3.917	0.94	10.000	2.60	16.083	2.16	22.17	0.87
4.000	0.94	10.083	2.60	16.167	2.16	22.25	0.87
4.083	0.94	10.167	2.60	16.250	2.16	22.33	0.87
4.167	0.94	10.250	2.60	16.333	1.30	22.42	0.87
4.250	0.94	10.333	3.32	16.417	1.30	22.50	0.87
4.333	1.15	10.417	3.32	16.500	1.30	22.58	0.87
4.417	1.15	10.500	3.32	16.583	1.30	22.67	0.87
4.500	1.15	10.583	3.32	16.667	1.30	22.75	0.87
4.583	1.15	10.667	3.32	16.750	1.30	22.83	0.87
4.667	1.15	10.750	3.32	16.833	1.30	22.92	0.87
4.750	1.15	10.833	4.47	16.917	1.30	23.00	0.87
4.833	1.15	10.917	4.47	17.000	1.30	23.08	0.87
4.917	1.15	11.000	4.47	17.083	1.30	23.17	0.87
5.000	1.15	11.083	4.47	17.167	1.30	23.25	0.87
5.083	1.15	11.167	4.47	17.250	1.30	23.33	0.87
5.167	1.15	11.250	4.47	17.333	1.30	23.42	0.87
5.250	1.15	11.333	6.92	17.417	1.30	23.50	0.87
5.333	1.15	11.417	6.92	17.500	1.30	23.58	0.87
5.417	1.15	11.500	6.92	17.583	1.30	23.67	0.87
5.500	1.15	11.583	6.92	17.667	1.30	23.75	0.87
5.583	1.15	11.667	6.92	17.750	1.30	23.83	0.87
5.667	1.15	11.750	6.92	17.833	1.30	23.92	0.87
5.750	1.15	11.833	21.34	17.917	1.30	24.00	0.87
5.833	1.15	11.917	21.34	18.000	1.30	24.08	0.87
5.917	1.15	12.000	21.34	18.083	1.30	24.17	0.87
6.000	1.15	12.083	88.24	18.167	1.30	24.25	0.86
6.083	1.15	12.167	88.25	18.250	1.30		

Max.Eff.Inten.(mm/hr)=		88.25	109.65	
over (min)		5.00	5.00	
Storage Coeff. (min)=		1.26 (ii)	4.70 (ii)	
Unit Hyd. Tpeak (min)=		5.00	5.00	
Unit Hyd. peak (cms)=		0.33	0.22	
				TOTALS
PEAK FLOW	(cms)=	0.02	0.02	0.046 (iii)
TIME TO PEAK	(hrs)=	12.25	12.25	12.25
RUNOFF VOLUME	(mm)=	70.10	40.72	51.29
TOTAL RAINFALL	(mm)=	72.10	72.10	72.10
RUNOFF COEFFICIENT	=	0.97	0.56	0.71

***** 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 (0205)	Area	(ha)=	0.23
ID= 1 DT= 5.0 min	Total Imp(%)=	64.00	Dir. Conn.(%)= 37.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	39.16	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.15	12.250	88.25	18.33	1.30
0.167	0.00	6.250	1.15	12.333	10.39	18.42	1.30
0.250	0.00	6.333	1.30	12.417	10.38	18.50	1.30
0.333	0.79	6.417	1.30	12.500	10.38	18.58	1.30
0.417	0.79	6.500	1.30	12.583	10.38	18.67	1.30
0.500	0.79	6.583	1.30	12.667	10.38	18.75	1.30
0.583	0.79	6.667	1.30	12.750	10.38	18.83	1.30
0.667	0.79	6.750	1.30	12.833	5.34	18.92	1.30
0.750	0.79	6.833	1.30	12.917	5.34	19.00	1.30
0.833	0.79	6.917	1.30	13.000	5.34	19.08	1.30
0.917	0.79	7.000	1.30	13.083	5.34	19.17	1.30
1.000	0.79	7.083	1.30	13.167	5.34	19.25	1.30
1.083	0.79	7.167	1.30	13.250	5.34	19.33	1.30
1.167	0.79	7.250	1.30	13.333	3.89	19.42	1.30
1.250	0.79	7.333	1.59	13.417	3.89	19.50	1.30
1.333	0.79	7.417	1.59	13.500	3.89	19.58	1.30
1.417	0.79	7.500	1.59	13.583	3.89	19.67	1.30
1.500	0.79	7.583	1.59	13.667	3.89	19.75	1.30
1.583	0.79	7.667	1.59	13.750	3.89	19.83	1.30
1.667	0.79	7.750	1.59	13.833	3.03	19.92	1.30
1.750	0.79	7.833	1.59	13.917	3.03	20.00	1.30
1.833	0.79	7.917	1.59	14.000	3.03	20.08	1.30
1.917	0.79	8.000	1.59	14.083	3.03	20.17	1.30
2.000	0.79	8.083	1.59	14.167	3.03	20.25	1.30
2.083	0.79	8.167	1.59	14.250	3.03	20.33	0.87
2.167	0.79	8.250	1.59	14.333	2.16	20.42	0.87
2.250	0.79	8.333	1.87	14.417	2.16	20.50	0.87
2.333	0.94	8.417	1.87	14.500	2.16	20.58	0.87
2.417	0.94	8.500	1.87	14.583	2.16	20.67	0.87
2.500	0.94	8.583	1.87	14.667	2.16	20.75	0.87
2.583	0.94	8.667	1.87	14.750	2.16	20.83	0.87
2.667	0.94	8.750	1.87	14.833	2.16	20.92	0.87
2.750	0.94	8.833	2.02	14.917	2.16	21.00	0.87
2.833	0.94	8.917	2.02	15.000	2.16	21.08	0.87
2.917	0.94	9.000	2.02	15.083	2.16	21.17	0.87
3.000	0.94	9.083	2.02	15.167	2.16	21.25	0.87
3.083	0.94	9.167	2.02	15.250	2.16	21.33	0.87
3.167	0.94	9.250	2.02	15.333	2.16	21.42	0.87
3.250	0.94	9.333	2.31	15.417	2.16	21.50	0.87
3.333	0.94	9.417	2.31	15.500	2.16	21.58	0.87
3.417	0.94	9.500	2.31	15.583	2.16	21.67	0.87
3.500	0.94	9.583	2.31	15.667	2.16	21.75	0.87
3.583	0.94	9.667	2.31	15.750	2.16	21.83	0.87
3.667	0.94	9.750	2.31	15.833	2.16	21.92	0.87
3.750	0.94	9.833	2.60	15.917	2.16	22.00	0.87
3.833	0.94	9.917	2.60	16.000	2.16	22.08	0.87
3.917	0.94	10.000	2.60	16.083	2.16	22.17	0.87
4.000	0.94	10.083	2.60	16.167	2.16	22.25	0.87
4.083	0.94	10.167	2.60	16.250	2.16	22.33	0.87
4.167	0.94	10.250	2.60	16.333	1.30	22.42	0.87
4.250	0.94	10.333	3.32	16.417	1.30	22.50	0.87
4.333	1.15	10.417	3.32	16.500	1.30	22.58	0.87
4.417	1.15	10.500	3.32	16.583	1.30	22.67	0.87
4.500	1.15	10.583	3.32	16.667	1.30	22.75	0.87
4.583	1.15	10.667	3.32	16.750	1.30	22.83	0.87
4.667	1.15	10.750	3.32	16.833	1.30	22.92	0.87
4.750	1.15	10.833	4.47	16.917	1.30	23.00	0.87
4.833	1.15	10.917	4.47	17.000	1.30	23.08	0.87
4.917	1.15	11.000	4.47	17.083	1.30	23.17	0.87
5.000	1.15	11.083	4.47	17.167	1.30	23.25	0.87
5.083	1.15	11.167	4.47	17.250	1.30	23.33	0.87
5.167	1.15	11.250	4.47	17.333	1.30	23.42	0.87
5.250	1.15	11.333	6.92	17.417	1.30	23.50	0.87
5.333	1.15	11.417	6.92	17.500	1.30	23.58	0.87
5.417	1.15	11.500	6.92	17.583	1.30	23.67	0.87
5.500	1.15	11.583	6.92	17.667	1.30	23.75	0.87
5.583	1.15	11.667	6.92	17.750	1.30	23.83	0.87
5.667	1.15	11.750	6.92	17.833	1.30	23.92	0.87
5.750	1.15	11.833	21.34	17.917	1.30	24.00	0.87
5.833	1.15	11.917	21.34	18.000	1.30	24.08	0.87
5.917	1.15	12.000	21.34	18.083	1.30	24.17	0.87
6.000	1.15	12.083	88.24	18.167	1.30	24.25	0.86
6.083	1.15	12.167	88.25	18.250	1.30		

Max.Eff.Inten.(mm/hr)=	88.25	102.90	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.24 (ii)	4.68 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.33	0.22	
			TOTALS
PEAK FLOW (cms)=	0.02	0.02	0.044 (iii)
TIME TO PEAK (hrs)=	12.25	12.25	12.25
RUNOFF VOLUME (mm)=	70.10	39.88	51.05
TOTAL RAINFALL (mm)=	72.10	72.10	72.10
RUNOFF COEFFICIENT =	0.97	0.55	0.71

***** 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 (0206)	Area (ha)=	0.18

|ID= 1 DT= 5.0 min | Total Imp(%)= 66.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.12	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	34.64	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.15	12.250	88.25	18.33	1.30
0.167	0.00	6.250	1.15	12.333	10.39	18.42	1.30
0.250	0.00	6.333	1.30	12.417	10.38	18.50	1.30
0.333	0.79	6.417	1.30	12.500	10.38	18.58	1.30
0.417	0.79	6.500	1.30	12.583	10.38	18.67	1.30
0.500	0.79	6.583	1.30	12.667	10.38	18.75	1.30
0.583	0.79	6.667	1.30	12.750	10.38	18.83	1.30
0.667	0.79	6.750	1.30	12.833	5.34	18.92	1.30
0.750	0.79	6.833	1.30	12.917	5.34	19.00	1.30
0.833	0.79	6.917	1.30	13.000	5.34	19.08	1.30
0.917	0.79	7.000	1.30	13.083	5.34	19.17	1.30
1.000	0.79	7.083	1.30	13.167	5.34	19.25	1.30
1.083	0.79	7.167	1.30	13.250	5.34	19.33	1.30
1.167	0.79	7.250	1.30	13.333	3.89	19.42	1.30
1.250	0.79	7.333	1.59	13.417	3.89	19.50	1.30
1.333	0.79	7.417	1.59	13.500	3.89	19.58	1.30
1.417	0.79	7.500	1.59	13.583	3.89	19.67	1.30
1.500	0.79	7.583	1.59	13.667	3.89	19.75	1.30
1.583	0.79	7.667	1.59	13.750	3.89	19.83	1.30
1.667	0.79	7.750	1.59	13.833	3.03	19.92	1.30
1.750	0.79	7.833	1.59	13.917	3.03	20.00	1.30
1.833	0.79	7.917	1.59	14.000	3.03	20.08	1.30
1.917	0.79	8.000	1.59	14.083	3.03	20.17	1.30
2.000	0.79	8.083	1.59	14.167	3.03	20.25	1.30
2.083	0.79	8.167	1.59	14.250	3.03	20.33	0.87
2.167	0.79	8.250	1.59	14.333	2.16	20.42	0.87
2.250	0.79	8.333	1.87	14.417	2.16	20.50	0.87
2.333	0.94	8.417	1.87	14.500	2.16	20.58	0.87
2.417	0.94	8.500	1.87	14.583	2.16	20.67	0.87
2.500	0.94	8.583	1.87	14.667	2.16	20.75	0.87
2.583	0.94	8.667	1.87	14.750	2.16	20.83	0.87
2.667	0.94	8.750	1.87	14.833	2.16	20.92	0.87
2.750	0.94	8.833	2.02	14.917	2.16	21.00	0.87
2.833	0.94	8.917	2.02	15.000	2.16	21.08	0.87
2.917	0.94	9.000	2.02	15.083	2.16	21.17	0.87
3.000	0.94	9.083	2.02	15.167	2.16	21.25	0.87
3.083	0.94	9.167	2.02	15.250	2.16	21.33	0.87
3.167	0.94	9.250	2.02	15.333	2.16	21.42	0.87
3.250	0.94	9.333	2.31	15.417	2.16	21.50	0.87
3.333	0.94	9.417	2.31	15.500	2.16	21.58	0.87
3.417	0.94	9.500	2.31	15.583	2.16	21.67	0.87
3.500	0.94	9.583	2.31	15.667	2.16	21.75	0.87
3.583	0.94	9.667	2.31	15.750	2.16	21.83	0.87
3.667	0.94	9.750	2.31	15.833	2.16	21.92	0.87
3.750	0.94	9.833	2.60	15.917	2.16	22.00	0.87
3.833	0.94	9.917	2.60	16.000	2.16	22.08	0.87
3.917	0.94	10.000	2.60	16.083	2.16	22.17	0.87
4.000	0.94	10.083	2.60	16.167	2.16	22.25	0.87
4.083	0.94	10.167	2.60	16.250	2.16	22.33	0.87
4.167	0.94	10.250	2.60	16.333	1.30	22.42	0.87
4.250	0.94	10.333	3.32	16.417	1.30	22.50	0.87
4.333	1.15	10.417	3.32	16.500	1.30	22.58	0.87
4.417	1.15	10.500	3.32	16.583	1.30	22.67	0.87
4.500	1.15	10.583	3.32	16.667	1.30	22.75	0.87
4.583	1.15	10.667	3.32	16.750	1.30	22.83	0.87
4.667	1.15	10.750	3.32	16.833	1.30	22.92	0.87
4.750	1.15	10.833	4.47	16.917	1.30	23.00	0.87
4.833	1.15	10.917	4.47	17.000	1.30	23.08	0.87
4.917	1.15	11.000	4.47	17.083	1.30	23.17	0.87
5.000	1.15	11.083	4.47	17.167	1.30	23.25	0.87
5.083	1.15	11.167	4.47	17.250	1.30	23.33	0.87
5.167	1.15	11.250	4.47	17.333	1.30	23.42	0.87
5.250	1.15	11.333	6.92	17.417	1.30	23.50	0.87
5.333	1.15	11.417	6.92	17.500	1.30	23.58	0.87
5.417	1.15	11.500	6.92	17.583	1.30	23.67	0.87
5.500	1.15	11.583	6.92	17.667	1.30	23.75	0.87
5.583	1.15	11.667	6.92	17.750	1.30	23.83	0.87
5.667	1.15	11.750	6.92	17.833	1.30	23.92	0.87
5.750	1.15	11.833	21.34	17.917	1.30	24.00	0.87
5.833	1.15	11.917	21.34	18.000	1.30	24.08	0.87
5.917	1.15	12.000	21.34	18.083	1.30	24.17	0.87
6.000	1.15	12.083	88.24	18.167	1.30	24.25	0.86
6.083	1.15	12.167	88.25	18.250	1.30		

Max.Eff.Inten.(mm/hr)=		88.25	56.04	
over (min)		5.00	5.00	
Storage Coeff. (min)=		1.15 (ii)	3.93 (ii)	
Unit Hyd. Tpeak (min)=		5.00	5.00	
Unit Hyd. peak (cms)=		0.34	0.24	
				TOTALS
PEAK FLOW	(cms)=	0.03	0.01	0.036 (iii)
TIME TO PEAK	(hrs)=	12.25	12.25	12.25
RUNOFF VOLUME	(mm)=	70.10	32.03	54.87
TOTAL RAINFALL	(mm)=	72.10	72.10	72.10
RUNOFF COEFFICIENT	=	0.97	0.44	0.76

***** 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)= 0.08
ID= 1 DT= 5.0 min	Total Imp(%)= 69.00 Dir. Conn.(%)= 38.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.02
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	23.09	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.15	12.250	88.25	18.33	1.30
0.167	0.00	6.250	1.15	12.333	10.39	18.42	1.30
0.250	0.00	6.333	1.30	12.417	10.38	18.50	1.30
0.333	0.79	6.417	1.30	12.500	10.38	18.58	1.30
0.417	0.79	6.500	1.30	12.583	10.38	18.67	1.30
0.500	0.79	6.583	1.30	12.667	10.38	18.75	1.30
0.583	0.79	6.667	1.30	12.750	10.38	18.83	1.30
0.667	0.79	6.750	1.30	12.833	5.34	18.92	1.30
0.750	0.79	6.833	1.30	12.917	5.34	19.00	1.30
0.833	0.79	6.917	1.30	13.000	5.34	19.08	1.30
0.917	0.79	7.000	1.30	13.083	5.34	19.17	1.30
1.000	0.79	7.083	1.30	13.167	5.34	19.25	1.30
1.083	0.79	7.167	1.30	13.250	5.34	19.33	1.30
1.167	0.79	7.250	1.30	13.333	3.89	19.42	1.30
1.250	0.79	7.333	1.59	13.417	3.89	19.50	1.30
1.333	0.79	7.417	1.59	13.500	3.89	19.58	1.30
1.417	0.79	7.500	1.59	13.583	3.89	19.67	1.30
1.500	0.79	7.583	1.59	13.667	3.89	19.75	1.30
1.583	0.79	7.667	1.59	13.750	3.89	19.83	1.30
1.667	0.79	7.750	1.59	13.833	3.03	19.92	1.30
1.750	0.79	7.833	1.59	13.917	3.03	20.00	1.30
1.833	0.79	7.917	1.59	14.000	3.03	20.08	1.30
1.917	0.79	8.000	1.59	14.083	3.03	20.17	1.30
2.000	0.79	8.083	1.59	14.167	3.03	20.25	1.30
2.083	0.79	8.167	1.59	14.250	3.03	20.33	0.87
2.167	0.79	8.250	1.59	14.333	2.16	20.42	0.87
2.250	0.79	8.333	1.87	14.417	2.16	20.50	0.87
2.333	0.94	8.417	1.87	14.500	2.16	20.58	0.87
2.417	0.94	8.500	1.87	14.583	2.16	20.67	0.87
2.500	0.94	8.583	1.87	14.667	2.16	20.75	0.87
2.583	0.94	8.667	1.87	14.750	2.16	20.83	0.87
2.667	0.94	8.750	1.87	14.833	2.16	20.92	0.87
2.750	0.94	8.833	2.02	14.917	2.16	21.00	0.87
2.833	0.94	8.917	2.02	15.000	2.16	21.08	0.87
2.917	0.94	9.000	2.02	15.083	2.16	21.17	0.87
3.000	0.94	9.083	2.02	15.167	2.16	21.25	0.87
3.083	0.94	9.167	2.02	15.250	2.16	21.33	0.87
3.167	0.94	9.250	2.02	15.333	2.16	21.42	0.87
3.250	0.94	9.333	2.31	15.417	2.16	21.50	0.87
3.333	0.94	9.417	2.31	15.500	2.16	21.58	0.87
3.417	0.94	9.500	2.31	15.583	2.16	21.67	0.87
3.500	0.94	9.583	2.31	15.667	2.16	21.75	0.87
3.583	0.94	9.667	2.31	15.750	2.16	21.83	0.87
3.667	0.94	9.750	2.31	15.833	2.16	21.92	0.87
3.750	0.94	9.833	2.60	15.917	2.16	22.00	0.87
3.833	0.94	9.917	2.60	16.000	2.16	22.08	0.87
3.917	0.94	10.000	2.60	16.083	2.16	22.17	0.87
4.000	0.94	10.083	2.60	16.167	2.16	22.25	0.87
4.083	0.94	10.167	2.60	16.250	2.16	22.33	0.87
4.167	0.94	10.250	2.60	16.333	1.30	22.42	0.87
4.250	0.94	10.333	3.32	16.417	1.30	22.50	0.87
4.333	1.15	10.417	3.32	16.500	1.30	22.58	0.87
4.417	1.15	10.500	3.32	16.583	1.30	22.67	0.87
4.500	1.15	10.583	3.32	16.667	1.30	22.75	0.87
4.583	1.15	10.667	3.32	16.750	1.30	22.83	0.87
4.667	1.15	10.750	3.32	16.833	1.30	22.92	0.87
4.750	1.15	10.833	4.47	16.917	1.30	23.00	0.87
4.833	1.15	10.917	4.47	17.000	1.30	23.08	0.87
4.917	1.15	11.000	4.47	17.083	1.30	23.17	0.87
5.000	1.15	11.083	4.47	17.167	1.30	23.25	0.87
5.083	1.15	11.167	4.47	17.250	1.30	23.33	0.87
5.167	1.15	11.250	4.47	17.333	1.30	23.42	0.87
5.250	1.15	11.333	6.92	17.417	1.30	23.50	0.87
5.333	1.15	11.417	6.92	17.500	1.30	23.58	0.87
5.417	1.15	11.500	6.92	17.583	1.30	23.67	0.87
5.500	1.15	11.583	6.92	17.667	1.30	23.75	0.87
5.583	1.15	11.667	6.92	17.750	1.30	23.83	0.87
5.667	1.15	11.750	6.92	17.833	1.30	23.92	0.87
5.750	1.15	11.833	21.34	17.917	1.30	24.00	0.87
5.833	1.15	11.917	21.34	18.000	1.30	24.08	0.87
5.917	1.15	12.000	21.34	18.083	1.30	24.17	0.87
6.000	1.15	12.083	88.24	18.167	1.30	24.25	0.86

```
             6.083    1.15 |12.167   88.25 |18.250    1.30 |

     Max.Eff.Inten.(mm/hr)=      88.25       124.54
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.91 (ii)    4.11 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.24
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.01         0.016 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.25         12.25
     RUNOFF VOLUME    (mm)=      70.10        42.41         52.92
     TOTAL RAINFALL   (mm)=      72.10        72.10         72.10
     RUNOFF COEFFICIENT   =       0.97         0.59          0.73

***** 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.

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

--------------------
| ADD HYD  (  0904)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0203):     0.08   0.016    12.25    52.92
      + ID2= 2 (  0204):     0.24   0.046    12.25    51.29
        ====================================================
        ID = 3 (  0904):     0.32   0.062    12.25    51.70

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

--------------------
| ADD HYD  (  0904)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0904):     0.32   0.062    12.25    51.70
      + ID2= 2 (  0205):     0.23   0.044    12.25    51.05
        ====================================================
        ID = 1 (  0904):     0.55   0.106    12.25    51.43

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

--------------------
| ADD HYD  (  0904)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0904):     0.55   0.106    12.25    51.43
      + ID2= 2 (  0206):     0.18   0.036    12.25    54.87
        ====================================================
        ID = 3 (  0904):     0.73   0.142    12.25    52.27

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

--------------------
| CALIB            |
| STANDHYD (  0304)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  31.00   Dir. Conn.(%)=   5.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.16
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         0.50
     Length            (m)=      39.16       100.00
     Mannings n            =      0.013        0.250

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

                              ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.083    0.00 | 6.167    1.15 |12.250   88.25 | 18.33    1.30
     0.167    0.00 | 6.250    1.15 |12.333   10.39 | 18.42    1.30
     0.250    0.00 | 6.333    1.30 |12.417   10.38 | 18.50    1.30
     0.333    0.79 | 6.417    1.30 |12.500   10.38 | 18.58    1.30
     0.417    0.79 | 6.500    1.30 |12.583   10.38 | 18.67    1.30
     0.500    0.79 | 6.583    1.30 |12.667   10.38 | 18.75    1.30
     0.583    0.79 | 6.667    1.30 |12.750   10.38 | 18.83    1.30
     0.667    0.79 | 6.750    1.30 |12.833    5.34 | 18.92    1.30
     0.750    0.79 | 6.833    1.30 |12.917    5.34 | 19.00    1.30
     0.833    0.79 | 6.917    1.30 |13.000    5.34 | 19.08    1.30
     0.917    0.79 | 7.000    1.30 |13.083    5.34 | 19.17    1.30
     1.000    0.79 | 7.083    1.30 |13.167    5.34 | 19.25    1.30
     1.083    0.79 | 7.167    1.30 |13.250    5.34 | 19.33    1.30
     1.167    0.79 | 7.250    1.30 |13.333    3.89 | 19.42    1.30
     1.250    0.79 | 7.333    1.59 |13.417    3.89 | 19.50    1.30
     1.333    0.79 | 7.417    1.59 |13.500    3.89 | 19.58    1.30
     1.417    0.79 | 7.500    1.59 |13.583    3.89 | 19.67    1.30
     1.500    0.79 | 7.583    1.59 |13.667    3.89 | 19.75    1.30
     1.583    0.79 | 7.667    1.59 |13.750    3.89 | 19.83    1.30
     1.667    0.79 | 7.750    1.59 |13.833    3.03 | 19.92    1.30
     1.750    0.79 | 7.833    1.59 |13.917    3.03 | 20.00    1.30
     1.833    0.79 | 7.917    1.59 |14.000    3.03 | 20.08    1.30
     1.917    0.79 | 8.000    1.59 |14.083    3.03 | 20.17    1.30
```

2.000	0.79	8.083	1.59	14.167	3.03	20.25	1.30
2.083	0.79	8.167	1.59	14.250	3.03	20.33	0.87
2.167	0.79	8.250	1.59	14.333	2.16	20.42	0.87
2.250	0.79	8.333	1.87	14.417	2.16	20.50	0.87
2.333	0.94	8.417	1.87	14.500	2.16	20.58	0.87
2.417	0.94	8.500	1.87	14.583	2.16	20.67	0.87
2.500	0.94	8.583	1.87	14.667	2.16	20.75	0.87
2.583	0.94	8.667	1.87	14.750	2.16	20.83	0.87
2.667	0.94	8.750	1.87	14.833	2.16	20.92	0.87
2.750	0.94	8.833	2.02	14.917	2.16	21.00	0.87
2.833	0.94	8.917	2.02	15.000	2.16	21.08	0.87
2.917	0.94	9.000	2.02	15.083	2.16	21.17	0.87
3.000	0.94	9.083	2.02	15.167	2.16	21.25	0.87
3.083	0.94	9.167	2.02	15.250	2.16	21.33	0.87
3.167	0.94	9.250	2.02	15.333	2.16	21.42	0.87
3.250	0.94	9.333	2.31	15.417	2.16	21.50	0.87
3.333	0.94	9.417	2.31	15.500	2.16	21.58	0.87
3.417	0.94	9.500	2.31	15.583	2.16	21.67	0.87
3.500	0.94	9.583	2.31	15.667	2.16	21.75	0.87
3.583	0.94	9.667	2.31	15.750	2.16	21.83	0.87
3.667	0.94	9.750	2.31	15.833	2.16	21.92	0.87
3.750	0.94	9.833	2.60	15.917	2.16	22.00	0.87
3.833	0.94	9.917	2.60	16.000	2.16	22.08	0.87
3.917	0.94	10.000	2.60	16.083	2.16	22.17	0.87
4.000	0.94	10.083	2.60	16.167	2.16	22.25	0.87
4.083	0.94	10.167	2.60	16.250	2.16	22.33	0.87
4.167	0.94	10.250	2.60	16.333	1.30	22.42	0.87
4.250	0.94	10.333	3.32	16.417	1.30	22.50	0.87
4.333	1.15	10.417	3.32	16.500	1.30	22.58	0.87
4.417	1.15	10.500	3.32	16.583	1.30	22.67	0.87
4.500	1.15	10.583	3.32	16.667	1.30	22.75	0.87
4.583	1.15	10.667	3.32	16.750	1.30	22.83	0.87
4.667	1.15	10.750	3.32	16.833	1.30	22.92	0.87
4.750	1.15	10.833	4.47	16.917	1.30	23.00	0.87
4.833	1.15	10.917	4.47	17.000	1.30	23.08	0.87
4.917	1.15	11.000	4.47	17.083	1.30	23.17	0.87
5.000	1.15	11.083	4.47	17.167	1.30	23.25	0.87
5.083	1.15	11.167	4.47	17.250	1.30	23.33	0.87
5.167	1.15	11.250	4.47	17.333	1.30	23.42	0.87
5.250	1.15	11.333	6.92	17.417	1.30	23.50	0.87
5.333	1.15	11.417	6.92	17.500	1.30	23.58	0.87
5.417	1.15	11.500	6.92	17.583	1.30	23.67	0.87
5.500	1.15	11.583	6.92	17.667	1.30	23.75	0.87
5.583	1.15	11.667	6.92	17.750	1.30	23.83	0.87
5.667	1.15	11.750	6.92	17.833	1.30	23.92	0.87
5.750	1.15	11.833	21.34	17.917	1.30	24.00	0.87
5.833	1.15	11.917	21.34	18.000	1.30	24.08	0.87
5.917	1.15	12.000	21.34	18.083	1.30	24.17	0.87
6.000	1.15	12.083	88.24	18.167	1.30	24.25	0.86
6.083	1.15	12.167	88.25	18.250	1.30		

Max.Eff.Inten.(mm/hr)=	88.25	39.80	
over (min)	5.00	30.00	
Storage Coeff. (min)=	1.24 (ii)	28.04 (ii)	
Unit Hyd. Tpeak (min)=	5.00	30.00	
Unit Hyd. peak (cms)=	0.33	0.04	
			TOTALS
PEAK FLOW (cms)=	0.00	0.01	0.012 (iii)
TIME TO PEAK (hrs)=	12.25	12.58	12.58
RUNOFF VOLUME (mm)=	70.10	35.17	36.84
TOTAL RAINFALL (mm)=	72.10	72.10	72.10
RUNOFF COEFFICIENT =	0.97	0.49	0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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.

ADD HYD (0906)|				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0202):	0.16	0.010	12.42	31.21
+ ID2= 2 (0304):	0.23	0.012	12.58	36.84
ID = 3 (0906):	0.39	0.020	12.50	34.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0906)|				
3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0906):	0.39	0.020	12.50	34.53
+ ID2= 2 (0904):	0.73	0.142	12.25	52.27
ID = 1 (0906):	1.12	0.157	12.25	46.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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       V    V   I    SSSSS  U   U    A    L             (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\55b
def29-5587-4829-b23b-1de6395149aa\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\55b
def29-5587-4829-b23b-1de6395149aa\sc


DATE: 07/25/2023                          TIME: 10:13:54

USER:



COMMENTS: _____________________________________________________________


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  ***********************************************
  ** SIMULATION : (3) 10 Year Design Storm - SC **
  ***********************************************


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|    READ STORM    |    Filename: C:\Users\JBirchard\AppD
|                  |              ata\Local\Temp\
|                  |              ddb5ea80-a20e-4ff4-9c74-beb6735bad9d\965a2d52
| Ptotal= 83.81 mm |    Comments: 10yr 24hr 15min SCS
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	6.50	1.51	12.75	12.07	19.00	1.51
0.50	0.92	6.75	1.51	13.00	6.20	19.25	1.51
0.75	0.92	7.00	1.51	13.25	6.20	19.50	1.51
1.00	0.92	7.25	1.51	13.50	4.53	19.75	1.51
1.25	0.92	7.50	1.84	13.75	4.53	20.00	1.51
1.50	0.92	7.75	1.84	14.00	3.52	20.25	1.51
1.75	0.92	8.00	1.84	14.25	3.52	20.50	1.01
2.00	0.92	8.25	1.84	14.50	2.51	20.75	1.01
2.25	0.92	8.50	2.18	14.75	2.51	21.00	1.01
2.50	1.09	8.75	2.18	15.00	2.51	21.25	1.01
2.75	1.09	9.00	2.35	15.25	2.51	21.50	1.01
3.00	1.09	9.25	2.35	15.50	2.51	21.75	1.01
3.25	1.09	9.50	2.68	15.75	2.51	22.00	1.01
3.50	1.09	9.75	2.68	16.00	2.51	22.25	1.01
3.75	1.09	10.00	3.02	16.25	2.51	22.50	1.01
4.00	1.09	10.25	3.02	16.50	1.51	22.75	1.01
4.25	1.09	10.50	3.86	16.75	1.51	23.00	1.01
4.50	1.34	10.75	3.86	17.00	1.51	23.25	1.01
4.75	1.34	11.00	5.20	17.25	1.51	23.50	1.01
5.00	1.34	11.25	5.20	17.50	1.51	23.75	1.01
5.25	1.34	11.50	8.05	17.75	1.51	24.00	1.01
5.50	1.34	11.75	8.05	18.00	1.51	24.25	1.01
5.75	1.34	12.00	24.81	18.25	1.51		
6.00	1.34	12.25	102.58	18.50	1.51		
6.25	1.34	12.50	12.07	18.75	1.51		

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| CALIB            |
| STANDHYD (  0303)|   Area    (ha)=   0.33
|ID= 1 DT= 5.0 min |   Total Imp(%)=  30.00   Dir. Conn.(%)=   5.00
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		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.10	0.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	0.70
Length	(m)=	46.90	160.00
Mannings n	=	0.013	0.250

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.34	12.250	102.58	18.33	1.51

0.167	0.00	6.250	1.34	12.333	12.08	18.42	1.51
0.250	0.00	6.333	1.51	12.417	12.07	18.50	1.51
0.333	0.92	6.417	1.51	12.500	12.07	18.58	1.51
0.417	0.92	6.500	1.51	12.583	12.07	18.67	1.51
0.500	0.92	6.583	1.51	12.667	12.07	18.75	1.51
0.583	0.92	6.667	1.51	12.750	12.07	18.83	1.51
0.667	0.92	6.750	1.51	12.833	6.20	18.92	1.51
0.750	0.92	6.833	1.51	12.917	6.20	19.00	1.51
0.833	0.92	6.917	1.51	13.000	6.20	19.08	1.51
0.917	0.92	7.000	1.51	13.083	6.20	19.17	1.51
1.000	0.92	7.083	1.51	13.167	6.20	19.25	1.51
1.083	0.92	7.167	1.51	13.250	6.20	19.33	1.51
1.167	0.92	7.250	1.51	13.333	4.53	19.42	1.51
1.250	0.92	7.333	1.84	13.417	4.53	19.50	1.51
1.333	0.92	7.417	1.84	13.500	4.53	19.58	1.51
1.417	0.92	7.500	1.84	13.583	4.53	19.67	1.51
1.500	0.92	7.583	1.84	13.667	4.53	19.75	1.51
1.583	0.92	7.667	1.84	13.750	4.53	19.83	1.51
1.667	0.92	7.750	1.84	13.833	3.52	19.92	1.51
1.750	0.92	7.833	1.84	13.917	3.52	20.00	1.51
1.833	0.92	7.917	1.84	14.000	3.52	20.08	1.51
1.917	0.92	8.000	1.84	14.083	3.52	20.17	1.51
2.000	0.92	8.083	1.84	14.167	3.52	20.25	1.51
2.083	0.92	8.167	1.84	14.250	3.52	20.33	1.01
2.167	0.92	8.250	1.84	14.333	2.51	20.42	1.01
2.250	0.92	8.333	2.18	14.417	2.51	20.50	1.01
2.333	1.09	8.417	2.18	14.500	2.51	20.58	1.01
2.417	1.09	8.500	2.18	14.583	2.51	20.67	1.01
2.500	1.09	8.583	2.18	14.667	2.51	20.75	1.01
2.583	1.09	8.667	2.18	14.750	2.51	20.83	1.01
2.667	1.09	8.750	2.18	14.833	2.51	20.92	1.01
2.750	1.09	8.833	2.35	14.917	2.51	21.00	1.01
2.833	1.09	8.917	2.35	15.000	2.51	21.08	1.01
2.917	1.09	9.000	2.35	15.083	2.51	21.17	1.01
3.000	1.09	9.083	2.35	15.167	2.51	21.25	1.01
3.083	1.09	9.167	2.35	15.250	2.51	21.33	1.01
3.167	1.09	9.250	2.35	15.333	2.51	21.42	1.01
3.250	1.09	9.333	2.68	15.417	2.51	21.50	1.01
3.333	1.09	9.417	2.68	15.500	2.51	21.58	1.01
3.417	1.09	9.500	2.68	15.583	2.51	21.67	1.01
3.500	1.09	9.583	2.68	15.667	2.51	21.75	1.01
3.583	1.09	9.667	2.68	15.750	2.51	21.83	1.01
3.667	1.09	9.750	2.68	15.833	2.51	21.92	1.01
3.750	1.09	9.833	3.02	15.917	2.51	22.00	1.01
3.833	1.09	9.917	3.02	16.000	2.51	22.08	1.01
3.917	1.09	10.000	3.02	16.083	2.51	22.17	1.01
4.000	1.09	10.083	3.02	16.167	2.51	22.25	1.01
4.083	1.09	10.167	3.02	16.250	2.51	22.33	1.01
4.167	1.09	10.250	3.02	16.333	1.51	22.42	1.01
4.250	1.09	10.333	3.86	16.417	1.51	22.50	1.01
4.333	1.34	10.417	3.86	16.500	1.51	22.58	1.01
4.417	1.34	10.500	3.86	16.583	1.51	22.67	1.01
4.500	1.34	10.583	3.86	16.667	1.51	22.75	1.01
4.583	1.34	10.667	3.86	16.750	1.51	22.83	1.01
4.667	1.34	10.750	3.86	16.833	1.51	22.92	1.01
4.750	1.34	10.833	5.20	16.917	1.51	23.00	1.01
4.833	1.34	10.917	5.20	17.000	1.51	23.08	1.01
4.917	1.34	11.000	5.20	17.083	1.51	23.17	1.01
5.000	1.34	11.083	5.20	17.167	1.51	23.25	1.01
5.083	1.34	11.167	5.20	17.250	1.51	23.33	1.01
5.167	1.34	11.250	5.20	17.333	1.51	23.42	1.01
5.250	1.34	11.333	8.05	17.417	1.51	23.50	1.01
5.333	1.34	11.417	8.05	17.500	1.51	23.58	1.01
5.417	1.34	11.500	8.05	17.583	1.51	23.67	1.01
5.500	1.34	11.583	8.05	17.667	1.51	23.75	1.01
5.583	1.34	11.667	8.05	17.750	1.51	23.83	1.01
5.667	1.34	11.750	8.05	17.833	1.51	23.92	1.01
5.750	1.34	11.833	24.81	17.917	1.51	24.00	1.01
5.833	1.34	11.917	24.81	18.000	1.51	24.08	1.01
5.917	1.34	12.000	24.81	18.083	1.51	24.17	1.01
6.000	1.34	12.083	102.57	18.167	1.51	24.25	1.01
6.083	1.34	12.167	102.58	18.250	1.51		

Max.Eff.Inten.(mm/hr)=	102.58	49.41	
over (min)	5.00	35.00	
Storage Coeff. (min)=	1.30 (ii)	30.76 (ii)	
Unit Hyd. Tpeak (min)=	5.00	35.00	
Unit Hyd. peak (cms)=	0.33	0.04	
			TOTALS
PEAK FLOW (cms)=	0.00	0.02	0.020 (iii)
TIME TO PEAK (hrs)=	12.25	12.67	12.67
RUNOFF VOLUME (mm)=	81.81	44.01	45.84
TOTAL RAINFALL (mm)=	83.81	83.81	83.81
RUNOFF COEFFICIENT =	0.98	0.53	0.55

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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 (0201)	Area (ha)= 0.23
ID= 1 DT= 5.0 min	Total Imp(%)= 38.00 Dir. Conn.(%)= 5.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.14
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	0.70
Length	(m)=	39.16	160.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.34	12.250	102.58	18.33	1.51
0.167	0.00	6.250	1.34	12.333	12.08	18.42	1.51
0.250	0.00	6.333	1.51	12.417	12.07	18.50	1.51
0.333	0.92	6.417	1.51	12.500	12.07	18.58	1.51
0.417	0.92	6.500	1.51	12.583	12.07	18.67	1.51
0.500	0.92	6.583	1.51	12.667	12.07	18.75	1.51
0.583	0.92	6.667	1.51	12.750	12.07	18.83	1.51
0.667	0.92	6.750	1.51	12.833	6.20	18.92	1.51
0.750	0.92	6.833	1.51	12.917	6.20	19.00	1.51
0.833	0.92	6.917	1.51	13.000	6.20	19.08	1.51
0.917	0.92	7.000	1.51	13.083	6.20	19.17	1.51
1.000	0.92	7.083	1.51	13.167	6.20	19.25	1.51
1.083	0.92	7.167	1.51	13.250	6.20	19.33	1.51
1.167	0.92	7.250	1.51	13.333	4.53	19.42	1.51
1.250	0.92	7.333	1.84	13.417	4.53	19.50	1.51
1.333	0.92	7.417	1.84	13.500	4.53	19.58	1.51
1.417	0.92	7.500	1.84	13.583	4.53	19.67	1.51
1.500	0.92	7.583	1.84	13.667	4.53	19.75	1.51
1.583	0.92	7.667	1.84	13.750	4.53	19.83	1.51
1.667	0.92	7.750	1.84	13.833	3.52	19.92	1.51
1.750	0.92	7.833	1.84	13.917	3.52	20.00	1.51
1.833	0.92	7.917	1.84	14.000	3.52	20.08	1.51
1.917	0.92	8.000	1.84	14.083	3.52	20.17	1.51
2.000	0.92	8.083	1.84	14.167	3.52	20.25	1.51
2.083	0.92	8.167	1.84	14.250	3.52	20.33	1.01
2.167	0.92	8.250	1.84	14.333	2.51	20.42	1.01
2.250	0.92	8.333	2.18	14.417	2.51	20.50	1.01
2.333	1.09	8.417	2.18	14.500	2.51	20.58	1.01
2.417	1.09	8.500	2.18	14.583	2.51	20.67	1.01
2.500	1.09	8.583	2.18	14.667	2.51	20.75	1.01
2.583	1.09	8.667	2.18	14.750	2.51	20.83	1.01
2.667	1.09	8.750	2.18	14.833	2.51	20.92	1.01
2.750	1.09	8.833	2.35	14.917	2.51	21.00	1.01
2.833	1.09	8.917	2.35	15.000	2.51	21.08	1.01
2.917	1.09	9.000	2.35	15.083	2.51	21.17	1.01
3.000	1.09	9.083	2.35	15.167	2.51	21.25	1.01
3.083	1.09	9.167	2.35	15.250	2.51	21.33	1.01
3.167	1.09	9.250	2.35	15.333	2.51	21.42	1.01
3.250	1.09	9.333	2.68	15.417	2.51	21.50	1.01
3.333	1.09	9.417	2.68	15.500	2.51	21.58	1.01
3.417	1.09	9.500	2.68	15.583	2.51	21.67	1.01
3.500	1.09	9.583	2.68	15.667	2.51	21.75	1.01
3.583	1.09	9.667	2.68	15.750	2.51	21.83	1.01
3.667	1.09	9.750	2.68	15.833	2.51	21.92	1.01
3.750	1.09	9.833	3.02	15.917	2.51	22.00	1.01
3.833	1.09	9.917	3.02	16.000	2.51	22.08	1.01
3.917	1.09	10.000	3.02	16.083	2.51	22.17	1.01
4.000	1.09	10.083	3.02	16.167	2.51	22.25	1.01
4.083	1.09	10.167	3.02	16.250	2.51	22.33	1.01
4.167	1.09	10.250	3.02	16.333	1.51	22.42	1.01
4.250	1.09	10.333	3.86	16.417	1.51	22.50	1.01
4.333	1.34	10.417	3.86	16.500	1.51	22.58	1.01
4.417	1.34	10.500	3.86	16.583	1.51	22.67	1.01
4.500	1.34	10.583	3.86	16.667	1.51	22.75	1.01
4.583	1.34	10.667	3.86	16.750	1.51	22.83	1.01
4.667	1.34	10.750	3.86	16.833	1.51	22.92	1.01
4.750	1.34	10.833	5.20	16.917	1.51	23.00	1.01
4.833	1.34	10.917	5.20	17.000	1.51	23.08	1.01
4.917	1.34	11.000	5.20	17.083	1.51	23.17	1.01
5.000	1.34	11.083	5.20	17.167	1.51	23.25	1.01
5.083	1.34	11.167	5.20	17.250	1.51	23.33	1.01
5.167	1.34	11.250	5.20	17.333	1.51	23.42	1.01
5.250	1.34	11.333	8.05	17.417	1.51	23.50	1.01
5.333	1.34	11.417	8.05	17.500	1.51	23.58	1.01
5.417	1.34	11.500	8.05	17.583	1.51	23.67	1.01
5.500	1.34	11.583	8.05	17.667	1.51	23.75	1.01
5.583	1.34	11.667	8.05	17.750	1.51	23.83	1.01
5.667	1.34	11.750	8.05	17.833	1.51	23.92	1.01
5.750	1.34	11.833	24.81	17.917	1.51	24.00	1.01
5.833	1.34	11.917	24.81	18.000	1.51	24.08	1.01
5.917	1.34	12.000	24.81	18.083	1.51	24.17	1.01
6.000	1.34	12.083	102.57	18.167	1.51	24.25	1.01
6.083	1.34	12.167	102.58	18.250	1.51		

				TOTALS
Max.Eff.Inten.	(mm/hr)=	102.58	59.54	
over	(min)	5.00	30.00	
Storage Coeff.	(min)=	1.17 (ii)	28.51 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	30.00	
Unit Hyd. peak	(cms)=	0.34	0.04	
PEAK FLOW	(cms)=	0.00	0.02	0.016 (iii)
TIME TO PEAK	(hrs)=	12.25	12.58	12.58
RUNOFF VOLUME	(mm)=	81.81	46.75	48.43
TOTAL RAINFALL	(mm)=	83.81	83.81	83.81
RUNOFF COEFFICIENT	=	0.98	0.56	0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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.

ADD HYD (0903)					
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0201):		0.23	0.016	12.58	48.43
+ ID2= 2 (0303):		0.33	0.020	12.67	45.84
ID = 3 (0903):		0.56	0.035	12.67	46.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0202)	Area	(ha)=	0.16	Curve Number	(CN)= 76.5
ID= 1 DT= 5.0 min	Ia	(mm)=	4.71	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.30		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.34	12.250	102.58	18.33	1.51
0.167	0.00	6.250	1.34	12.333	12.08	18.42	1.51
0.250	0.00	6.333	1.51	12.417	12.07	18.50	1.51
0.333	0.92	6.417	1.51	12.500	12.07	18.58	1.51
0.417	0.92	6.500	1.51	12.583	12.07	18.67	1.51
0.500	0.92	6.583	1.51	12.667	12.07	18.75	1.51
0.583	0.92	6.667	1.51	12.750	12.07	18.83	1.51
0.667	0.92	6.750	1.51	12.833	6.20	18.92	1.51
0.750	0.92	6.833	1.51	12.917	6.20	19.00	1.51
0.833	0.92	6.917	1.51	13.000	6.20	19.08	1.51
0.917	0.92	7.000	1.51	13.083	6.20	19.17	1.51
1.000	0.92	7.083	1.51	13.167	6.20	19.25	1.51
1.083	0.92	7.167	1.51	13.250	6.20	19.33	1.51
1.167	0.92	7.250	1.51	13.333	4.53	19.42	1.51
1.250	0.92	7.333	1.84	13.417	4.53	19.50	1.51
1.333	0.92	7.417	1.84	13.500	4.53	19.58	1.51
1.417	0.92	7.500	1.84	13.583	4.53	19.67	1.51
1.500	0.92	7.583	1.84	13.667	4.53	19.75	1.51
1.583	0.92	7.667	1.84	13.750	4.53	19.83	1.51
1.667	0.92	7.750	1.84	13.833	3.52	19.92	1.51
1.750	0.92	7.833	1.84	13.917	3.52	20.00	1.51
1.833	0.92	7.917	1.84	14.000	3.52	20.08	1.51
1.917	0.92	8.000	1.84	14.083	3.52	20.17	1.51
2.000	0.92	8.083	1.84	14.167	3.52	20.25	1.51
2.083	0.92	8.167	1.84	14.250	3.52	20.33	1.01
2.167	0.92	8.250	1.84	14.333	2.51	20.42	1.01
2.250	0.92	8.333	2.18	14.417	2.51	20.50	1.01
2.333	1.09	8.417	2.18	14.500	2.51	20.58	1.01
2.417	1.09	8.500	2.18	14.583	2.51	20.67	1.01
2.500	1.09	8.583	2.18	14.667	2.51	20.75	1.01
2.583	1.09	8.667	2.18	14.750	2.51	20.83	1.01
2.667	1.09	8.750	2.18	14.833	2.51	20.92	1.01
2.750	1.09	8.833	2.35	14.917	2.51	21.00	1.01
2.833	1.09	8.917	2.35	15.000	2.51	21.08	1.01
2.917	1.09	9.000	2.35	15.083	2.51	21.17	1.01
3.000	1.09	9.083	2.35	15.167	2.51	21.25	1.01
3.083	1.09	9.167	2.35	15.250	2.51	21.33	1.01
3.167	1.09	9.250	2.35	15.333	2.51	21.42	1.01
3.250	1.09	9.333	2.68	15.417	2.51	21.50	1.01
3.333	1.09	9.417	2.68	15.500	2.51	21.58	1.01
3.417	1.09	9.500	2.68	15.583	2.51	21.67	1.01
3.500	1.09	9.583	2.68	15.667	2.51	21.75	1.01
3.583	1.09	9.667	2.68	15.750	2.51	21.83	1.01
3.667	1.09	9.750	2.68	15.833	2.51	21.92	1.01
3.750	1.09	9.833	3.02	15.917	2.51	22.00	1.01
3.833	1.09	9.917	3.02	16.000	2.51	22.08	1.01
3.917	1.09	10.000	3.02	16.083	2.51	22.17	1.01
4.000	1.09	10.083	3.02	16.167	2.51	22.25	1.01
4.083	1.09	10.167	3.02	16.250	2.51	22.33	1.01
4.167	1.09	10.250	3.02	16.333	1.51	22.42	1.01
4.250	1.09	10.333	3.86	16.417	1.51	22.50	1.01
4.333	1.34	10.417	3.86	16.500	1.51	22.58	1.01
4.417	1.34	10.500	3.86	16.583	1.51	22.67	1.01
4.500	1.34	10.583	3.86	16.667	1.51	22.75	1.01
4.583	1.34	10.667	3.86	16.750	1.51	22.83	1.01
4.667	1.34	10.750	3.86	16.833	1.51	22.92	1.01
4.750	1.34	10.833	5.20	16.917	1.51	23.00	1.01
4.833	1.34	10.917	5.20	17.000	1.51	23.08	1.01
4.917	1.34	11.000	5.20	17.083	1.51	23.17	1.01
5.000	1.34	11.083	5.20	17.167	1.51	23.25	1.01
5.083	1.34	11.167	5.20	17.250	1.51	23.33	1.01
5.167	1.34	11.250	5.20	17.333	1.51	23.42	1.01
5.250	1.34	11.333	8.05	17.417	1.51	23.50	1.01
5.333	1.34	11.417	8.05	17.500	1.51	23.58	1.01
5.417	1.34	11.500	8.05	17.583	1.51	23.67	1.01

5.500	1.34	11.583	8.05	17.667	1.51	23.75	1.01
5.583	1.34	11.667	8.05	17.750	1.51	23.83	1.01
5.667	1.34	11.750	8.05	17.833	1.51	23.92	1.01
5.750	1.34	11.833	24.81	17.917	1.51	24.00	1.01
5.833	1.34	11.917	24.81	18.000	1.51	24.08	1.01
5.917	1.34	12.000	24.81	18.083	1.51	24.17	1.01
6.000	1.34	12.083	102.57	18.167	1.51	24.25	1.01
6.083	1.34	12.167	102.58	18.250	1.51		

Unit Hyd Qpeak (cms)= 0.020

PEAK FLOW (cms)= 0.012 (i)
TIME TO PEAK (hrs)= 12.417
RUNOFF VOLUME (mm)= 39.801
TOTAL RAINFALL (mm)= 83.810
RUNOFF COEFFICIENT = 0.475

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

CALIB	
STANDHYD (0204)	Area (ha)= 0.24
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 36.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.16	0.08
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	2.00	1.00
Length (m)=	40.00	8.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.34	12.250	102.58	18.33	1.51
0.167	0.00	6.250	1.34	12.333	12.08	18.42	1.51
0.250	0.00	6.333	1.51	12.417	12.07	18.50	1.51
0.333	0.92	6.417	1.51	12.500	12.07	18.58	1.51
0.417	0.92	6.500	1.51	12.583	12.07	18.67	1.51
0.500	0.92	6.583	1.51	12.667	12.07	18.75	1.51
0.583	0.92	6.667	1.51	12.750	12.07	18.83	1.51
0.667	0.92	6.750	1.51	12.833	6.20	18.92	1.51
0.750	0.92	6.833	1.51	12.917	6.20	19.00	1.51
0.833	0.92	6.917	1.51	13.000	6.20	19.08	1.51
0.917	0.92	7.000	1.51	13.083	6.20	19.17	1.51
1.000	0.92	7.083	1.51	13.167	6.20	19.25	1.51
1.083	0.92	7.167	1.51	13.250	6.20	19.33	1.51
1.167	0.92	7.250	1.51	13.333	4.53	19.42	1.51
1.250	0.92	7.333	1.84	13.417	4.53	19.50	1.51
1.333	0.92	7.417	1.84	13.500	4.53	19.58	1.51
1.417	0.92	7.500	1.84	13.583	4.53	19.67	1.51
1.500	0.92	7.583	1.84	13.667	4.53	19.75	1.51
1.583	0.92	7.667	1.84	13.750	4.53	19.83	1.51
1.667	0.92	7.750	1.84	13.833	3.52	19.92	1.51
1.750	0.92	7.833	1.84	13.917	3.52	20.00	1.51
1.833	0.92	7.917	1.84	14.000	3.52	20.08	1.51
1.917	0.92	8.000	1.84	14.083	3.52	20.17	1.51
2.000	0.92	8.083	1.84	14.167	3.52	20.25	1.51
2.083	0.92	8.167	1.84	14.250	3.52	20.33	1.01
2.167	0.92	8.250	1.84	14.333	2.51	20.42	1.01
2.250	0.92	8.333	2.18	14.417	2.51	20.50	1.01
2.333	1.09	8.417	2.18	14.500	2.51	20.58	1.01
2.417	1.09	8.500	2.18	14.583	2.51	20.67	1.01
2.500	1.09	8.583	2.18	14.667	2.51	20.75	1.01
2.583	1.09	8.667	2.18	14.750	2.51	20.83	1.01
2.667	1.09	8.750	2.18	14.833	2.51	20.92	1.01
2.750	1.09	8.833	2.35	14.917	2.51	21.00	1.01
2.833	1.09	8.917	2.35	15.000	2.51	21.08	1.01
2.917	1.09	9.000	2.35	15.083	2.51	21.17	1.01
3.000	1.09	9.083	2.35	15.167	2.51	21.25	1.01
3.083	1.09	9.167	2.35	15.250	2.51	21.33	1.01
3.167	1.09	9.250	2.35	15.333	2.51	21.42	1.01
3.250	1.09	9.333	2.68	15.417	2.51	21.50	1.01
3.333	1.09	9.417	2.68	15.500	2.51	21.58	1.01
3.417	1.09	9.500	2.68	15.583	2.51	21.67	1.01
3.500	1.09	9.583	2.68	15.667	2.51	21.75	1.01
3.583	1.09	9.667	2.68	15.750	2.51	21.83	1.01
3.667	1.09	9.750	2.68	15.833	2.51	21.92	1.01
3.750	1.09	9.833	3.02	15.917	2.51	22.00	1.01
3.833	1.09	9.917	3.02	16.000	2.51	22.08	1.01
3.917	1.09	10.000	3.02	16.083	2.51	22.17	1.01
4.000	1.09	10.083	3.02	16.167	2.51	22.25	1.01
4.083	1.09	10.167	3.02	16.250	2.51	22.33	1.01
4.167	1.09	10.250	3.02	16.333	1.51	22.42	1.01
4.250	1.09	10.333	3.86	16.417	1.51	22.50	1.01
4.333	1.34	10.417	3.86	16.500	1.51	22.58	1.01
4.417	1.34	10.500	3.86	16.583	1.51	22.67	1.01
4.500	1.34	10.583	3.86	16.667	1.51	22.75	1.01
4.583	1.34	10.667	3.86	16.750	1.51	22.83	1.01
4.667	1.34	10.750	3.86	16.833	1.51	22.92	1.01
4.750	1.34	10.833	5.20	16.917	1.51	23.00	1.01
4.833	1.34	10.917	5.20	17.000	1.51	23.08	1.01
4.917	1.34	11.000	5.20	17.083	1.51	23.17	1.01
5.000	1.34	11.083	5.20	17.167	1.51	23.25	1.01
5.083	1.34	11.167	5.20	17.250	1.51	23.33	1.01
5.167	1.34	11.250	5.20	17.333	1.51	23.42	1.01

5.250	1.34	11.333	8.05	17.417	1.51	23.50	1.01
5.333	1.34	11.417	8.05	17.500	1.51	23.58	1.01
5.417	1.34	11.500	8.05	17.583	1.51	23.67	1.01
5.500	1.34	11.583	8.05	17.667	1.51	23.75	1.01
5.583	1.34	11.667	8.05	17.750	1.51	23.83	1.01
5.667	1.34	11.750	8.05	17.833	1.51	23.92	1.01
5.750	1.34	11.833	24.81	17.917	1.51	24.00	1.01
5.833	1.34	11.917	24.81	18.000	1.51	24.08	1.01
5.917	1.34	12.000	24.81	18.083	1.51	24.17	1.01
6.000	1.34	12.083	102.57	18.167	1.51	24.25	1.01
6.083	1.34	12.167	102.58	18.250	1.51		

Max.Eff.Inten.(mm/hr)=	102.58	135.58	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.19 (ii)	4.42 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.33	0.23	
			TOTALS
PEAK FLOW (cms)=	0.02	0.03	0.056 (iii)
TIME TO PEAK (hrs)=	12.25	12.25	12.25
RUNOFF VOLUME (mm)=	81.81	50.61	61.83
TOTAL RAINFALL (mm)=	83.81	83.81	83.81
RUNOFF COEFFICIENT =	0.98	0.60	0.74

***** 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 (0205) | Area (ha)= 0.23
ID= 1 DT= 5.0 min | Total Imp(%)= 64.00 Dir. Conn.(%)= 37.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	39.16	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	6.167	1.34	12.250	102.58	18.33	1.51
0.167	0.00	6.250	1.34	12.333	12.08	18.42	1.51
0.250	0.00	6.333	1.51	12.417	12.07	18.50	1.51
0.333	0.92	6.417	1.51	12.500	12.07	18.58	1.51
0.417	0.92	6.500	1.51	12.583	12.07	18.67	1.51
0.500	0.92	6.583	1.51	12.667	12.07	18.75	1.51
0.583	0.92	6.667	1.51	12.750	12.07	18.83	1.51
0.667	0.92	6.750	1.51	12.833	6.20	18.92	1.51
0.750	0.92	6.833	1.51	12.917	6.20	19.00	1.51
0.833	0.92	6.917	1.51	13.000	6.20	19.08	1.51
0.917	0.92	7.000	1.51	13.083	6.20	19.17	1.51
1.000	0.92	7.083	1.51	13.167	6.20	19.25	1.51
1.083	0.92	7.167	1.51	13.250	6.20	19.33	1.51
1.167	0.92	7.250	1.51	13.333	4.53	19.42	1.51
1.250	0.92	7.333	1.84	13.417	4.53	19.50	1.51
1.333	0.92	7.417	1.84	13.500	4.53	19.58	1.51
1.417	0.92	7.500	1.84	13.583	4.53	19.67	1.51
1.500	0.92	7.583	1.84	13.667	4.53	19.75	1.51
1.583	0.92	7.667	1.84	13.750	4.53	19.83	1.51
1.667	0.92	7.750	1.84	13.833	3.52	19.92	1.51
1.750	0.92	7.833	1.84	13.917	3.52	20.00	1.51
1.833	0.92	7.917	1.84	14.000	3.52	20.08	1.51
1.917	0.92	8.000	1.84	14.083	3.52	20.17	1.51
2.000	0.92	8.083	1.84	14.167	3.52	20.25	1.51
2.083	0.92	8.167	1.84	14.250	3.52	20.33	1.01
2.167	0.92	8.250	1.84	14.333	2.51	20.42	1.01
2.250	0.92	8.333	2.18	14.417	2.51	20.50	1.01
2.333	1.09	8.417	2.18	14.500	2.51	20.58	1.01
2.417	1.09	8.500	2.18	14.583	2.51	20.67	1.01
2.500	1.09	8.583	2.18	14.667	2.51	20.75	1.01
2.583	1.09	8.667	2.18	14.750	2.51	20.83	1.01
2.667	1.09	8.750	2.18	14.833	2.51	20.92	1.01
2.750	1.09	8.833	2.35	14.917	2.51	21.00	1.01
2.833	1.09	8.917	2.35	15.000	2.51	21.08	1.01
2.917	1.09	9.000	2.35	15.083	2.51	21.17	1.01
3.000	1.09	9.083	2.35	15.167	2.51	21.25	1.01
3.083	1.09	9.167	2.35	15.250	2.51	21.33	1.01
3.167	1.09	9.250	2.35	15.333	2.51	21.42	1.01
3.250	1.09	9.333	2.68	15.417	2.51	21.50	1.01
3.333	1.09	9.417	2.68	15.500	2.51	21.58	1.01
3.417	1.09	9.500	2.68	15.583	2.51	21.67	1.01
3.500	1.09	9.583	2.68	15.667	2.51	21.75	1.01
3.583	1.09	9.667	2.68	15.750	2.51	21.83	1.01
3.667	1.09	9.750	2.68	15.833	2.51	21.92	1.01
3.750	1.09	9.833	3.02	15.917	2.51	22.00	1.01
3.833	1.09	9.917	3.02	16.000	2.51	22.08	1.01
3.917	1.09	10.000	3.02	16.083	2.51	22.17	1.01
4.000	1.09	10.083	3.02	16.167	2.51	22.25	1.01
4.083	1.09	10.167	3.02	16.250	2.51	22.33	1.01

4.167	1.09	10.250	3.02	16.333	1.51	22.42	1.01
4.250	1.09	10.333	3.86	16.417	1.51	22.50	1.01
4.333	1.34	10.417	3.86	16.500	1.51	22.58	1.01
4.417	1.34	10.500	3.86	16.583	1.51	22.67	1.01
4.500	1.34	10.583	3.86	16.667	1.51	22.75	1.01
4.583	1.34	10.667	3.86	16.750	1.51	22.83	1.01
4.667	1.34	10.750	3.86	16.833	1.51	22.92	1.01
4.750	1.34	10.833	5.20	16.917	1.51	23.00	1.01
4.833	1.34	10.917	5.20	17.000	1.51	23.08	1.01
4.917	1.34	11.000	5.20	17.083	1.51	23.17	1.01
5.000	1.34	11.083	5.20	17.167	1.51	23.25	1.01
5.083	1.34	11.167	5.20	17.250	1.51	23.33	1.01
5.167	1.34	11.250	5.20	17.333	1.51	23.42	1.01
5.250	1.34	11.333	8.05	17.417	1.51	23.50	1.01
5.333	1.34	11.417	8.05	17.500	1.51	23.58	1.01
5.417	1.34	11.500	8.05	17.583	1.51	23.67	1.01
5.500	1.34	11.583	8.05	17.667	1.51	23.75	1.01
5.583	1.34	11.667	8.05	17.750	1.51	23.83	1.01
5.667	1.34	11.750	8.05	17.833	1.51	23.92	1.01
5.750	1.34	11.833	24.81	17.917	1.51	24.00	1.01
5.833	1.34	11.917	24.81	18.000	1.51	24.08	1.01
5.917	1.34	12.000	24.81	18.083	1.51	24.17	1.01
6.000	1.34	12.083	102.57	18.167	1.51	24.25	1.01
6.083	1.34	12.167	102.58	18.250	1.51		

Max.Eff.Inten.(mm/hr)=	102.58	127.54	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.17 (ii)	4.41 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.23	
			TOTALS
PEAK FLOW (cms)=	0.02	0.03	0.053 (iii)
TIME TO PEAK (hrs)=	12.25	12.25	12.25
RUNOFF VOLUME (mm)=	81.81	49.67	61.55
TOTAL RAINFALL (mm)=	83.81	83.81	83.81
RUNOFF COEFFICIENT =	0.98	0.59	0.73

***** 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 (0206)	Area (ha)=	0.18	
ID= 1 DT= 5.0 min	Total Imp(%)=	66.00	Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.12	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	34.64	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.34	12.250	102.58	18.33	1.51
0.167	0.00	6.250	1.34	12.333	12.08	18.42	1.51
0.250	0.00	6.333	1.51	12.417	12.07	18.50	1.51
0.333	0.92	6.417	1.51	12.500	12.07	18.58	1.51
0.417	0.92	6.500	1.51	12.583	12.07	18.67	1.51
0.500	0.92	6.583	1.51	12.667	12.07	18.75	1.51
0.583	0.92	6.667	1.51	12.750	12.07	18.83	1.51
0.667	0.92	6.750	1.51	12.833	6.20	18.92	1.51
0.750	0.92	6.833	1.51	12.917	6.20	19.00	1.51
0.833	0.92	6.917	1.51	13.000	6.20	19.08	1.51
0.917	0.92	7.000	1.51	13.083	6.20	19.17	1.51
1.000	0.92	7.083	1.51	13.167	6.20	19.25	1.51
1.083	0.92	7.167	1.51	13.250	6.20	19.33	1.51
1.167	0.92	7.250	1.51	13.333	4.53	19.42	1.51
1.250	0.92	7.333	1.84	13.417	4.53	19.50	1.51
1.333	0.92	7.417	1.84	13.500	4.53	19.58	1.51
1.417	0.92	7.500	1.84	13.583	4.53	19.67	1.51
1.500	0.92	7.583	1.84	13.667	4.53	19.75	1.51
1.583	0.92	7.667	1.84	13.750	4.53	19.83	1.51
1.667	0.92	7.750	1.84	13.833	3.52	19.92	1.51
1.750	0.92	7.833	1.84	13.917	3.52	20.00	1.51
1.833	0.92	7.917	1.84	14.000	3.52	20.08	1.51
1.917	0.92	8.000	1.84	14.083	3.52	20.17	1.51
2.000	0.92	8.083	1.84	14.167	3.52	20.25	1.51
2.083	0.92	8.167	1.84	14.250	3.52	20.33	1.01
2.167	0.92	8.250	1.84	14.333	2.51	20.42	1.01
2.250	0.92	8.333	2.18	14.417	2.51	20.50	1.01
2.333	1.09	8.417	2.18	14.500	2.51	20.58	1.01
2.417	1.09	8.500	2.18	14.583	2.51	20.67	1.01
2.500	1.09	8.583	2.18	14.667	2.51	20.75	1.01
2.583	1.09	8.667	2.18	14.750	2.51	20.83	1.01
2.667	1.09	8.750	2.18	14.833	2.51	20.92	1.01
2.750	1.09	8.833	2.35	14.917	2.51	21.00	1.01
2.833	1.09	8.917	2.35	15.000	2.51	21.08	1.01
2.917	1.09	9.000	2.35	15.083	2.51	21.17	1.01
3.000	1.09	9.083	2.35	15.167	2.51	21.25	1.01

3.083	1.09	9.167	2.35	15.250	2.51	21.33	1.01
3.167	1.09	9.250	2.35	15.333	2.51	21.42	1.01
3.250	1.09	9.333	2.68	15.417	2.51	21.50	1.01
3.333	1.09	9.417	2.68	15.500	2.51	21.58	1.01
3.417	1.09	9.500	2.68	15.583	2.51	21.67	1.01
3.500	1.09	9.583	2.68	15.667	2.51	21.75	1.01
3.583	1.09	9.667	2.68	15.750	2.51	21.83	1.01
3.667	1.09	9.750	2.68	15.833	2.51	21.92	1.01
3.750	1.09	9.833	3.02	15.917	2.51	22.00	1.01
3.833	1.09	9.917	3.02	16.000	2.51	22.08	1.01
3.917	1.09	10.000	3.02	16.083	2.51	22.17	1.01
4.000	1.09	10.083	3.02	16.167	2.51	22.25	1.01
4.083	1.09	10.167	3.02	16.250	2.51	22.33	1.01
4.167	1.09	10.250	3.02	16.333	1.51	22.42	1.01
4.250	1.09	10.333	3.86	16.417	1.51	22.50	1.01
4.333	1.34	10.417	3.86	16.500	1.51	22.58	1.01
4.417	1.34	10.500	3.86	16.583	1.51	22.67	1.01
4.500	1.34	10.583	3.86	16.667	1.51	22.75	1.01
4.583	1.34	10.667	3.86	16.750	1.51	22.83	1.01
4.667	1.34	10.750	3.86	16.833	1.51	22.92	1.01
4.750	1.34	10.833	5.20	16.917	1.51	23.00	1.01
4.833	1.34	10.917	5.20	17.000	1.51	23.08	1.01
4.917	1.34	11.000	5.20	17.083	1.51	23.17	1.01
5.000	1.34	11.083	5.20	17.167	1.51	23.25	1.01
5.083	1.34	11.167	5.20	17.250	1.51	23.33	1.01
5.167	1.34	11.250	5.20	17.333	1.51	23.42	1.01
5.250	1.34	11.333	8.05	17.417	1.51	23.50	1.01
5.333	1.34	11.417	8.05	17.500	1.51	23.58	1.01
5.417	1.34	11.500	8.05	17.583	1.51	23.67	1.01
5.500	1.34	11.583	8.05	17.667	1.51	23.75	1.01
5.583	1.34	11.667	8.05	17.750	1.51	23.83	1.01
5.667	1.34	11.750	8.05	17.833	1.51	23.92	1.01
5.750	1.34	11.833	24.81	17.917	1.51	24.00	1.01
5.833	1.34	11.917	24.81	18.000	1.51	24.08	1.01
5.917	1.34	12.000	24.81	18.083	1.51	24.17	1.01
6.000	1.34	12.083	102.57	18.167	1.51	24.25	1.01
6.083	1.34	12.167	102.58	18.250	1.51		

Max.Eff.Inten.(mm/hr)=	102.58	71.08	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.09 (ii)	3.70 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.25	
			TOTALS
PEAK FLOW (cms)=	0.03	0.01	0.043 (iii)
TIME TO PEAK (hrs)=	12.25	12.25	12.25
RUNOFF VOLUME (mm)=	81.81	40.73	65.37
TOTAL RAINFALL (mm)=	83.81	83.81	83.81
RUNOFF COEFFICIENT =	0.98	0.49	0.78

***** 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)= 0.08
Total Imp(%)= 69.00 Dir. Conn.(%)= 38.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.02
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	23.09	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.34	12.250	102.58	18.33	1.51
0.167	0.00	6.250	1.34	12.333	12.08	18.42	1.51
0.250	0.00	6.333	1.51	12.417	12.07	18.50	1.51
0.333	0.92	6.417	1.51	12.500	12.07	18.58	1.51
0.417	0.92	6.500	1.51	12.583	12.07	18.67	1.51
0.500	0.92	6.583	1.51	12.667	12.07	18.75	1.51
0.583	0.92	6.667	1.51	12.750	12.07	18.83	1.51
0.667	0.92	6.750	1.51	12.833	6.20	18.92	1.51
0.750	0.92	6.833	1.51	12.917	6.20	19.00	1.51
0.833	0.92	6.917	1.51	13.000	6.20	19.08	1.51
0.917	0.92	7.000	1.51	13.083	6.20	19.17	1.51
1.000	0.92	7.083	1.51	13.167	6.20	19.25	1.51
1.083	0.92	7.167	1.51	13.250	6.20	19.33	1.51
1.167	0.92	7.250	1.51	13.333	4.53	19.42	1.51
1.250	0.92	7.333	1.84	13.417	4.53	19.50	1.51
1.333	0.92	7.417	1.84	13.500	4.53	19.58	1.51
1.417	0.92	7.500	1.84	13.583	4.53	19.67	1.51
1.500	0.92	7.583	1.84	13.667	4.53	19.75	1.51
1.583	0.92	7.667	1.84	13.750	4.53	19.83	1.51
1.667	0.92	7.750	1.84	13.833	3.52	19.92	1.51
1.750	0.92	7.833	1.84	13.917	3.52	20.00	1.51
1.833	0.92	7.917	1.84	14.000	3.52	20.08	1.51
1.917	0.92	8.000	1.84	14.083	3.52	20.17	1.51

2.000	0.92	8.083	1.84	14.167	3.52	20.25	1.51
2.083	0.92	8.167	1.84	14.250	3.52	20.33	1.01
2.167	0.92	8.250	1.84	14.333	2.51	20.42	1.01
2.250	0.92	8.333	2.18	14.417	2.51	20.50	1.01
2.333	1.09	8.417	2.18	14.500	2.51	20.58	1.01
2.417	1.09	8.500	2.18	14.583	2.51	20.67	1.01
2.500	1.09	8.583	2.18	14.667	2.51	20.75	1.01
2.583	1.09	8.667	2.18	14.750	2.51	20.83	1.01
2.667	1.09	8.750	2.18	14.833	2.51	20.92	1.01
2.750	1.09	8.833	2.35	14.917	2.51	21.00	1.01
2.833	1.09	8.917	2.35	15.000	2.51	21.08	1.01
2.917	1.09	9.000	2.35	15.083	2.51	21.17	1.01
3.000	1.09	9.083	2.35	15.167	2.51	21.25	1.01
3.083	1.09	9.167	2.35	15.250	2.51	21.33	1.01
3.167	1.09	9.250	2.35	15.333	2.51	21.42	1.01
3.250	1.09	9.333	2.68	15.417	2.51	21.50	1.01
3.333	1.09	9.417	2.68	15.500	2.51	21.58	1.01
3.417	1.09	9.500	2.68	15.583	2.51	21.67	1.01
3.500	1.09	9.583	2.68	15.667	2.51	21.75	1.01
3.583	1.09	9.667	2.68	15.750	2.51	21.83	1.01
3.667	1.09	9.750	2.68	15.833	2.51	21.92	1.01
3.750	1.09	9.833	3.02	15.917	2.51	22.00	1.01
3.833	1.09	9.917	3.02	16.000	2.51	22.08	1.01
3.917	1.09	10.000	3.02	16.083	2.51	22.17	1.01
4.000	1.09	10.083	3.02	16.167	2.51	22.25	1.01
4.083	1.09	10.167	3.02	16.250	2.51	22.33	1.01
4.167	1.09	10.250	3.02	16.333	1.51	22.42	1.01
4.250	1.09	10.333	3.86	16.417	1.51	22.50	1.01
4.333	1.34	10.417	3.86	16.500	1.51	22.58	1.01
4.417	1.34	10.500	3.86	16.583	1.51	22.67	1.01
4.500	1.34	10.583	3.86	16.667	1.51	22.75	1.01
4.583	1.34	10.667	3.86	16.750	1.51	22.83	1.01
4.667	1.34	10.750	3.86	16.833	1.51	22.92	1.01
4.750	1.34	10.833	5.20	16.917	1.51	23.00	1.01
4.833	1.34	10.917	5.20	17.000	1.51	23.08	1.01
4.917	1.34	11.000	5.20	17.083	1.51	23.17	1.01
5.000	1.34	11.083	5.20	17.167	1.51	23.25	1.01
5.083	1.34	11.167	5.20	17.250	1.51	23.33	1.01
5.167	1.34	11.250	5.20	17.333	1.51	23.42	1.01
5.250	1.34	11.333	8.05	17.417	1.51	23.50	1.01
5.333	1.34	11.417	8.05	17.500	1.51	23.58	1.01
5.417	1.34	11.500	8.05	17.583	1.51	23.67	1.01
5.500	1.34	11.583	8.05	17.667	1.51	23.75	1.01
5.583	1.34	11.667	8.05	17.750	1.51	23.83	1.01
5.667	1.34	11.750	8.05	17.833	1.51	23.92	1.01
5.750	1.34	11.833	24.81	17.917	1.51	24.00	1.01
5.833	1.34	11.917	24.81	18.000	1.51	24.08	1.01
5.917	1.34	12.000	24.81	18.083	1.51	24.17	1.01
6.000	1.34	12.083	102.57	18.167	1.51	24.25	1.01
6.083	1.34	12.167	102.58	18.250	1.51		

```
     Max.Eff.Inten.(mm/hr)=     102.58       153.28
                 over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.85 (ii)    3.87 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.25
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.01          0.019 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.25         12.25
     RUNOFF VOLUME    (mm)=      81.81        52.50         63.62
     TOTAL RAINFALL   (mm)=      83.81        83.81         83.81
     RUNOFF COEFFICIENT   =       0.98         0.63          0.76

***** 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.

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

--------------------
| ADD HYD  (  0904)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0203):     0.08   0.019    12.25    63.62
      + ID2= 2 (  0204):     0.24   0.056    12.25    61.83
        ================================================
        ID = 3 (  0904):     0.32   0.075    12.25    62.28

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

--------------------
| ADD HYD  (  0904)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0904):     0.32   0.075    12.25    62.28
      + ID2= 2 (  0205):     0.23   0.053    12.25    61.55
        ================================================
        ID = 1 (  0904):     0.55   0.128    12.25    61.98

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

--------------------
| ADD HYD  (  0904)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
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--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0904):     0.55   0.128    12.25    61.98
      + ID2= 2 (  0206):     0.18   0.043    12.25    65.37
        ================================================
        ID = 3 (  0904):     0.73   0.171    12.25    62.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0304)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  31.00   Dir. Conn.(%)=   5.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.16
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         0.50
     Length            (m)=      39.16       100.00
     Mannings n             =    0.013        0.250

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


                         ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.34 |12.250  102.58 | 18.33    1.51
 0.167    0.00 | 6.250    1.34 |12.333   12.08 | 18.42    1.51
 0.250    0.00 | 6.333    1.51 |12.417   12.07 | 18.50    1.51
 0.333    0.92 | 6.417    1.51 |12.500   12.07 | 18.58    1.51
 0.417    0.92 | 6.500    1.51 |12.583   12.07 | 18.67    1.51
 0.500    0.92 | 6.583    1.51 |12.667   12.07 | 18.75    1.51
 0.583    0.92 | 6.667    1.51 |12.750   12.07 | 18.83    1.51
 0.667    0.92 | 6.750    1.51 |12.833    6.20 | 18.92    1.51
 0.750    0.92 | 6.833    1.51 |12.917    6.20 | 19.00    1.51
 0.833    0.92 | 6.917    1.51 |13.000    6.20 | 19.08    1.51
 0.917    0.92 | 7.000    1.51 |13.083    6.20 | 19.17    1.51
 1.000    0.92 | 7.083    1.51 |13.167    6.20 | 19.25    1.51
 1.083    0.92 | 7.167    1.51 |13.250    6.20 | 19.33    1.51
 1.167    0.92 | 7.250    1.51 |13.333    4.53 | 19.42    1.51
 1.250    0.92 | 7.333    1.84 |13.417    4.53 | 19.50    1.51
 1.333    0.92 | 7.417    1.84 |13.500    4.53 | 19.58    1.51
 1.417    0.92 | 7.500    1.84 |13.583    4.53 | 19.67    1.51
 1.500    0.92 | 7.583    1.84 |13.667    4.53 | 19.75    1.51
 1.583    0.92 | 7.667    1.84 |13.750    4.53 | 19.83    1.51
 1.667    0.92 | 7.750    1.84 |13.833    3.52 | 19.92    1.51
 1.750    0.92 | 7.833    1.84 |13.917    3.52 | 20.00    1.51
 1.833    0.92 | 7.917    1.84 |14.000    3.52 | 20.08    1.51
 1.917    0.92 | 8.000    1.84 |14.083    3.52 | 20.17    1.51
 2.000    0.92 | 8.083    1.84 |14.167    3.52 | 20.25    1.51
 2.083    0.92 | 8.167    1.84 |14.250    3.52 | 20.33    1.01
 2.167    0.92 | 8.250    1.84 |14.333    2.51 | 20.42    1.01
 2.250    0.92 | 8.333    2.18 |14.417    2.51 | 20.50    1.01
 2.333    1.09 | 8.417    2.18 |14.500    2.51 | 20.58    1.01
 2.417    1.09 | 8.500    2.18 |14.583    2.51 | 20.67    1.01
 2.500    1.09 | 8.583    2.18 |14.667    2.51 | 20.75    1.01
 2.583    1.09 | 8.667    2.18 |14.750    2.51 | 20.83    1.01
 2.667    1.09 | 8.750    2.18 |14.833    2.51 | 20.92    1.01
 2.750    1.09 | 8.833    2.35 |14.917    2.51 | 21.00    1.01
 2.833    1.09 | 8.917    2.35 |15.000    2.51 | 21.08    1.01
 2.917    1.09 | 9.000    2.35 |15.083    2.51 | 21.17    1.01
 3.000    1.09 | 9.083    2.35 |15.167    2.51 | 21.25    1.01
 3.083    1.09 | 9.167    2.35 |15.250    2.51 | 21.33    1.01
 3.167    1.09 | 9.250    2.35 |15.333    2.51 | 21.42    1.01
 3.250    1.09 | 9.333    2.68 |15.417    2.51 | 21.50    1.01
 3.333    1.09 | 9.417    2.68 |15.500    2.51 | 21.58    1.01
 3.417    1.09 | 9.500    2.68 |15.583    2.51 | 21.67    1.01
 3.500    1.09 | 9.583    2.68 |15.667    2.51 | 21.75    1.01
 3.583    1.09 | 9.667    2.68 |15.750    2.51 | 21.83    1.01
 3.667    1.09 | 9.750    2.68 |15.833    2.51 | 21.92    1.01
 3.750    1.09 | 9.833    3.02 |15.917    2.51 | 22.00    1.01
 3.833    1.09 | 9.917    3.02 |16.000    2.51 | 22.08    1.01
 3.917    1.09 |10.000    3.02 |16.083    2.51 | 22.17    1.01
 4.000    1.09 |10.083    3.02 |16.167    2.51 | 22.25    1.01
 4.083    1.09 |10.167    3.02 |16.250    2.51 | 22.33    1.01
 4.167    1.09 |10.250    3.02 |16.333    1.51 | 22.42    1.01
 4.250    1.09 |10.333    3.86 |16.417    1.51 | 22.50    1.01
 4.333    1.34 |10.417    3.86 |16.500    1.51 | 22.58    1.01
 4.417    1.34 |10.500    3.86 |16.583    1.51 | 22.67    1.01
 4.500    1.34 |10.583    3.86 |16.667    1.51 | 22.75    1.01
 4.583    1.34 |10.667    3.86 |16.750    1.51 | 22.83    1.01
 4.667    1.34 |10.750    3.86 |16.833    1.51 | 22.92    1.01
 4.750    1.34 |10.833    5.20 |16.917    1.51 | 23.00    1.01
 4.833    1.34 |10.917    5.20 |17.000    1.51 | 23.08    1.01
 4.917    1.34 |11.000    5.20 |17.083    1.51 | 23.17    1.01
 5.000    1.34 |11.083    5.20 |17.167    1.51 | 23.25    1.01
 5.083    1.34 |11.167    5.20 |17.250    1.51 | 23.33    1.01
 5.167    1.34 |11.250    5.20 |17.333    1.51 | 23.42    1.01
 5.250    1.34 |11.333    8.05 |17.417    1.51 | 23.50    1.01
 5.333    1.34 |11.417    8.05 |17.500    1.51 | 23.58    1.01
 5.417    1.34 |11.500    8.05 |17.583    1.51 | 23.67    1.01
 5.500    1.34 |11.583    8.05 |17.667    1.51 | 23.75    1.01
 5.583    1.34 |11.667    8.05 |17.750    1.51 | 23.83    1.01
 5.667    1.34 |11.750    8.05 |17.833    1.51 | 23.92    1.01
 5.750    1.34 |11.833   24.81 |17.917    1.51 | 24.00    1.01
 5.833    1.34 |11.917   24.81 |18.000    1.51 | 24.08    1.01
 5.917    1.34 |12.000   24.81 |18.083    1.51 | 24.17    1.01
 6.000    1.34 |12.083  102.57 |18.167    1.51 | 24.25    1.01
 6.083    1.34 |12.167  102.58 |18.250    1.51 |
```

```
     Max.Eff.Inten.(mm/hr)=     102.58        57.69
               over (min)         5.00        25.00
     Storage Coeff.  (min)=       1.17 (ii)   24.27 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.34         0.05
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.02          0.017 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.50          12.50
     RUNOFF VOLUME    (mm)=      81.81        44.34          46.15
     TOTAL RAINFALL   (mm)=      83.81        83.81          83.81
     RUNOFF COEFFICIENT   =       0.98         0.53           0.55

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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

--------------------
| ADD HYD  (  0906)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0202):     0.16   0.012    12.42    39.80
      + ID2= 2 (  0304):     0.23   0.017    12.50    46.15
        ==================================================
        ID = 3 (  0906):     0.39   0.028    12.50    43.55

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

--------------------
| ADD HYD  (  0906)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0906):     0.39   0.028    12.50    43.55
      + ID2= 2 (  0904):     0.73   0.171    12.25    62.81
        ==================================================
        ID = 1 (  0906):     1.12   0.192    12.25    56.10

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

```
       V    V   I    SSSSS  U   U    A    L             (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\64e
e1b99-9ab6-4ec1-8551-c2828a4e3371\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\64e
e1b99-9ab6-4ec1-8551-c2828a4e3371\sc


DATE: 07/25/2023                          TIME: 10:13:54

USER:


COMMENTS: _____________________________________________________________

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  ***********************************************
  ** SIMULATION : (4) 25 Year Design Storm - SC **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\JBirchard\AppD
|                  |              ata\Local\Temp\
|                  |              ddb5ea80-a20e-4ff4-9c74-beb6735bad9d\7c77deb8
| Ptotal= 98.65 mm |    Comments: 25yr 24hr 15min SCS
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	6.50	1.78	12.75	14.21	19.00	1.78
0.50	1.09	6.75	1.78	13.00	7.30	19.25	1.78
0.75	1.09	7.00	1.78	13.25	7.30	19.50	1.78
1.00	1.09	7.25	1.78	13.50	5.33	19.75	1.78
1.25	1.09	7.50	2.17	13.75	5.33	20.00	1.78
1.50	1.09	7.75	2.17	14.00	4.14	20.25	1.78
1.75	1.09	8.00	2.17	14.25	4.14	20.50	1.18
2.00	1.09	8.25	2.17	14.50	2.96	20.75	1.18
2.25	1.09	8.50	2.56	14.75	2.96	21.00	1.18
2.50	1.28	8.75	2.56	15.00	2.96	21.25	1.18
2.75	1.28	9.00	2.76	15.25	2.96	21.50	1.18
3.00	1.28	9.25	2.76	15.50	2.96	21.75	1.18
3.25	1.28	9.50	3.16	15.75	2.96	22.00	1.18
3.50	1.28	9.75	3.16	16.00	2.96	22.25	1.18
3.75	1.28	10.00	3.55	16.25	2.96	22.50	1.18
4.00	1.28	10.25	3.55	16.50	1.78	22.75	1.18
4.25	1.28	10.50	4.54	16.75	1.78	23.00	1.18
4.50	1.58	10.75	4.54	17.00	1.78	23.25	1.18
4.75	1.58	11.00	6.12	17.25	1.78	23.50	1.18
5.00	1.58	11.25	6.12	17.50	1.78	23.75	1.18
5.25	1.58	11.50	9.47	17.75	1.78	24.00	1.18
5.50	1.58	11.75	9.47	18.00	1.78	24.25	1.18
5.75	1.58	12.00	29.20	18.25	1.78		
6.00	1.58	12.25	120.75	18.50	1.78		
6.25	1.58	12.50	14.21	18.75	1.78		

CALIB
STANDHYD (0303)
ID= 1 DT= 5.0 min

Area (ha)= 0.33
Total Imp(%)= 30.00 Dir. Conn.(%)= 5.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.10	0.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	0.70
Length	(m)=	46.90	160.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.58	12.250	120.75	18.33	1.78
0.167	0.00	6.250	1.58	12.333	14.22	18.42	1.78
0.250	0.00	6.333	1.78	12.417	14.21	18.50	1.78
0.333	1.09	6.417	1.78	12.500	14.21	18.58	1.78
0.417	1.09	6.500	1.78	12.583	14.21	18.67	1.78
0.500	1.09	6.583	1.78	12.667	14.21	18.75	1.78
0.583	1.09	6.667	1.78	12.750	14.21	18.83	1.78
0.667	1.09	6.750	1.78	12.833	7.30	18.92	1.78
0.750	1.09	6.833	1.78	12.917	7.30	19.00	1.78
0.833	1.09	6.917	1.78	13.000	7.30	19.08	1.78
0.917	1.09	7.000	1.78	13.083	7.30	19.17	1.78
1.000	1.09	7.083	1.78	13.167	7.30	19.25	1.78
1.083	1.09	7.167	1.78	13.250	7.30	19.33	1.78
1.167	1.09	7.250	1.78	13.333	5.33	19.42	1.78
1.250	1.09	7.333	2.17	13.417	5.33	19.50	1.78
1.333	1.09	7.417	2.17	13.500	5.33	19.58	1.78
1.417	1.09	7.500	2.17	13.583	5.33	19.67	1.78
1.500	1.09	7.583	2.17	13.667	5.33	19.75	1.78
1.583	1.09	7.667	2.17	13.750	5.33	19.83	1.78
1.667	1.09	7.750	2.17	13.833	4.14	19.92	1.78
1.750	1.09	7.833	2.17	13.917	4.14	20.00	1.78
1.833	1.09	7.917	2.17	14.000	4.14	20.08	1.78
1.917	1.09	8.000	2.17	14.083	4.14	20.17	1.78
2.000	1.09	8.083	2.17	14.167	4.14	20.25	1.78
2.083	1.09	8.167	2.17	14.250	4.14	20.33	1.18
2.167	1.09	8.250	2.17	14.333	2.96	20.42	1.18
2.250	1.09	8.333	2.56	14.417	2.96	20.50	1.18
2.333	1.28	8.417	2.56	14.500	2.96	20.58	1.18
2.417	1.28	8.500	2.56	14.583	2.96	20.67	1.18
2.500	1.28	8.583	2.56	14.667	2.96	20.75	1.18
2.583	1.28	8.667	2.56	14.750	2.96	20.83	1.18
2.667	1.28	8.750	2.56	14.833	2.96	20.92	1.18
2.750	1.28	8.833	2.76	14.917	2.96	21.00	1.18
2.833	1.28	8.917	2.76	15.000	2.96	21.08	1.18
2.917	1.28	9.000	2.76	15.083	2.96	21.17	1.18
3.000	1.28	9.083	2.76	15.167	2.96	21.25	1.18
3.083	1.28	9.167	2.76	15.250	2.96	21.33	1.18
3.167	1.28	9.250	2.76	15.333	2.96	21.42	1.18
3.250	1.28	9.333	3.16	15.417	2.96	21.50	1.18
3.333	1.28	9.417	3.16	15.500	2.96	21.58	1.18
3.417	1.28	9.500	3.16	15.583	2.96	21.67	1.18
3.500	1.28	9.583	3.16	15.667	2.96	21.75	1.18
3.583	1.28	9.667	3.16	15.750	2.96	21.83	1.18
3.667	1.28	9.750	3.16	15.833	2.96	21.92	1.18
3.750	1.28	9.833	3.55	15.917	2.96	22.00	1.18
3.833	1.28	9.917	3.55	16.000	2.96	22.08	1.18
3.917	1.28	10.000	3.55	16.083	2.96	22.17	1.18
4.000	1.28	10.083	3.55	16.167	2.96	22.25	1.18
4.083	1.28	10.167	3.55	16.250	2.96	22.33	1.18
4.167	1.28	10.250	3.55	16.333	1.78	22.42	1.18
4.250	1.28	10.333	4.54	16.417	1.78	22.50	1.18
4.333	1.58	10.417	4.54	16.500	1.78	22.58	1.18

4.417	1.58	10.500	4.54	16.583	1.78	22.67	1.18
4.500	1.58	10.583	4.54	16.667	1.78	22.75	1.18
4.583	1.58	10.667	4.54	16.750	1.78	22.83	1.18
4.667	1.58	10.750	4.54	16.833	1.78	22.92	1.18
4.750	1.58	10.833	6.12	16.917	1.78	23.00	1.18
4.833	1.58	10.917	6.12	17.000	1.78	23.08	1.18
4.917	1.58	11.000	6.12	17.083	1.78	23.17	1.18
5.000	1.58	11.083	6.12	17.167	1.78	23.25	1.18
5.083	1.58	11.167	6.12	17.250	1.78	23.33	1.18
5.167	1.58	11.250	6.12	17.333	1.78	23.42	1.18
5.250	1.58	11.333	9.47	17.417	1.78	23.50	1.18
5.333	1.58	11.417	9.47	17.500	1.78	23.58	1.18
5.417	1.58	11.500	9.47	17.583	1.78	23.67	1.18
5.500	1.58	11.583	9.47	17.667	1.78	23.75	1.18
5.583	1.58	11.667	9.47	17.750	1.78	23.83	1.18
5.667	1.58	11.750	9.47	17.833	1.78	23.92	1.18
5.750	1.58	11.833	29.20	17.917	1.78	24.00	1.18
5.833	1.58	11.917	29.20	18.000	1.78	24.08	1.18
5.917	1.58	12.000	29.20	18.083	1.78	24.17	1.18
6.000	1.58	12.083	120.74	18.167	1.78	24.25	1.18
6.083	1.58	12.167	120.75	18.250	1.78		

Max.Eff.Inten.(mm/hr)=	120.75	63.40	
over (min)	5.00	30.00	
Storage Coeff. (min)=	1.22 (ii)	27.88 (ii)	
Unit Hyd. Tpeak (min)=	5.00	30.00	
Unit Hyd. peak (cms)=	0.33	0.04	
			TOTALS
PEAK FLOW (cms)=	0.01	0.03	0.027 (iii)
TIME TO PEAK (hrs)=	12.25	12.58	12.58
RUNOFF VOLUME (mm)=	96.65	56.11	58.09
TOTAL RAINFALL (mm)=	98.65	98.65	98.65
RUNOFF COEFFICIENT =	0.98	0.57	0.59

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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 (0201)	Area (ha)= 0.23
ID= 1 DT= 5.0 min	Total Imp(%)= 38.00 Dir. Conn.(%)= 5.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.09	0.14
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	2.00	0.70
Length (m)=	39.16	160.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.58	12.250	120.75	18.33	1.78
0.167	0.00	6.250	1.58	12.333	14.22	18.42	1.78
0.250	0.00	6.333	1.78	12.417	14.21	18.50	1.78
0.333	1.09	6.417	1.78	12.500	14.21	18.58	1.78
0.417	1.09	6.500	1.78	12.583	14.21	18.67	1.78
0.500	1.09	6.583	1.78	12.667	14.21	18.75	1.78
0.583	1.09	6.667	1.78	12.750	14.21	18.83	1.78
0.667	1.09	6.750	1.78	12.833	7.30	18.92	1.78
0.750	1.09	6.833	1.78	12.917	7.30	19.00	1.78
0.833	1.09	6.917	1.78	13.000	7.30	19.08	1.78
0.917	1.09	7.000	1.78	13.083	7.30	19.17	1.78
1.000	1.09	7.083	1.78	13.167	7.30	19.25	1.78
1.083	1.09	7.167	1.78	13.250	7.30	19.33	1.78
1.167	1.09	7.250	1.78	13.333	5.33	19.42	1.78
1.250	1.09	7.333	2.17	13.417	5.33	19.50	1.78
1.333	1.09	7.417	2.17	13.500	5.33	19.58	1.78
1.417	1.09	7.500	2.17	13.583	5.33	19.67	1.78
1.500	1.09	7.583	2.17	13.667	5.33	19.75	1.78
1.583	1.09	7.667	2.17	13.750	5.33	19.83	1.78
1.667	1.09	7.750	2.17	13.833	4.14	19.92	1.78
1.750	1.09	7.833	2.17	13.917	4.14	20.00	1.78
1.833	1.09	7.917	2.17	14.000	4.14	20.08	1.78
1.917	1.09	8.000	2.17	14.083	4.14	20.17	1.78
2.000	1.09	8.083	2.17	14.167	4.14	20.25	1.78
2.083	1.09	8.167	2.17	14.250	4.14	20.33	1.18
2.167	1.09	8.250	2.17	14.333	2.96	20.42	1.18
2.250	1.09	8.333	2.56	14.417	2.96	20.50	1.18
2.333	1.28	8.417	2.56	14.500	2.96	20.58	1.18
2.417	1.28	8.500	2.56	14.583	2.96	20.67	1.18
2.500	1.28	8.583	2.56	14.667	2.96	20.75	1.18
2.583	1.28	8.667	2.56	14.750	2.96	20.83	1.18
2.667	1.28	8.750	2.56	14.833	2.96	20.92	1.18
2.750	1.28	8.833	2.76	14.917	2.96	21.00	1.18
2.833	1.28	8.917	2.76	15.000	2.96	21.08	1.18
2.917	1.28	9.000	2.76	15.083	2.96	21.17	1.18
3.000	1.28	9.083	2.76	15.167	2.96	21.25	1.18
3.083	1.28	9.167	2.76	15.250	2.96	21.33	1.18

3.167	1.28	9.250	2.76	15.333	2.96	21.42	1.18
3.250	1.28	9.333	3.16	15.417	2.96	21.50	1.18
3.333	1.28	9.417	3.16	15.500	2.96	21.58	1.18
3.417	1.28	9.500	3.16	15.583	2.96	21.67	1.18
3.500	1.28	9.583	3.16	15.667	2.96	21.75	1.18
3.583	1.28	9.667	3.16	15.750	2.96	21.83	1.18
3.667	1.28	9.750	3.16	15.833	2.96	21.92	1.18
3.750	1.28	9.833	3.55	15.917	2.96	22.00	1.18
3.833	1.28	9.917	3.55	16.000	2.96	22.08	1.18
3.917	1.28	10.000	3.55	16.083	2.96	22.17	1.18
4.000	1.28	10.083	3.55	16.167	2.96	22.25	1.18
4.083	1.28	10.167	3.55	16.250	2.96	22.33	1.18
4.167	1.28	10.250	3.55	16.333	1.78	22.42	1.18
4.250	1.28	10.333	4.54	16.417	1.78	22.50	1.18
4.333	1.58	10.417	4.54	16.500	1.78	22.58	1.18
4.417	1.58	10.500	4.54	16.583	1.78	22.67	1.18
4.500	1.58	10.583	4.54	16.667	1.78	22.75	1.18
4.583	1.58	10.667	4.54	16.750	1.78	22.83	1.18
4.667	1.58	10.750	4.54	16.833	1.78	22.92	1.18
4.750	1.58	10.833	6.12	16.917	1.78	23.00	1.18
4.833	1.58	10.917	6.12	17.000	1.78	23.08	1.18
4.917	1.58	11.000	6.12	17.083	1.78	23.17	1.18
5.000	1.58	11.083	6.12	17.167	1.78	23.25	1.18
5.083	1.58	11.167	6.12	17.250	1.78	23.33	1.18
5.167	1.58	11.250	6.12	17.333	1.78	23.42	1.18
5.250	1.58	11.333	9.47	17.417	1.78	23.50	1.18
5.333	1.58	11.417	9.47	17.500	1.78	23.58	1.18
5.417	1.58	11.500	9.47	17.583	1.78	23.67	1.18
5.500	1.58	11.583	9.47	17.667	1.78	23.75	1.18
5.583	1.58	11.667	9.47	17.750	1.78	23.83	1.18
5.667	1.58	11.750	9.47	17.833	1.78	23.92	1.18
5.750	1.58	11.833	29.20	17.917	1.78	24.00	1.18
5.833	1.58	11.917	29.20	18.000	1.78	24.08	1.18
5.917	1.58	12.000	29.20	18.083	1.78	24.17	1.18
6.000	1.58	12.083	120.74	18.167	1.78	24.25	1.18
6.083	1.58	12.167	120.75	18.250	1.78		

Max.Eff.Inten.(mm/hr)=	120.75	86.34	
over (min)	5.00	25.00	
Storage Coeff. (min)=	1.10 (ii)	24.66 (ii)	
Unit Hyd. Tpeak (min)=	5.00	25.00	
Unit Hyd. peak (cms)=	0.34	0.05	
			TOTALS
PEAK FLOW (cms)=	0.00	0.02	0.022 (iii)
TIME TO PEAK (hrs)=	12.25	12.50	12.50
RUNOFF VOLUME (mm)=	96.65	59.22	61.03
TOTAL RAINFALL (mm)=	98.65	98.65	98.65
RUNOFF COEFFICIENT =	0.98	0.60	0.62

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

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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.

ADD HYD (0903)| / 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0201):		0.23	0.022	12.50	61.03
+ ID2= 2 (0303):		0.33	0.027	12.58	58.09
ID = 3 (0903):		0.56	0.049	12.58	59.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0202)| ID= 1 DT= 5.0 min				
	Area (ha)=	0.16	Curve Number (CN)=	76.5
	Ia (mm)=	4.71	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.30		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.58	12.250	120.75	18.33	1.78
0.167	0.00	6.250	1.58	12.333	14.22	18.42	1.78
0.250	0.00	6.333	1.78	12.417	14.21	18.50	1.78
0.333	1.09	6.417	1.78	12.500	14.21	18.58	1.78
0.417	1.09	6.500	1.78	12.583	14.21	18.67	1.78
0.500	1.09	6.583	1.78	12.667	14.21	18.75	1.78
0.583	1.09	6.667	1.78	12.750	14.21	18.83	1.78
0.667	1.09	6.750	1.78	12.833	7.30	18.92	1.78
0.750	1.09	6.833	1.78	12.917	7.30	19.00	1.78
0.833	1.09	6.917	1.78	13.000	7.30	19.08	1.78
0.917	1.09	7.000	1.78	13.083	7.30	19.17	1.78
1.000	1.09	7.083	1.78	13.167	7.30	19.25	1.78
1.083	1.09	7.167	1.78	13.250	7.30	19.33	1.78
1.167	1.09	7.250	1.78	13.333	5.33	19.42	1.78
1.250	1.09	7.333	2.17	13.417	5.33	19.50	1.78
1.333	1.09	7.417	2.17	13.500	5.33	19.58	1.78

1.417	1.09	7.500	2.17	13.583	5.33	19.67	1.78
1.500	1.09	7.583	2.17	13.667	5.33	19.75	1.78
1.583	1.09	7.667	2.17	13.750	5.33	19.83	1.78
1.667	1.09	7.750	2.17	13.833	4.14	19.92	1.78
1.750	1.09	7.833	2.17	13.917	4.14	20.00	1.78
1.833	1.09	7.917	2.17	14.000	4.14	20.08	1.78
1.917	1.09	8.000	2.17	14.083	4.14	20.17	1.78
2.000	1.09	8.083	2.17	14.167	4.14	20.25	1.78
2.083	1.09	8.167	2.17	14.250	4.14	20.33	1.18
2.167	1.09	8.250	2.17	14.333	2.96	20.42	1.18
2.250	1.09	8.333	2.56	14.417	2.96	20.50	1.18
2.333	1.28	8.417	2.56	14.500	2.96	20.58	1.18
2.417	1.28	8.500	2.56	14.583	2.96	20.67	1.18
2.500	1.28	8.583	2.56	14.667	2.96	20.75	1.18
2.583	1.28	8.667	2.56	14.750	2.96	20.83	1.18
2.667	1.28	8.750	2.56	14.833	2.96	20.92	1.18
2.750	1.28	8.833	2.76	14.917	2.96	21.00	1.18
2.833	1.28	8.917	2.76	15.000	2.96	21.08	1.18
2.917	1.28	9.000	2.76	15.083	2.96	21.17	1.18
3.000	1.28	9.083	2.76	15.167	2.96	21.25	1.18
3.083	1.28	9.167	2.76	15.250	2.96	21.33	1.18
3.167	1.28	9.250	2.76	15.333	2.96	21.42	1.18
3.250	1.28	9.333	3.16	15.417	2.96	21.50	1.18
3.333	1.28	9.417	3.16	15.500	2.96	21.58	1.18
3.417	1.28	9.500	3.16	15.583	2.96	21.67	1.18
3.500	1.28	9.583	3.16	15.667	2.96	21.75	1.18
3.583	1.28	9.667	3.16	15.750	2.96	21.83	1.18
3.667	1.28	9.750	3.16	15.833	2.96	21.92	1.18
3.750	1.28	9.833	3.55	15.917	2.96	22.00	1.18
3.833	1.28	9.917	3.55	16.000	2.96	22.08	1.18
3.917	1.28	10.000	3.55	16.083	2.96	22.17	1.18
4.000	1.28	10.083	3.55	16.167	2.96	22.25	1.18
4.083	1.28	10.167	3.55	16.250	2.96	22.33	1.18
4.167	1.28	10.250	3.55	16.333	1.78	22.42	1.18
4.250	1.28	10.333	4.54	16.417	1.78	22.50	1.18
4.333	1.58	10.417	4.54	16.500	1.78	22.58	1.18
4.417	1.58	10.500	4.54	16.583	1.78	22.67	1.18
4.500	1.58	10.583	4.54	16.667	1.78	22.75	1.18
4.583	1.58	10.667	4.54	16.750	1.78	22.83	1.18
4.667	1.58	10.750	4.54	16.833	1.78	22.92	1.18
4.750	1.58	10.833	6.12	16.917	1.78	23.00	1.18
4.833	1.58	10.917	6.12	17.000	1.78	23.08	1.18
4.917	1.58	11.000	6.12	17.083	1.78	23.17	1.18
5.000	1.58	11.083	6.12	17.167	1.78	23.25	1.18
5.083	1.58	11.167	6.12	17.250	1.78	23.33	1.18
5.167	1.58	11.250	6.12	17.333	1.78	23.42	1.18
5.250	1.58	11.333	9.47	17.417	1.78	23.50	1.18
5.333	1.58	11.417	9.47	17.500	1.78	23.58	1.18
5.417	1.58	11.500	9.47	17.583	1.78	23.67	1.18
5.500	1.58	11.583	9.47	17.667	1.78	23.75	1.18
5.583	1.58	11.667	9.47	17.750	1.78	23.83	1.18
5.667	1.58	11.750	9.47	17.833	1.78	23.92	1.18
5.750	1.58	11.833	29.20	17.917	1.78	24.00	1.18
5.833	1.58	11.917	29.20	18.000	1.78	24.08	1.18
5.917	1.58	12.000	29.20	18.083	1.78	24.17	1.18
6.000	1.58	12.083	120.74	18.167	1.78	24.25	1.18
6.083	1.58	12.167	120.75	18.250	1.78		

Unit Hyd Qpeak (cms)= 0.020

PEAK FLOW (cms)= 0.016 (i)
TIME TO PEAK (hrs)= 12.417
RUNOFF VOLUME (mm)= 51.292
TOTAL RAINFALL (mm)= 98.650
RUNOFF COEFFICIENT = 0.520

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

CALIB	
STANDHYD (0204)	Area (ha)= 0.24
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 36.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	40.00	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.58	12.250	120.75	18.33	1.78
0.167	0.00	6.250	1.58	12.333	14.22	18.42	1.78
0.250	0.00	6.333	1.78	12.417	14.21	18.50	1.78
0.333	1.09	6.417	1.78	12.500	14.21	18.58	1.78
0.417	1.09	6.500	1.78	12.583	14.21	18.67	1.78
0.500	1.09	6.583	1.78	12.667	14.21	18.75	1.78
0.583	1.09	6.667	1.78	12.750	14.21	18.83	1.78
0.667	1.09	6.750	1.78	12.833	7.30	18.92	1.78
0.750	1.09	6.833	1.78	12.917	7.30	19.00	1.78
0.833	1.09	6.917	1.78	13.000	7.30	19.08	1.78
0.917	1.09	7.000	1.78	13.083	7.30	19.17	1.78
1.000	1.09	7.083	1.78	13.167	7.30	19.25	1.78
1.083	1.09	7.167	1.78	13.250	7.30	19.33	1.78

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1.167    1.09 | 7.250    1.78 |13.333    5.33 | 19.42    1.78
1.250    1.09 | 7.333    2.17 |13.417    5.33 | 19.50    1.78
1.333    1.09 | 7.417    2.17 |13.500    5.33 | 19.58    1.78
1.417    1.09 | 7.500    2.17 |13.583    5.33 | 19.67    1.78
1.500    1.09 | 7.583    2.17 |13.667    5.33 | 19.75    1.78
1.583    1.09 | 7.667    2.17 |13.750    5.33 | 19.83    1.78
1.667    1.09 | 7.750    2.17 |13.833    4.14 | 19.92    1.78
1.750    1.09 | 7.833    2.17 |13.917    4.14 | 20.00    1.78
1.833    1.09 | 7.917    2.17 |14.000    4.14 | 20.08    1.78
1.917    1.09 | 8.000    2.17 |14.083    4.14 | 20.17    1.78
2.000    1.09 | 8.083    2.17 |14.167    4.14 | 20.25    1.78
2.083    1.09 | 8.167    2.17 |14.250    4.14 | 20.33    1.18
2.167    1.09 | 8.250    2.17 |14.333    2.96 | 20.42    1.18
2.250    1.09 | 8.333    2.56 |14.417    2.96 | 20.50    1.18
2.333    1.28 | 8.417    2.56 |14.500    2.96 | 20.58    1.18
2.417    1.28 | 8.500    2.56 |14.583    2.96 | 20.67    1.18
2.500    1.28 | 8.583    2.56 |14.667    2.96 | 20.75    1.18
2.583    1.28 | 8.667    2.56 |14.750    2.96 | 20.83    1.18
2.667    1.28 | 8.750    2.56 |14.833    2.96 | 20.92    1.18
2.750    1.28 | 8.833    2.76 |14.917    2.96 | 21.00    1.18
2.833    1.28 | 8.917    2.76 |15.000    2.96 | 21.08    1.18
2.917    1.28 | 9.000    2.76 |15.083    2.96 | 21.17    1.18
3.000    1.28 | 9.083    2.76 |15.167    2.96 | 21.25    1.18
3.083    1.28 | 9.167    2.76 |15.250    2.96 | 21.33    1.18
3.167    1.28 | 9.250    2.76 |15.333    2.96 | 21.42    1.18
3.250    1.28 | 9.333    3.16 |15.417    2.96 | 21.50    1.18
3.333    1.28 | 9.417    3.16 |15.500    2.96 | 21.58    1.18
3.417    1.28 | 9.500    3.16 |15.583    2.96 | 21.67    1.18
3.500    1.28 | 9.583    3.16 |15.667    2.96 | 21.75    1.18
3.583    1.28 | 9.667    3.16 |15.750    2.96 | 21.83    1.18
3.667    1.28 | 9.750    3.16 |15.833    2.96 | 21.92    1.18
3.750    1.28 | 9.833    3.55 |15.917    2.96 | 22.00    1.18
3.833    1.28 | 9.917    3.55 |16.000    2.96 | 22.08    1.18
3.917    1.28 |10.000    3.55 |16.083    2.96 | 22.17    1.18
4.000    1.28 |10.083    3.55 |16.167    2.96 | 22.25    1.18
4.083    1.28 |10.167    3.55 |16.250    2.96 | 22.33    1.18
4.167    1.28 |10.250    3.55 |16.333    1.78 | 22.42    1.18
4.250    1.28 |10.333    4.54 |16.417    1.78 | 22.50    1.18
4.333    1.58 |10.417    4.54 |16.500    1.78 | 22.58    1.18
4.417    1.58 |10.500    4.54 |16.583    1.78 | 22.67    1.18
4.500    1.58 |10.583    4.54 |16.667    1.78 | 22.75    1.18
4.583    1.58 |10.667    4.54 |16.750    1.78 | 22.83    1.18
4.667    1.58 |10.750    4.54 |16.833    1.78 | 22.92    1.18
4.750    1.58 |10.833    6.12 |16.917    1.78 | 23.00    1.18
4.833    1.58 |10.917    6.12 |17.000    1.78 | 23.08    1.18
4.917    1.58 |11.000    6.12 |17.083    1.78 | 23.17    1.18
5.000    1.58 |11.083    6.12 |17.167    1.78 | 23.25    1.18
5.083    1.58 |11.167    6.12 |17.250    1.78 | 23.33    1.18
5.167    1.58 |11.250    6.12 |17.333    1.78 | 23.42    1.18
5.250    1.58 |11.333    9.47 |17.417    1.78 | 23.50    1.18
5.333    1.58 |11.417    9.47 |17.500    1.78 | 23.58    1.18
5.417    1.58 |11.500    9.47 |17.583    1.78 | 23.67    1.18
5.500    1.58 |11.583    9.47 |17.667    1.78 | 23.75    1.18
5.583    1.58 |11.667    9.47 |17.750    1.78 | 23.83    1.18
5.667    1.58 |11.750    9.47 |17.833    1.78 | 23.92    1.18
5.750    1.58 |11.833   29.20 |17.917    1.78 | 24.00    1.18
5.833    1.58 |11.917   29.20 |18.000    1.78 | 24.08    1.18
5.917    1.58 |12.000   29.20 |18.083    1.78 | 24.17    1.18
6.000    1.58 |12.083  120.74 |18.167    1.78 | 24.25    1.18
6.083    1.58 |12.167  120.75 |18.250    1.78 |
```

```
     Max.Eff.Inten.(mm/hr)=     120.75       169.15
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.11 (ii)    4.14 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.24
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.04          0.068 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.25          12.25
     RUNOFF VOLUME    (mm)=      96.65        63.57          75.47
     TOTAL RAINFALL   (mm)=      98.65        98.65          98.65
     RUNOFF COEFFICIENT   =       0.98         0.64           0.77

***** 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 (  0205)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  37.00
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.15         0.08
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         1.00
     Length            (m)=      39.16         8.00
     Mannings n           =      0.013        0.250

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


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

0.083	0.00	6.167	1.58	12.250	120.75	18.33	1.78
0.167	0.00	6.250	1.58	12.333	14.22	18.42	1.78
0.250	0.00	6.333	1.78	12.417	14.21	18.50	1.78
0.333	1.09	6.417	1.78	12.500	14.21	18.58	1.78
0.417	1.09	6.500	1.78	12.583	14.21	18.67	1.78
0.500	1.09	6.583	1.78	12.667	14.21	18.75	1.78
0.583	1.09	6.667	1.78	12.750	14.21	18.83	1.78
0.667	1.09	6.750	1.78	12.833	7.30	18.92	1.78
0.750	1.09	6.833	1.78	12.917	7.30	19.00	1.78
0.833	1.09	6.917	1.78	13.000	7.30	19.08	1.78
0.917	1.09	7.000	1.78	13.083	7.30	19.17	1.78
1.000	1.09	7.083	1.78	13.167	7.30	19.25	1.78
1.083	1.09	7.167	1.78	13.250	7.30	19.33	1.78
1.167	1.09	7.250	1.78	13.333	5.33	19.42	1.78
1.250	1.09	7.333	2.17	13.417	5.33	19.50	1.78
1.333	1.09	7.417	2.17	13.500	5.33	19.58	1.78
1.417	1.09	7.500	2.17	13.583	5.33	19.67	1.78
1.500	1.09	7.583	2.17	13.667	5.33	19.75	1.78
1.583	1.09	7.667	2.17	13.750	5.33	19.83	1.78
1.667	1.09	7.750	2.17	13.833	4.14	19.92	1.78
1.750	1.09	7.833	2.17	13.917	4.14	20.00	1.78
1.833	1.09	7.917	2.17	14.000	4.14	20.08	1.78
1.917	1.09	8.000	2.17	14.083	4.14	20.17	1.78
2.000	1.09	8.083	2.17	14.167	4.14	20.25	1.78
2.083	1.09	8.167	2.17	14.250	4.14	20.33	1.18
2.167	1.09	8.250	2.17	14.333	2.96	20.42	1.18
2.250	1.09	8.333	2.56	14.417	2.96	20.50	1.18
2.333	1.28	8.417	2.56	14.500	2.96	20.58	1.18
2.417	1.28	8.500	2.56	14.583	2.96	20.67	1.18
2.500	1.28	8.583	2.56	14.667	2.96	20.75	1.18
2.583	1.28	8.667	2.56	14.750	2.96	20.83	1.18
2.667	1.28	8.750	2.56	14.833	2.96	20.92	1.18
2.750	1.28	8.833	2.76	14.917	2.96	21.00	1.18
2.833	1.28	8.917	2.76	15.000	2.96	21.08	1.18
2.917	1.28	9.000	2.76	15.083	2.96	21.17	1.18
3.000	1.28	9.083	2.76	15.167	2.96	21.25	1.18
3.083	1.28	9.167	2.76	15.250	2.96	21.33	1.18
3.167	1.28	9.250	2.76	15.333	2.96	21.42	1.18
3.250	1.28	9.333	3.16	15.417	2.96	21.50	1.18
3.333	1.28	9.417	3.16	15.500	2.96	21.58	1.18
3.417	1.28	9.500	3.16	15.583	2.96	21.67	1.18
3.500	1.28	9.583	3.16	15.667	2.96	21.75	1.18
3.583	1.28	9.667	3.16	15.750	2.96	21.83	1.18
3.667	1.28	9.750	3.16	15.833	2.96	21.92	1.18
3.750	1.28	9.833	3.55	15.917	2.96	22.00	1.18
3.833	1.28	9.917	3.55	16.000	2.96	22.08	1.18
3.917	1.28	10.000	3.55	16.083	2.96	22.17	1.18
4.000	1.28	10.083	3.55	16.167	2.96	22.25	1.18
4.083	1.28	10.167	3.55	16.250	2.96	22.33	1.18
4.167	1.28	10.250	3.55	16.333	1.78	22.42	1.18
4.250	1.28	10.333	4.54	16.417	1.78	22.50	1.18
4.333	1.58	10.417	4.54	16.500	1.78	22.58	1.18
4.417	1.58	10.500	4.54	16.583	1.78	22.67	1.18
4.500	1.58	10.583	4.54	16.667	1.78	22.75	1.18
4.583	1.58	10.667	4.54	16.750	1.78	22.83	1.18
4.667	1.58	10.750	4.54	16.833	1.78	22.92	1.18
4.750	1.58	10.833	6.12	16.917	1.78	23.00	1.18
4.833	1.58	10.917	6.12	17.000	1.78	23.08	1.18
4.917	1.58	11.000	6.12	17.083	1.78	23.17	1.18
5.000	1.58	11.083	6.12	17.167	1.78	23.25	1.18
5.083	1.58	11.167	6.12	17.250	1.78	23.33	1.18
5.167	1.58	11.250	6.12	17.333	1.78	23.42	1.18
5.250	1.58	11.333	9.47	17.417	1.78	23.50	1.18
5.333	1.58	11.417	9.47	17.500	1.78	23.58	1.18
5.417	1.58	11.500	9.47	17.583	1.78	23.67	1.18
5.500	1.58	11.583	9.47	17.667	1.78	23.75	1.18
5.583	1.58	11.667	9.47	17.750	1.78	23.83	1.18
5.667	1.58	11.750	9.47	17.833	1.78	23.92	1.18
5.750	1.58	11.833	29.20	17.917	1.78	24.00	1.18
5.833	1.58	11.917	29.20	18.000	1.78	24.08	1.18
5.917	1.58	12.000	29.20	18.083	1.78	24.17	1.18
6.000	1.58	12.083	120.74	18.167	1.78	24.25	1.18
6.083	1.58	12.167	120.75	18.250	1.78		

Max.Eff.Inten.(mm/hr)=	120.75	159.50	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.10 (ii)	4.13 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.24	
			TOTALS
PEAK FLOW (cms)=	0.03	0.04	0.065 (iii)
TIME TO PEAK (hrs)=	12.25	12.25	12.25
RUNOFF VOLUME (mm)=	96.65	62.51	75.14
TOTAL RAINFALL (mm)=	98.65	98.65	98.65
RUNOFF COEFFICIENT =	0.98	0.63	0.76

***** 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 (0206)	Area (ha)= 0.18
ID= 1 DT= 5.0 min	Total Imp(%)= 66.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.12	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	34.64	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.58	12.250	120.75	18.33	1.78
0.167	0.00	6.250	1.58	12.333	14.22	18.42	1.78
0.250	0.00	6.333	1.78	12.417	14.21	18.50	1.78
0.333	1.09	6.417	1.78	12.500	14.21	18.58	1.78
0.417	1.09	6.500	1.78	12.583	14.21	18.67	1.78
0.500	1.09	6.583	1.78	12.667	14.21	18.75	1.78
0.583	1.09	6.667	1.78	12.750	14.21	18.83	1.78
0.667	1.09	6.750	1.78	12.833	7.30	18.92	1.78
0.750	1.09	6.833	1.78	12.917	7.30	19.00	1.78
0.833	1.09	6.917	1.78	13.000	7.30	19.08	1.78
0.917	1.09	7.000	1.78	13.083	7.30	19.17	1.78
1.000	1.09	7.083	1.78	13.167	7.30	19.25	1.78
1.083	1.09	7.167	1.78	13.250	7.30	19.33	1.78
1.167	1.09	7.250	1.78	13.333	5.33	19.42	1.78
1.250	1.09	7.333	2.17	13.417	5.33	19.50	1.78
1.333	1.09	7.417	2.17	13.500	5.33	19.58	1.78
1.417	1.09	7.500	2.17	13.583	5.33	19.67	1.78
1.500	1.09	7.583	2.17	13.667	5.33	19.75	1.78
1.583	1.09	7.667	2.17	13.750	5.33	19.83	1.78
1.667	1.09	7.750	2.17	13.833	4.14	19.92	1.78
1.750	1.09	7.833	2.17	13.917	4.14	20.00	1.78
1.833	1.09	7.917	2.17	14.000	4.14	20.08	1.78
1.917	1.09	8.000	2.17	14.083	4.14	20.17	1.78
2.000	1.09	8.083	2.17	14.167	4.14	20.25	1.78
2.083	1.09	8.167	2.17	14.250	4.14	20.33	1.18
2.167	1.09	8.250	2.17	14.333	2.96	20.42	1.18
2.250	1.09	8.333	2.56	14.417	2.96	20.50	1.18
2.333	1.28	8.417	2.56	14.500	2.96	20.58	1.18
2.417	1.28	8.500	2.56	14.583	2.96	20.67	1.18
2.500	1.28	8.583	2.56	14.667	2.96	20.75	1.18
2.583	1.28	8.667	2.56	14.750	2.96	20.83	1.18
2.667	1.28	8.750	2.56	14.833	2.96	20.92	1.18
2.750	1.28	8.833	2.76	14.917	2.96	21.00	1.18
2.833	1.28	8.917	2.76	15.000	2.96	21.08	1.18
2.917	1.28	9.000	2.76	15.083	2.96	21.17	1.18
3.000	1.28	9.083	2.76	15.167	2.96	21.25	1.18
3.083	1.28	9.167	2.76	15.250	2.96	21.33	1.18
3.167	1.28	9.250	2.76	15.333	2.96	21.42	1.18
3.250	1.28	9.333	3.16	15.417	2.96	21.50	1.18
3.333	1.28	9.417	3.16	15.500	2.96	21.58	1.18
3.417	1.28	9.500	3.16	15.583	2.96	21.67	1.18
3.500	1.28	9.583	3.16	15.667	2.96	21.75	1.18
3.583	1.28	9.667	3.16	15.750	2.96	21.83	1.18
3.667	1.28	9.750	3.16	15.833	2.96	21.92	1.18
3.750	1.28	9.833	3.55	15.917	2.96	22.00	1.18
3.833	1.28	9.917	3.55	16.000	2.96	22.08	1.18
3.917	1.28	10.000	3.55	16.083	2.96	22.17	1.18
4.000	1.28	10.083	3.55	16.167	2.96	22.25	1.18
4.083	1.28	10.167	3.55	16.250	2.96	22.33	1.18
4.167	1.28	10.250	3.55	16.333	1.78	22.42	1.18
4.250	1.28	10.333	4.54	16.417	1.78	22.50	1.18
4.333	1.58	10.417	4.54	16.500	1.78	22.58	1.18
4.417	1.58	10.500	4.54	16.583	1.78	22.67	1.18
4.500	1.58	10.583	4.54	16.667	1.78	22.75	1.18
4.583	1.58	10.667	4.54	16.750	1.78	22.83	1.18
4.667	1.58	10.750	4.54	16.833	1.78	22.92	1.18
4.750	1.58	10.833	6.12	16.917	1.78	23.00	1.18
4.833	1.58	10.917	6.12	17.000	1.78	23.08	1.18
4.917	1.58	11.000	6.12	17.083	1.78	23.17	1.18
5.000	1.58	11.083	6.12	17.167	1.78	23.25	1.18
5.083	1.58	11.167	6.12	17.250	1.78	23.33	1.18
5.167	1.58	11.250	6.12	17.333	1.78	23.42	1.18
5.250	1.58	11.333	9.47	17.417	1.78	23.50	1.18
5.333	1.58	11.417	9.47	17.500	1.78	23.58	1.18
5.417	1.58	11.500	9.47	17.583	1.78	23.67	1.18
5.500	1.58	11.583	9.47	17.667	1.78	23.75	1.18
5.583	1.58	11.667	9.47	17.750	1.78	23.83	1.18
5.667	1.58	11.750	9.47	17.833	1.78	23.92	1.18
5.750	1.58	11.833	29.20	17.917	1.78	24.00	1.18
5.833	1.58	11.917	29.20	18.000	1.78	24.08	1.18
5.917	1.58	12.000	29.20	18.083	1.78	24.17	1.18
6.000	1.58	12.083	120.74	18.167	1.78	24.25	1.18
6.083	1.58	12.167	120.75	18.250	1.78		

Max.Eff.Inten.	(mm/hr)=	120.75	91.01	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	1.02 (ii)	3.46 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	0.34	0.26	
				TOTALS
PEAK FLOW	(cms)=	0.04	0.02	0.052 (iii)
TIME TO PEAK	(hrs)=	12.25	12.25	12.25
RUNOFF VOLUME	(mm)=	96.65	52.34	78.92
TOTAL RAINFALL	(mm)=	98.65	98.65	98.65
RUNOFF COEFFICIENT	=	0.98	0.53	0.80

***** 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)= 0.08
ID= 1 DT= 5.0 min	Total Imp(%)= 69.00 Dir. Conn.(%)= 38.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.02
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	23.09	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.58	12.250	120.75	18.33	1.78
0.167	0.00	6.250	1.58	12.333	14.22	18.42	1.78
0.250	0.00	6.333	1.78	12.417	14.21	18.50	1.78
0.333	1.09	6.417	1.78	12.500	14.21	18.58	1.78
0.417	1.09	6.500	1.78	12.583	14.21	18.67	1.78
0.500	1.09	6.583	1.78	12.667	14.21	18.75	1.78
0.583	1.09	6.667	1.78	12.750	14.21	18.83	1.78
0.667	1.09	6.750	1.78	12.833	7.30	18.92	1.78
0.750	1.09	6.833	1.78	12.917	7.30	19.00	1.78
0.833	1.09	6.917	1.78	13.000	7.30	19.08	1.78
0.917	1.09	7.000	1.78	13.083	7.30	19.17	1.78
1.000	1.09	7.083	1.78	13.167	7.30	19.25	1.78
1.083	1.09	7.167	1.78	13.250	7.30	19.33	1.78
1.167	1.09	7.250	1.78	13.333	5.33	19.42	1.78
1.250	1.09	7.333	2.17	13.417	5.33	19.50	1.78
1.333	1.09	7.417	2.17	13.500	5.33	19.58	1.78
1.417	1.09	7.500	2.17	13.583	5.33	19.67	1.78
1.500	1.09	7.583	2.17	13.667	5.33	19.75	1.78
1.583	1.09	7.667	2.17	13.750	5.33	19.83	1.78
1.667	1.09	7.750	2.17	13.833	4.14	19.92	1.78
1.750	1.09	7.833	2.17	13.917	4.14	20.00	1.78
1.833	1.09	7.917	2.17	14.000	4.14	20.08	1.78
1.917	1.09	8.000	2.17	14.083	4.14	20.17	1.78
2.000	1.09	8.083	2.17	14.167	4.14	20.25	1.78
2.083	1.09	8.167	2.17	14.250	4.14	20.33	1.18
2.167	1.09	8.250	2.17	14.333	2.96	20.42	1.18
2.250	1.09	8.333	2.56	14.417	2.96	20.50	1.18
2.333	1.28	8.417	2.56	14.500	2.96	20.58	1.18
2.417	1.28	8.500	2.56	14.583	2.96	20.67	1.18
2.500	1.28	8.583	2.56	14.667	2.96	20.75	1.18
2.583	1.28	8.667	2.56	14.750	2.96	20.83	1.18
2.667	1.28	8.750	2.56	14.833	2.96	20.92	1.18
2.750	1.28	8.833	2.76	14.917	2.96	21.00	1.18
2.833	1.28	8.917	2.76	15.000	2.96	21.08	1.18
2.917	1.28	9.000	2.76	15.083	2.96	21.17	1.18
3.000	1.28	9.083	2.76	15.167	2.96	21.25	1.18
3.083	1.28	9.167	2.76	15.250	2.96	21.33	1.18
3.167	1.28	9.250	2.76	15.333	2.96	21.42	1.18
3.250	1.28	9.333	3.16	15.417	2.96	21.50	1.18
3.333	1.28	9.417	3.16	15.500	2.96	21.58	1.18
3.417	1.28	9.500	3.16	15.583	2.96	21.67	1.18
3.500	1.28	9.583	3.16	15.667	2.96	21.75	1.18
3.583	1.28	9.667	3.16	15.750	2.96	21.83	1.18
3.667	1.28	9.750	3.16	15.833	2.96	21.92	1.18
3.750	1.28	9.833	3.55	15.917	2.96	22.00	1.18
3.833	1.28	9.917	3.55	16.000	2.96	22.08	1.18
3.917	1.28	10.000	3.55	16.083	2.96	22.17	1.18
4.000	1.28	10.083	3.55	16.167	2.96	22.25	1.18
4.083	1.28	10.167	3.55	16.250	2.96	22.33	1.18
4.167	1.28	10.250	3.55	16.333	1.78	22.42	1.18
4.250	1.28	10.333	4.54	16.417	1.78	22.50	1.18
4.333	1.58	10.417	4.54	16.500	1.78	22.58	1.18
4.417	1.58	10.500	4.54	16.583	1.78	22.67	1.18
4.500	1.58	10.583	4.54	16.667	1.78	22.75	1.18
4.583	1.58	10.667	4.54	16.750	1.78	22.83	1.18
4.667	1.58	10.750	4.54	16.833	1.78	22.92	1.18
4.750	1.58	10.833	6.12	16.917	1.78	23.00	1.18
4.833	1.58	10.917	6.12	17.000	1.78	23.08	1.18
4.917	1.58	11.000	6.12	17.083	1.78	23.17	1.18
5.000	1.58	11.083	6.12	17.167	1.78	23.25	1.18
5.083	1.58	11.167	6.12	17.250	1.78	23.33	1.18
5.167	1.58	11.250	6.12	17.333	1.78	23.42	1.18
5.250	1.58	11.333	9.47	17.417	1.78	23.50	1.18
5.333	1.58	11.417	9.47	17.500	1.78	23.58	1.18
5.417	1.58	11.500	9.47	17.583	1.78	23.67	1.18
5.500	1.58	11.583	9.47	17.667	1.78	23.75	1.18
5.583	1.58	11.667	9.47	17.750	1.78	23.83	1.18
5.667	1.58	11.750	9.47	17.833	1.78	23.92	1.18
5.750	1.58	11.833	29.20	17.917	1.78	24.00	1.18
5.833	1.58	11.917	29.20	18.000	1.78	24.08	1.18
5.917	1.58	12.000	29.20	18.083	1.78	24.17	1.18
6.000	1.58	12.083	120.74	18.167	1.78	24.25	1.18
6.083	1.58	12.167	120.75	18.250	1.78		

```
     Max.Eff.Inten.(mm/hr)=     120.75       190.33
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.80 (ii)    3.63 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.25
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.01         0.023 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.25         12.25
     RUNOFF VOLUME    (mm)=      96.65        65.67         77.43
     TOTAL RAINFALL   (mm)=      98.65        98.65         98.65
     RUNOFF COEFFICIENT   =       0.98         0.67          0.78

***** 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.

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

--------------------
| ADD HYD  (  0904)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0203):     0.08   0.023    12.25    77.43
      + ID2= 2 (  0204):     0.24   0.068    12.25    75.47
        ================================================
        ID = 3 (  0904):     0.32   0.091    12.25    75.96

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

--------------------
| ADD HYD  (  0904)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0904):     0.32   0.091    12.25    75.96
      + ID2= 2 (  0205):     0.23   0.065    12.25    75.14
        ================================================
        ID = 1 (  0904):     0.55   0.156    12.25    75.62

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

--------------------
| ADD HYD  (  0904)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0904):     0.55   0.156    12.25    75.62
      + ID2= 2 (  0206):     0.18   0.052    12.25    78.92
        ================================================
        ID = 3 (  0904):     0.73   0.208    12.25    76.43

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

--------------------
| CALIB            |
| STANDHYD (  0304)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  31.00   Dir. Conn.(%)=   5.00
--------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.16
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         0.50
     Length            (m)=      39.16       100.00
     Mannings n           =      0.013        0.250

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

                          ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.58 |12.250  120.75 | 18.33    1.78
 0.167    0.00 | 6.250    1.58 |12.333   14.22 | 18.42    1.78
 0.250    0.00 | 6.333    1.78 |12.417   14.21 | 18.50    1.78
 0.333    1.09 | 6.417    1.78 |12.500   14.21 | 18.58    1.78
 0.417    1.09 | 6.500    1.78 |12.583   14.21 | 18.67    1.78
 0.500    1.09 | 6.583    1.78 |12.667   14.21 | 18.75    1.78
 0.583    1.09 | 6.667    1.78 |12.750   14.21 | 18.83    1.78
 0.667    1.09 | 6.750    1.78 |12.833    7.30 | 18.92    1.78
 0.750    1.09 | 6.833    1.78 |12.917    7.30 | 19.00    1.78
 0.833    1.09 | 6.917    1.78 |13.000    7.30 | 19.08    1.78
 0.917    1.09 | 7.000    1.78 |13.083    7.30 | 19.17    1.78
 1.000    1.09 | 7.083    1.78 |13.167    7.30 | 19.25    1.78
 1.083    1.09 | 7.167    1.78 |13.250    7.30 | 19.33    1.78
 1.167    1.09 | 7.250    1.78 |13.333    5.33 | 19.42    1.78
 1.250    1.09 | 7.333    2.17 |13.417    5.33 | 19.50    1.78
 1.333    1.09 | 7.417    2.17 |13.500    5.33 | 19.58    1.78
 1.417    1.09 | 7.500    2.17 |13.583    5.33 | 19.67    1.78
 1.500    1.09 | 7.583    2.17 |13.667    5.33 | 19.75    1.78
 1.583    1.09 | 7.667    2.17 |13.750    5.33 | 19.83    1.78
 1.667    1.09 | 7.750    2.17 |13.833    4.14 | 19.92    1.78
 1.750    1.09 | 7.833    2.17 |13.917    4.14 | 20.00    1.78
 1.833    1.09 | 7.917    2.17 |14.000    4.14 | 20.08    1.78
 1.917    1.09 | 8.000    2.17 |14.083    4.14 | 20.17    1.78
 2.000    1.09 | 8.083    2.17 |14.167    4.14 | 20.25    1.78
 2.083    1.09 | 8.167    2.17 |14.250    4.14 | 20.33    1.18
```

2.167	1.09	8.250	2.17	14.333	2.96	20.42	1.18
2.250	1.09	8.333	2.56	14.417	2.96	20.50	1.18
2.333	1.28	8.417	2.56	14.500	2.96	20.58	1.18
2.417	1.28	8.500	2.56	14.583	2.96	20.67	1.18
2.500	1.28	8.583	2.56	14.667	2.96	20.75	1.18
2.583	1.28	8.667	2.56	14.750	2.96	20.83	1.18
2.667	1.28	8.750	2.56	14.833	2.96	20.92	1.18
2.750	1.28	8.833	2.76	14.917	2.96	21.00	1.18
2.833	1.28	8.917	2.76	15.000	2.96	21.08	1.18
2.917	1.28	9.000	2.76	15.083	2.96	21.17	1.18
3.000	1.28	9.083	2.76	15.167	2.96	21.25	1.18
3.083	1.28	9.167	2.76	15.250	2.96	21.33	1.18
3.167	1.28	9.250	2.76	15.333	2.96	21.42	1.18
3.250	1.28	9.333	3.16	15.417	2.96	21.50	1.18
3.333	1.28	9.417	3.16	15.500	2.96	21.58	1.18
3.417	1.28	9.500	3.16	15.583	2.96	21.67	1.18
3.500	1.28	9.583	3.16	15.667	2.96	21.75	1.18
3.583	1.28	9.667	3.16	15.750	2.96	21.83	1.18
3.667	1.28	9.750	3.16	15.833	2.96	21.92	1.18
3.750	1.28	9.833	3.55	15.917	2.96	22.00	1.18
3.833	1.28	9.917	3.55	16.000	2.96	22.08	1.18
3.917	1.28	10.000	3.55	16.083	2.96	22.17	1.18
4.000	1.28	10.083	3.55	16.167	2.96	22.25	1.18
4.083	1.28	10.167	3.55	16.250	2.96	22.33	1.18
4.167	1.28	10.250	3.55	16.333	1.78	22.42	1.18
4.250	1.28	10.333	4.54	16.417	1.78	22.50	1.18
4.333	1.58	10.417	4.54	16.500	1.78	22.58	1.18
4.417	1.58	10.500	4.54	16.583	1.78	22.67	1.18
4.500	1.58	10.583	4.54	16.667	1.78	22.75	1.18
4.583	1.58	10.667	4.54	16.750	1.78	22.83	1.18
4.667	1.58	10.750	4.54	16.833	1.78	22.92	1.18
4.750	1.58	10.833	6.12	16.917	1.78	23.00	1.18
4.833	1.58	10.917	6.12	17.000	1.78	23.08	1.18
4.917	1.58	11.000	6.12	17.083	1.78	23.17	1.18
5.000	1.58	11.083	6.12	17.167	1.78	23.25	1.18
5.083	1.58	11.167	6.12	17.250	1.78	23.33	1.18
5.167	1.58	11.250	6.12	17.333	1.78	23.42	1.18
5.250	1.58	11.333	9.47	17.417	1.78	23.50	1.18
5.333	1.58	11.417	9.47	17.500	1.78	23.58	1.18
5.417	1.58	11.500	9.47	17.583	1.78	23.67	1.18
5.500	1.58	11.583	9.47	17.667	1.78	23.75	1.18
5.583	1.58	11.667	9.47	17.750	1.78	23.83	1.18
5.667	1.58	11.750	9.47	17.833	1.78	23.92	1.18
5.750	1.58	11.833	29.20	17.917	1.78	24.00	1.18
5.833	1.58	11.917	29.20	18.000	1.78	24.08	1.18
5.917	1.58	12.000	29.20	18.083	1.78	24.17	1.18
6.000	1.58	12.083	120.74	18.167	1.78	24.25	1.18
6.083	1.58	12.167	120.75	18.250	1.78		

Max.Eff.Inten.(mm/hr)= 120.75 87.15

over (min) 5.00 25.00
Storage Coeff. (min)= 1.10 (ii) 20.68 (ii)
Unit Hyd. Tpeak (min)= 5.00 25.00
Unit Hyd. peak (cms)= 0.34 0.05

				TOTALS
PEAK FLOW	(cms)=	0.00	0.02	0.023 (iii)
TIME TO PEAK	(hrs)=	12.25	12.50	12.50
RUNOFF VOLUME	(mm)=	96.65	56.49	58.43
TOTAL RAINFALL	(mm)=	98.65	98.65	98.65
RUNOFF COEFFICIENT	=	0.98	0.57	0.59

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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.

ADD HYD (0906)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0202):	0.16	0.016	12.42	51.29	
+ ID2= 2 (0304):	0.23	0.023	12.50	58.43	
ID = 3 (0906):	0.39	0.038	12.50	55.50	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0906)					
3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 3 (0906):	0.39	0.038	12.50	55.50	
+ ID2= 2 (0904):	0.73	0.208	12.25	76.43	
ID = 1 (0906):	1.12	0.237	12.25	69.14	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH

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       V    V   I    SSSSS  U   U    A    L             (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\232
bda8d-183f-493b-8d4f-6f35a33d0038\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\232
bda8d-183f-493b-8d4f-6f35a33d0038\sc


DATE: 07/25/2023                          TIME: 10:13:53

USER:



COMMENTS: _____________________________________________________________


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  ***********************************************
  ** SIMULATION : (5) 50 Year Design Storm - SC **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\JBirchard\AppD
|                  |              ata\Local\Temp\
|                  |              ddb5ea80-a20e-4ff4-9c74-beb6735bad9d\ee650115
| Ptotal=109.84 mm |    Comments: 50yr 24hr 15min SCS
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    0.00 |  6.50    1.98 | 12.75   15.82 | 19.00    1.98
                0.50    1.21 |  6.75    1.98 | 13.00    8.13 | 19.25    1.98
                0.75    1.21 |  7.00    1.98 | 13.25    8.13 | 19.50    1.98
                1.00    1.21 |  7.25    1.98 | 13.50    5.93 | 19.75    1.98
                1.25    1.21 |  7.50    2.42 | 13.75    5.93 | 20.00    1.98
                1.50    1.21 |  7.75    2.42 | 14.00    4.61 | 20.25    1.98
                1.75    1.21 |  8.00    2.42 | 14.25    4.61 | 20.50    1.32
                2.00    1.21 |  8.25    2.42 | 14.50    3.30 | 20.75    1.32
                2.25    1.21 |  8.50    2.86 | 14.75    3.30 | 21.00    1.32
                2.50    1.43 |  8.75    2.86 | 15.00    3.30 | 21.25    1.32
                2.75    1.43 |  9.00    3.08 | 15.25    3.30 | 21.50    1.32
                3.00    1.43 |  9.25    3.08 | 15.50    3.30 | 21.75    1.32
                3.25    1.43 |  9.50    3.51 | 15.75    3.30 | 22.00    1.32
                3.50    1.43 |  9.75    3.51 | 16.00    3.30 | 22.25    1.32
                3.75    1.43 | 10.00    3.95 | 16.25    3.30 | 22.50    1.32
                4.00    1.43 | 10.25    3.95 | 16.50    1.98 | 22.75    1.32
                4.25    1.43 | 10.50    5.05 | 16.75    1.98 | 23.00    1.32
                4.50    1.76 | 10.75    5.05 | 17.00    1.98 | 23.25    1.32
                4.75    1.76 | 11.00    6.81 | 17.25    1.98 | 23.50    1.32
                5.00    1.76 | 11.25    6.81 | 17.50    1.98 | 23.75    1.32
                5.25    1.76 | 11.50   10.54 | 17.75    1.98 | 24.00    1.32
                5.50    1.76 | 11.75   10.54 | 18.00    1.98 | 24.25    1.32
                5.75    1.76 | 12.00   32.51 | 18.25    1.98 |
                6.00    1.76 | 12.25  134.44 | 18.50    1.98 |
                6.25    1.76 | 12.50   15.82 | 18.75    1.98 |

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--------------------
| CALIB            |
| STANDHYD (  0303)|   Area    (ha)=   0.33
|ID= 1 DT= 5.0 min |   Total Imp(%)=  30.00   Dir. Conn.(%)=   5.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.10          0.23
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       2.00          0.70
     Length            (m)=      46.90        160.00
     Mannings n           =      0.013         0.250

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


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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.76	12.250	134.44	18.33	1.98
0.167	0.00	6.250	1.76	12.333	15.83	18.42	1.98
0.250	0.00	6.333	1.98	12.417	15.82	18.50	1.98
0.333	1.21	6.417	1.98	12.500	15.82	18.58	1.98
0.417	1.21	6.500	1.98	12.583	15.82	18.67	1.98
0.500	1.21	6.583	1.98	12.667	15.82	18.75	1.98
0.583	1.21	6.667	1.98	12.750	15.82	18.83	1.98
0.667	1.21	6.750	1.98	12.833	8.13	18.92	1.98
0.750	1.21	6.833	1.98	12.917	8.13	19.00	1.98
0.833	1.21	6.917	1.98	13.000	8.13	19.08	1.98
0.917	1.21	7.000	1.98	13.083	8.13	19.17	1.98
1.000	1.21	7.083	1.98	13.167	8.13	19.25	1.98
1.083	1.21	7.167	1.98	13.250	8.13	19.33	1.98
1.167	1.21	7.250	1.98	13.333	5.93	19.42	1.98
1.250	1.21	7.333	2.42	13.417	5.93	19.50	1.98
1.333	1.21	7.417	2.42	13.500	5.93	19.58	1.98
1.417	1.21	7.500	2.42	13.583	5.93	19.67	1.98
1.500	1.21	7.583	2.42	13.667	5.93	19.75	1.98
1.583	1.21	7.667	2.42	13.750	5.93	19.83	1.98
1.667	1.21	7.750	2.42	13.833	4.61	19.92	1.98
1.750	1.21	7.833	2.42	13.917	4.61	20.00	1.98
1.833	1.21	7.917	2.42	14.000	4.61	20.08	1.98
1.917	1.21	8.000	2.42	14.083	4.61	20.17	1.98
2.000	1.21	8.083	2.42	14.167	4.61	20.25	1.98
2.083	1.21	8.167	2.42	14.250	4.61	20.33	1.32
2.167	1.21	8.250	2.42	14.333	3.30	20.42	1.32
2.250	1.21	8.333	2.86	14.417	3.30	20.50	1.32
2.333	1.43	8.417	2.86	14.500	3.30	20.58	1.32
2.417	1.43	8.500	2.86	14.583	3.30	20.67	1.32
2.500	1.43	8.583	2.86	14.667	3.30	20.75	1.32
2.583	1.43	8.667	2.86	14.750	3.30	20.83	1.32
2.667	1.43	8.750	2.86	14.833	3.30	20.92	1.32
2.750	1.43	8.833	3.08	14.917	3.30	21.00	1.32
2.833	1.43	8.917	3.08	15.000	3.30	21.08	1.32
2.917	1.43	9.000	3.08	15.083	3.30	21.17	1.32
3.000	1.43	9.083	3.08	15.167	3.30	21.25	1.32
3.083	1.43	9.167	3.08	15.250	3.30	21.33	1.32
3.167	1.43	9.250	3.08	15.333	3.30	21.42	1.32
3.250	1.43	9.333	3.51	15.417	3.30	21.50	1.32
3.333	1.43	9.417	3.51	15.500	3.30	21.58	1.32
3.417	1.43	9.500	3.51	15.583	3.30	21.67	1.32
3.500	1.43	9.583	3.51	15.667	3.30	21.75	1.32
3.583	1.43	9.667	3.51	15.750	3.30	21.83	1.32
3.667	1.43	9.750	3.51	15.833	3.30	21.92	1.32
3.750	1.43	9.833	3.95	15.917	3.30	22.00	1.32
3.833	1.43	9.917	3.95	16.000	3.30	22.08	1.32
3.917	1.43	10.000	3.95	16.083	3.30	22.17	1.32
4.000	1.43	10.083	3.95	16.167	3.30	22.25	1.32
4.083	1.43	10.167	3.95	16.250	3.30	22.33	1.32
4.167	1.43	10.250	3.95	16.333	1.98	22.42	1.32
4.250	1.43	10.333	5.05	16.417	1.98	22.50	1.32
4.333	1.76	10.417	5.05	16.500	1.98	22.58	1.32
4.417	1.76	10.500	5.05	16.583	1.98	22.67	1.32
4.500	1.76	10.583	5.05	16.667	1.98	22.75	1.32
4.583	1.76	10.667	5.05	16.750	1.98	22.83	1.32
4.667	1.76	10.750	5.05	16.833	1.98	22.92	1.32
4.750	1.76	10.833	6.81	16.917	1.98	23.00	1.32
4.833	1.76	10.917	6.81	17.000	1.98	23.08	1.32
4.917	1.76	11.000	6.81	17.083	1.98	23.17	1.32
5.000	1.76	11.083	6.81	17.167	1.98	23.25	1.32
5.083	1.76	11.167	6.81	17.250	1.98	23.33	1.32
5.167	1.76	11.250	6.81	17.333	1.98	23.42	1.32
5.250	1.76	11.333	10.54	17.417	1.98	23.50	1.32
5.333	1.76	11.417	10.54	17.500	1.98	23.58	1.32
5.417	1.76	11.500	10.54	17.583	1.98	23.67	1.32
5.500	1.76	11.583	10.54	17.667	1.98	23.75	1.32
5.583	1.76	11.667	10.54	17.750	1.98	23.83	1.32
5.667	1.76	11.750	10.54	17.833	1.98	23.92	1.32
5.750	1.76	11.833	32.51	17.917	1.98	24.00	1.32
5.833	1.76	11.917	32.51	18.000	1.98	24.08	1.32
5.917	1.76	12.000	32.51	18.083	1.98	24.17	1.32
6.000	1.76	12.083	134.43	18.167	1.98	24.25	1.32
6.083	1.76	12.167	134.44	18.250	1.98		

Max.Eff.Inten.(mm/hr)=	134.44	84.62		
over (min)	5.00	25.00		
Storage Coeff. (min)=	1.17 (ii)	24.92 (ii)		
Unit Hyd. Tpeak (min)=	5.00	25.00		
Unit Hyd. peak (cms)=	0.34	0.05		
			TOTALS	
PEAK FLOW (cms)=	0.01	0.03	0.035 (iii)	
TIME TO PEAK (hrs)=	12.25	12.50	12.50	
RUNOFF VOLUME (mm)=	107.84	65.55	67.62	
TOTAL RAINFALL (mm)=	109.84	109.84	109.84	
RUNOFF COEFFICIENT =	0.98	0.60	0.62	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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 (0201)	Area (ha)= 0.23
ID= 1 DT= 5.0 min	Total Imp(%)= 38.00 Dir. Conn.(%)= 5.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.14
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	0.70
Length	(m)=	39.16	160.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.76	12.250	134.44	18.33	1.98
0.167	0.00	6.250	1.76	12.333	15.83	18.42	1.98
0.250	0.00	6.333	1.98	12.417	15.82	18.50	1.98
0.333	1.21	6.417	1.98	12.500	15.82	18.58	1.98
0.417	1.21	6.500	1.98	12.583	15.82	18.67	1.98
0.500	1.21	6.583	1.98	12.667	15.82	18.75	1.98
0.583	1.21	6.667	1.98	12.750	15.82	18.83	1.98
0.667	1.21	6.750	1.98	12.833	8.13	18.92	1.98
0.750	1.21	6.833	1.98	12.917	8.13	19.00	1.98
0.833	1.21	6.917	1.98	13.000	8.13	19.08	1.98
0.917	1.21	7.000	1.98	13.083	8.13	19.17	1.98
1.000	1.21	7.083	1.98	13.167	8.13	19.25	1.98
1.083	1.21	7.167	1.98	13.250	8.13	19.33	1.98
1.167	1.21	7.250	1.98	13.333	5.93	19.42	1.98
1.250	1.21	7.333	2.42	13.417	5.93	19.50	1.98
1.333	1.21	7.417	2.42	13.500	5.93	19.58	1.98
1.417	1.21	7.500	2.42	13.583	5.93	19.67	1.98
1.500	1.21	7.583	2.42	13.667	5.93	19.75	1.98
1.583	1.21	7.667	2.42	13.750	5.93	19.83	1.98
1.667	1.21	7.750	2.42	13.833	4.61	19.92	1.98
1.750	1.21	7.833	2.42	13.917	4.61	20.00	1.98
1.833	1.21	7.917	2.42	14.000	4.61	20.08	1.98
1.917	1.21	8.000	2.42	14.083	4.61	20.17	1.98
2.000	1.21	8.083	2.42	14.167	4.61	20.25	1.98
2.083	1.21	8.167	2.42	14.250	4.61	20.33	1.32
2.167	1.21	8.250	2.42	14.333	3.30	20.42	1.32
2.250	1.21	8.333	2.86	14.417	3.30	20.50	1.32
2.333	1.43	8.417	2.86	14.500	3.30	20.58	1.32
2.417	1.43	8.500	2.86	14.583	3.30	20.67	1.32
2.500	1.43	8.583	2.86	14.667	3.30	20.75	1.32
2.583	1.43	8.667	2.86	14.750	3.30	20.83	1.32
2.667	1.43	8.750	2.86	14.833	3.30	20.92	1.32
2.750	1.43	8.833	3.08	14.917	3.30	21.00	1.32
2.833	1.43	8.917	3.08	15.000	3.30	21.08	1.32
2.917	1.43	9.000	3.08	15.083	3.30	21.17	1.32
3.000	1.43	9.083	3.08	15.167	3.30	21.25	1.32
3.083	1.43	9.167	3.08	15.250	3.30	21.33	1.32
3.167	1.43	9.250	3.08	15.333	3.30	21.42	1.32
3.250	1.43	9.333	3.51	15.417	3.30	21.50	1.32
3.333	1.43	9.417	3.51	15.500	3.30	21.58	1.32
3.417	1.43	9.500	3.51	15.583	3.30	21.67	1.32
3.500	1.43	9.583	3.51	15.667	3.30	21.75	1.32
3.583	1.43	9.667	3.51	15.750	3.30	21.83	1.32
3.667	1.43	9.750	3.51	15.833	3.30	21.92	1.32
3.750	1.43	9.833	3.95	15.917	3.30	22.00	1.32
3.833	1.43	9.917	3.95	16.000	3.30	22.08	1.32
3.917	1.43	10.000	3.95	16.083	3.30	22.17	1.32
4.000	1.43	10.083	3.95	16.167	3.30	22.25	1.32
4.083	1.43	10.167	3.95	16.250	3.30	22.33	1.32
4.167	1.43	10.250	3.95	16.333	1.98	22.42	1.32
4.250	1.43	10.333	5.05	16.417	1.98	22.50	1.32
4.333	1.76	10.417	5.05	16.500	1.98	22.58	1.32
4.417	1.76	10.500	5.05	16.583	1.98	22.67	1.32
4.500	1.76	10.583	5.05	16.667	1.98	22.75	1.32
4.583	1.76	10.667	5.05	16.750	1.98	22.83	1.32
4.667	1.76	10.750	5.05	16.833	1.98	22.92	1.32
4.750	1.76	10.833	6.81	16.917	1.98	23.00	1.32
4.833	1.76	10.917	6.81	17.000	1.98	23.08	1.32
4.917	1.76	11.000	6.81	17.083	1.98	23.17	1.32
5.000	1.76	11.083	6.81	17.167	1.98	23.25	1.32
5.083	1.76	11.167	6.81	17.250	1.98	23.33	1.32
5.167	1.76	11.250	6.81	17.333	1.98	23.42	1.32
5.250	1.76	11.333	10.54	17.417	1.98	23.50	1.32
5.333	1.76	11.417	10.54	17.500	1.98	23.58	1.32
5.417	1.76	11.500	10.54	17.583	1.98	23.67	1.32
5.500	1.76	11.583	10.54	17.667	1.98	23.75	1.32
5.583	1.76	11.667	10.54	17.750	1.98	23.83	1.32
5.667	1.76	11.750	10.54	17.833	1.98	23.92	1.32
5.750	1.76	11.833	32.51	17.917	1.98	24.00	1.32
5.833	1.76	11.917	32.51	18.000	1.98	24.08	1.32
5.917	1.76	12.000	32.51	18.083	1.98	24.17	1.32
6.000	1.76	12.083	134.43	18.167	1.98	24.25	1.32
6.083	1.76	12.167	134.44	18.250	1.98		

Max.Eff.Inten.(mm/hr)=	134.44	100.61		
over (min)	5.00	25.00		
Storage Coeff. (min)=	1.05 (ii)	23.21 (ii)		
Unit Hyd. Tpeak (min)=	5.00	25.00		
Unit Hyd. peak (cms)=	0.34	0.05		
				TOTALS
PEAK FLOW (cms)=	0.00	0.03		0.026 (iii)
TIME TO PEAK (hrs)=	12.25	12.50		12.50
RUNOFF VOLUME (mm)=	107.84	68.91		70.80

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     TOTAL RAINFALL   (mm)=     109.84       109.84         109.84
     RUNOFF COEFFICIENT   =       0.98         0.63           0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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--------------------
| ADD HYD  (  0903)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0201):     0.23   0.026    12.50    70.80
      + ID2= 2 (  0303):     0.33   0.035    12.50    67.62
        ================================================
        ID = 3 (  0903):     0.56   0.061    12.50    68.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| CALIB            |
| NASHYD   (  0202)|   Area    (ha)=   0.16   Curve Number   (CN)= 76.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.71   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.30

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.76	12.250	134.44	18.33	1.98
0.167	0.00	6.250	1.76	12.333	15.83	18.42	1.98
0.250	0.00	6.333	1.98	12.417	15.82	18.50	1.98
0.333	1.21	6.417	1.98	12.500	15.82	18.58	1.98
0.417	1.21	6.500	1.98	12.583	15.82	18.67	1.98
0.500	1.21	6.583	1.98	12.667	15.82	18.75	1.98
0.583	1.21	6.667	1.98	12.750	15.82	18.83	1.98
0.667	1.21	6.750	1.98	12.833	8.13	18.92	1.98
0.750	1.21	6.833	1.98	12.917	8.13	19.00	1.98
0.833	1.21	6.917	1.98	13.000	8.13	19.08	1.98
0.917	1.21	7.000	1.98	13.083	8.13	19.17	1.98
1.000	1.21	7.083	1.98	13.167	8.13	19.25	1.98
1.083	1.21	7.167	1.98	13.250	8.13	19.33	1.98
1.167	1.21	7.250	1.98	13.333	5.93	19.42	1.98
1.250	1.21	7.333	2.42	13.417	5.93	19.50	1.98
1.333	1.21	7.417	2.42	13.500	5.93	19.58	1.98
1.417	1.21	7.500	2.42	13.583	5.93	19.67	1.98
1.500	1.21	7.583	2.42	13.667	5.93	19.75	1.98
1.583	1.21	7.667	2.42	13.750	5.93	19.83	1.98
1.667	1.21	7.750	2.42	13.833	4.61	19.92	1.98
1.750	1.21	7.833	2.42	13.917	4.61	20.00	1.98
1.833	1.21	7.917	2.42	14.000	4.61	20.08	1.98
1.917	1.21	8.000	2.42	14.083	4.61	20.17	1.98
2.000	1.21	8.083	2.42	14.167	4.61	20.25	1.98
2.083	1.21	8.167	2.42	14.250	4.61	20.33	1.32
2.167	1.21	8.250	2.42	14.333	3.30	20.42	1.32
2.250	1.21	8.333	2.86	14.417	3.30	20.50	1.32
2.333	1.43	8.417	2.86	14.500	3.30	20.58	1.32
2.417	1.43	8.500	2.86	14.583	3.30	20.67	1.32
2.500	1.43	8.583	2.86	14.667	3.30	20.75	1.32
2.583	1.43	8.667	2.86	14.750	3.30	20.83	1.32
2.667	1.43	8.750	2.86	14.833	3.30	20.92	1.32
2.750	1.43	8.833	3.08	14.917	3.30	21.00	1.32
2.833	1.43	8.917	3.08	15.000	3.30	21.08	1.32
2.917	1.43	9.000	3.08	15.083	3.30	21.17	1.32
3.000	1.43	9.083	3.08	15.167	3.30	21.25	1.32
3.083	1.43	9.167	3.08	15.250	3.30	21.33	1.32
3.167	1.43	9.250	3.08	15.333	3.30	21.42	1.32
3.250	1.43	9.333	3.51	15.417	3.30	21.50	1.32
3.333	1.43	9.417	3.51	15.500	3.30	21.58	1.32
3.417	1.43	9.500	3.51	15.583	3.30	21.67	1.32
3.500	1.43	9.583	3.51	15.667	3.30	21.75	1.32
3.583	1.43	9.667	3.51	15.750	3.30	21.83	1.32
3.667	1.43	9.750	3.51	15.833	3.30	21.92	1.32
3.750	1.43	9.833	3.95	15.917	3.30	22.00	1.32
3.833	1.43	9.917	3.95	16.000	3.30	22.08	1.32
3.917	1.43	10.000	3.95	16.083	3.30	22.17	1.32
4.000	1.43	10.083	3.95	16.167	3.30	22.25	1.32
4.083	1.43	10.167	3.95	16.250	3.30	22.33	1.32
4.167	1.43	10.250	3.95	16.333	1.98	22.42	1.32
4.250	1.43	10.333	5.05	16.417	1.98	22.50	1.32
4.333	1.76	10.417	5.05	16.500	1.98	22.58	1.32
4.417	1.76	10.500	5.05	16.583	1.98	22.67	1.32
4.500	1.76	10.583	5.05	16.667	1.98	22.75	1.32
4.583	1.76	10.667	5.05	16.750	1.98	22.83	1.32
4.667	1.76	10.750	5.05	16.833	1.98	22.92	1.32
4.750	1.76	10.833	6.81	16.917	1.98	23.00	1.32
4.833	1.76	10.917	6.81	17.000	1.98	23.08	1.32
4.917	1.76	11.000	6.81	17.083	1.98	23.17	1.32
5.000	1.76	11.083	6.81	17.167	1.98	23.25	1.32
5.083	1.76	11.167	6.81	17.250	1.98	23.33	1.32
5.167	1.76	11.250	6.81	17.333	1.98	23.42	1.32

5.250	1.76	11.333	10.54	17.417	1.98	23.50	1.32
5.333	1.76	11.417	10.54	17.500	1.98	23.58	1.32
5.417	1.76	11.500	10.54	17.583	1.98	23.67	1.32
5.500	1.76	11.583	10.54	17.667	1.98	23.75	1.32
5.583	1.76	11.667	10.54	17.750	1.98	23.83	1.32
5.667	1.76	11.750	10.54	17.833	1.98	23.92	1.32
5.750	1.76	11.833	32.51	17.917	1.98	24.00	1.32
5.833	1.76	11.917	32.51	18.000	1.98	24.08	1.32
5.917	1.76	12.000	32.51	18.083	1.98	24.17	1.32
6.000	1.76	12.083	134.43	18.167	1.98	24.25	1.32
6.083	1.76	12.167	134.44	18.250	1.98		

Unit Hyd Qpeak (cms)= 0.020

PEAK FLOW (cms)= 0.019 (i)
TIME TO PEAK (hrs)= 12.417
RUNOFF VOLUME (mm)= 60.315
TOTAL RAINFALL (mm)= 109.840
RUNOFF COEFFICIENT = 0.549

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

CALIB
STANDHYD (0204)
ID= 1 DT= 5.0 min

Area (ha)= 0.24
Total Imp(%)= 65.00 Dir. Conn.(%)= 36.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.16	0.08
Dep. Storage (mm)=	2.00	5.00
Average Slope (%)=	2.00	1.00
Length (m)=	40.00	8.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.76	12.250	134.44	18.33	1.98
0.167	0.00	6.250	1.76	12.333	15.83	18.42	1.98
0.250	0.00	6.333	1.98	12.417	15.82	18.50	1.98
0.333	1.21	6.417	1.98	12.500	15.82	18.58	1.98
0.417	1.21	6.500	1.98	12.583	15.82	18.67	1.98
0.500	1.21	6.583	1.98	12.667	15.82	18.75	1.98
0.583	1.21	6.667	1.98	12.750	15.82	18.83	1.98
0.667	1.21	6.750	1.98	12.833	8.13	18.92	1.98
0.750	1.21	6.833	1.98	12.917	8.13	19.00	1.98
0.833	1.21	6.917	1.98	13.000	8.13	19.08	1.98
0.917	1.21	7.000	1.98	13.083	8.13	19.17	1.98
1.000	1.21	7.083	1.98	13.167	8.13	19.25	1.98
1.083	1.21	7.167	1.98	13.250	8.13	19.33	1.98
1.167	1.21	7.250	1.98	13.333	5.93	19.42	1.98
1.250	1.21	7.333	2.42	13.417	5.93	19.50	1.98
1.333	1.21	7.417	2.42	13.500	5.93	19.58	1.98
1.417	1.21	7.500	2.42	13.583	5.93	19.67	1.98
1.500	1.21	7.583	2.42	13.667	5.93	19.75	1.98
1.583	1.21	7.667	2.42	13.750	5.93	19.83	1.98
1.667	1.21	7.750	2.42	13.833	4.61	19.92	1.98
1.750	1.21	7.833	2.42	13.917	4.61	20.00	1.98
1.833	1.21	7.917	2.42	14.000	4.61	20.08	1.98
1.917	1.21	8.000	2.42	14.083	4.61	20.17	1.98
2.000	1.21	8.083	2.42	14.167	4.61	20.25	1.98
2.083	1.21	8.167	2.42	14.250	4.61	20.33	1.32
2.167	1.21	8.250	2.42	14.333	3.30	20.42	1.32
2.250	1.21	8.333	2.86	14.417	3.30	20.50	1.32
2.333	1.43	8.417	2.86	14.500	3.30	20.58	1.32
2.417	1.43	8.500	2.86	14.583	3.30	20.67	1.32
2.500	1.43	8.583	2.86	14.667	3.30	20.75	1.32
2.583	1.43	8.667	2.86	14.750	3.30	20.83	1.32
2.667	1.43	8.750	2.86	14.833	3.30	20.92	1.32
2.750	1.43	8.833	3.08	14.917	3.30	21.00	1.32
2.833	1.43	8.917	3.08	15.000	3.30	21.08	1.32
2.917	1.43	9.000	3.08	15.083	3.30	21.17	1.32
3.000	1.43	9.083	3.08	15.167	3.30	21.25	1.32
3.083	1.43	9.167	3.08	15.250	3.30	21.33	1.32
3.167	1.43	9.250	3.08	15.333	3.30	21.42	1.32
3.250	1.43	9.333	3.51	15.417	3.30	21.50	1.32
3.333	1.43	9.417	3.51	15.500	3.30	21.58	1.32
3.417	1.43	9.500	3.51	15.583	3.30	21.67	1.32
3.500	1.43	9.583	3.51	15.667	3.30	21.75	1.32
3.583	1.43	9.667	3.51	15.750	3.30	21.83	1.32
3.667	1.43	9.750	3.51	15.833	3.30	21.92	1.32
3.750	1.43	9.833	3.95	15.917	3.30	22.00	1.32
3.833	1.43	9.917	3.95	16.000	3.30	22.08	1.32
3.917	1.43	10.000	3.95	16.083	3.30	22.17	1.32
4.000	1.43	10.083	3.95	16.167	3.30	22.25	1.32
4.083	1.43	10.167	3.95	16.250	3.30	22.33	1.32
4.167	1.43	10.250	3.95	16.333	1.98	22.42	1.32
4.250	1.43	10.333	5.05	16.417	1.98	22.50	1.32
4.333	1.76	10.417	5.05	16.500	1.98	22.58	1.32
4.417	1.76	10.500	5.05	16.583	1.98	22.67	1.32
4.500	1.76	10.583	5.05	16.667	1.98	22.75	1.32
4.583	1.76	10.667	5.05	16.750	1.98	22.83	1.32
4.667	1.76	10.750	5.05	16.833	1.98	22.92	1.32
4.750	1.76	10.833	6.81	16.917	1.98	23.00	1.32
4.833	1.76	10.917	6.81	17.000	1.98	23.08	1.32
4.917	1.76	11.000	6.81	17.083	1.98	23.17	1.32

5.000	1.76	11.083	6.81	17.167	1.98	23.25	1.32
5.083	1.76	11.167	6.81	17.250	1.98	23.33	1.32
5.167	1.76	11.250	6.81	17.333	1.98	23.42	1.32
5.250	1.76	11.333	10.54	17.417	1.98	23.50	1.32
5.333	1.76	11.417	10.54	17.500	1.98	23.58	1.32
5.417	1.76	11.500	10.54	17.583	1.98	23.67	1.32
5.500	1.76	11.583	10.54	17.667	1.98	23.75	1.32
5.583	1.76	11.667	10.54	17.750	1.98	23.83	1.32
5.667	1.76	11.750	10.54	17.833	1.98	23.92	1.32
5.750	1.76	11.833	32.51	17.917	1.98	24.00	1.32
5.833	1.76	11.917	32.51	18.000	1.98	24.08	1.32
5.917	1.76	12.000	32.51	18.083	1.98	24.17	1.32
6.000	1.76	12.083	134.43	18.167	1.98	24.25	1.32
6.083	1.76	12.167	134.44	18.250	1.98		

Max.Eff.Inten.(mm/hr)=	134.44	194.79	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.06 (ii)	3.97 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.24	
			TOTALS
PEAK FLOW (cms)=	0.03	0.04	0.077 (iii)
TIME TO PEAK (hrs)=	12.25	12.25	12.25
RUNOFF VOLUME (mm)=	107.84	73.58	85.91
TOTAL RAINFALL (mm)=	109.84	109.84	109.84
RUNOFF COEFFICIENT =	0.98	0.67	0.78

***** 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 (0205)	Area (ha)= 0.23
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 37.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	39.16	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.76	12.250	134.44	18.33	1.98
0.167	0.00	6.250	1.76	12.333	15.83	18.42	1.98
0.250	0.00	6.333	1.98	12.417	15.82	18.50	1.98
0.333	1.21	6.417	1.98	12.500	15.82	18.58	1.98
0.417	1.21	6.500	1.98	12.583	15.82	18.67	1.98
0.500	1.21	6.583	1.98	12.667	15.82	18.75	1.98
0.583	1.21	6.667	1.98	12.750	15.82	18.83	1.98
0.667	1.21	6.750	1.98	12.833	8.13	18.92	1.98
0.750	1.21	6.833	1.98	12.917	8.13	19.00	1.98
0.833	1.21	6.917	1.98	13.000	8.13	19.08	1.98
0.917	1.21	7.000	1.98	13.083	8.13	19.17	1.98
1.000	1.21	7.083	1.98	13.167	8.13	19.25	1.98
1.083	1.21	7.167	1.98	13.250	8.13	19.33	1.98
1.167	1.21	7.250	1.98	13.333	5.93	19.42	1.98
1.250	1.21	7.333	2.42	13.417	5.93	19.50	1.98
1.333	1.21	7.417	2.42	13.500	5.93	19.58	1.98
1.417	1.21	7.500	2.42	13.583	5.93	19.67	1.98
1.500	1.21	7.583	2.42	13.667	5.93	19.75	1.98
1.583	1.21	7.667	2.42	13.750	5.93	19.83	1.98
1.667	1.21	7.750	2.42	13.833	4.61	19.92	1.98
1.750	1.21	7.833	2.42	13.917	4.61	20.00	1.98
1.833	1.21	7.917	2.42	14.000	4.61	20.08	1.98
1.917	1.21	8.000	2.42	14.083	4.61	20.17	1.98
2.000	1.21	8.083	2.42	14.167	4.61	20.25	1.98
2.083	1.21	8.167	2.42	14.250	4.61	20.33	1.32
2.167	1.21	8.250	2.42	14.333	3.30	20.42	1.32
2.250	1.21	8.333	2.86	14.417	3.30	20.50	1.32
2.333	1.43	8.417	2.86	14.500	3.30	20.58	1.32
2.417	1.43	8.500	2.86	14.583	3.30	20.67	1.32
2.500	1.43	8.583	2.86	14.667	3.30	20.75	1.32
2.583	1.43	8.667	2.86	14.750	3.30	20.83	1.32
2.667	1.43	8.750	2.86	14.833	3.30	20.92	1.32
2.750	1.43	8.833	3.08	14.917	3.30	21.00	1.32
2.833	1.43	8.917	3.08	15.000	3.30	21.08	1.32
2.917	1.43	9.000	3.08	15.083	3.30	21.17	1.32
3.000	1.43	9.083	3.08	15.167	3.30	21.25	1.32
3.083	1.43	9.167	3.08	15.250	3.30	21.33	1.32
3.167	1.43	9.250	3.08	15.333	3.30	21.42	1.32
3.250	1.43	9.333	3.51	15.417	3.30	21.50	1.32
3.333	1.43	9.417	3.51	15.500	3.30	21.58	1.32
3.417	1.43	9.500	3.51	15.583	3.30	21.67	1.32
3.500	1.43	9.583	3.51	15.667	3.30	21.75	1.32
3.583	1.43	9.667	3.51	15.750	3.30	21.83	1.32
3.667	1.43	9.750	3.51	15.833	3.30	21.92	1.32
3.750	1.43	9.833	3.95	15.917	3.30	22.00	1.32
3.833	1.43	9.917	3.95	16.000	3.30	22.08	1.32

3.917	1.43	10.000	3.95	16.083	3.30	22.17	1.32
4.000	1.43	10.083	3.95	16.167	3.30	22.25	1.32
4.083	1.43	10.167	3.95	16.250	3.30	22.33	1.32
4.167	1.43	10.250	3.95	16.333	1.98	22.42	1.32
4.250	1.43	10.333	5.05	16.417	1.98	22.50	1.32
4.333	1.76	10.417	5.05	16.500	1.98	22.58	1.32
4.417	1.76	10.500	5.05	16.583	1.98	22.67	1.32
4.500	1.76	10.583	5.05	16.667	1.98	22.75	1.32
4.583	1.76	10.667	5.05	16.750	1.98	22.83	1.32
4.667	1.76	10.750	5.05	16.833	1.98	22.92	1.32
4.750	1.76	10.833	6.81	16.917	1.98	23.00	1.32
4.833	1.76	10.917	6.81	17.000	1.98	23.08	1.32
4.917	1.76	11.000	6.81	17.083	1.98	23.17	1.32
5.000	1.76	11.083	6.81	17.167	1.98	23.25	1.32
5.083	1.76	11.167	6.81	17.250	1.98	23.33	1.32
5.167	1.76	11.250	6.81	17.333	1.98	23.42	1.32
5.250	1.76	11.333	10.54	17.417	1.98	23.50	1.32
5.333	1.76	11.417	10.54	17.500	1.98	23.58	1.32
5.417	1.76	11.500	10.54	17.583	1.98	23.67	1.32
5.500	1.76	11.583	10.54	17.667	1.98	23.75	1.32
5.583	1.76	11.667	10.54	17.750	1.98	23.83	1.32
5.667	1.76	11.750	10.54	17.833	1.98	23.92	1.32
5.750	1.76	11.833	32.51	17.917	1.98	24.00	1.32
5.833	1.76	11.917	32.51	18.000	1.98	24.08	1.32
5.917	1.76	12.000	32.51	18.083	1.98	24.17	1.32
6.000	1.76	12.083	134.43	18.167	1.98	24.25	1.32
6.083	1.76	12.167	134.44	18.250	1.98		

Max.Eff.Inten.(mm/hr)=	134.44	183.95	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.05 (ii)	3.96 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.24	
			TOTALS
PEAK FLOW (cms)=	0.03	0.04	0.074 (iii)
TIME TO PEAK (hrs)=	12.25	12.25	12.25
RUNOFF VOLUME (mm)=	107.84	72.45	85.54
TOTAL RAINFALL (mm)=	109.84	109.84	109.84
RUNOFF COEFFICIENT =	0.98	0.66	0.78

***** 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 (0206)	Area (ha)= 0.18
ID= 1 DT= 5.0 min	Total Imp(%)= 66.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.12	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	34.64	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.76	12.250	134.44	18.33	1.98
0.167	0.00	6.250	1.76	12.333	15.83	18.42	1.98
0.250	0.00	6.333	1.98	12.417	15.82	18.50	1.98
0.333	1.21	6.417	1.98	12.500	15.82	18.58	1.98
0.417	1.21	6.500	1.98	12.583	15.82	18.67	1.98
0.500	1.21	6.583	1.98	12.667	15.82	18.75	1.98
0.583	1.21	6.667	1.98	12.750	15.82	18.83	1.98
0.667	1.21	6.750	1.98	12.833	8.13	18.92	1.98
0.750	1.21	6.833	1.98	12.917	8.13	19.00	1.98
0.833	1.21	6.917	1.98	13.000	8.13	19.08	1.98
0.917	1.21	7.000	1.98	13.083	8.13	19.17	1.98
1.000	1.21	7.083	1.98	13.167	8.13	19.25	1.98
1.083	1.21	7.167	1.98	13.250	8.13	19.33	1.98
1.167	1.21	7.250	1.98	13.333	5.93	19.42	1.98
1.250	1.21	7.333	2.42	13.417	5.93	19.50	1.98
1.333	1.21	7.417	2.42	13.500	5.93	19.58	1.98
1.417	1.21	7.500	2.42	13.583	5.93	19.67	1.98
1.500	1.21	7.583	2.42	13.667	5.93	19.75	1.98
1.583	1.21	7.667	2.42	13.750	5.93	19.83	1.98
1.667	1.21	7.750	2.42	13.833	4.61	19.92	1.98
1.750	1.21	7.833	2.42	13.917	4.61	20.00	1.98
1.833	1.21	7.917	2.42	14.000	4.61	20.08	1.98
1.917	1.21	8.000	2.42	14.083	4.61	20.17	1.98
2.000	1.21	8.083	2.42	14.167	4.61	20.25	1.98
2.083	1.21	8.167	2.42	14.250	4.61	20.33	1.32
2.167	1.21	8.250	2.42	14.333	3.30	20.42	1.32
2.250	1.21	8.333	2.86	14.417	3.30	20.50	1.32
2.333	1.43	8.417	2.86	14.500	3.30	20.58	1.32
2.417	1.43	8.500	2.86	14.583	3.30	20.67	1.32
2.500	1.43	8.583	2.86	14.667	3.30	20.75	1.32
2.583	1.43	8.667	2.86	14.750	3.30	20.83	1.32
2.667	1.43	8.750	2.86	14.833	3.30	20.92	1.32
2.750	1.43	8.833	3.08	14.917	3.30	21.00	1.32

2.833	1.43	8.917	3.08	15.000	3.30	21.08	1.32
2.917	1.43	9.000	3.08	15.083	3.30	21.17	1.32
3.000	1.43	9.083	3.08	15.167	3.30	21.25	1.32
3.083	1.43	9.167	3.08	15.250	3.30	21.33	1.32
3.167	1.43	9.250	3.08	15.333	3.30	21.42	1.32
3.250	1.43	9.333	3.51	15.417	3.30	21.50	1.32
3.333	1.43	9.417	3.51	15.500	3.30	21.58	1.32
3.417	1.43	9.500	3.51	15.583	3.30	21.67	1.32
3.500	1.43	9.583	3.51	15.667	3.30	21.75	1.32
3.583	1.43	9.667	3.51	15.750	3.30	21.83	1.32
3.667	1.43	9.750	3.51	15.833	3.30	21.92	1.32
3.750	1.43	9.833	3.95	15.917	3.30	22.00	1.32
3.833	1.43	9.917	3.95	16.000	3.30	22.08	1.32
3.917	1.43	10.000	3.95	16.083	3.30	22.17	1.32
4.000	1.43	10.083	3.95	16.167	3.30	22.25	1.32
4.083	1.43	10.167	3.95	16.250	3.30	22.33	1.32
4.167	1.43	10.250	3.95	16.333	1.98	22.42	1.32
4.250	1.43	10.333	5.05	16.417	1.98	22.50	1.32
4.333	1.76	10.417	5.05	16.500	1.98	22.58	1.32
4.417	1.76	10.500	5.05	16.583	1.98	22.67	1.32
4.500	1.76	10.583	5.05	16.667	1.98	22.75	1.32
4.583	1.76	10.667	5.05	16.750	1.98	22.83	1.32
4.667	1.76	10.750	5.05	16.833	1.98	22.92	1.32
4.750	1.76	10.833	6.81	16.917	1.98	23.00	1.32
4.833	1.76	10.917	6.81	17.000	1.98	23.08	1.32
4.917	1.76	11.000	6.81	17.083	1.98	23.17	1.32
5.000	1.76	11.083	6.81	17.167	1.98	23.25	1.32
5.083	1.76	11.167	6.81	17.250	1.98	23.33	1.32
5.167	1.76	11.250	6.81	17.333	1.98	23.42	1.32
5.250	1.76	11.333	10.54	17.417	1.98	23.50	1.32
5.333	1.76	11.417	10.54	17.500	1.98	23.58	1.32
5.417	1.76	11.500	10.54	17.583	1.98	23.67	1.32
5.500	1.76	11.583	10.54	17.667	1.98	23.75	1.32
5.583	1.76	11.667	10.54	17.750	1.98	23.83	1.32
5.667	1.76	11.750	10.54	17.833	1.98	23.92	1.32
5.750	1.76	11.833	32.51	17.917	1.98	24.00	1.32
5.833	1.76	11.917	32.51	18.000	1.98	24.08	1.32
5.917	1.76	12.000	32.51	18.083	1.98	24.17	1.32
6.000	1.76	12.083	134.43	18.167	1.98	24.25	1.32
6.083	1.76	12.167	134.44	18.250	1.98		

Max.Eff.Inten.(mm/hr)=	134.44	106.53	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.98 (ii)	3.32 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.26	
			TOTALS
PEAK FLOW (cms)=	0.04	0.02	0.059 (iii)
TIME TO PEAK (hrs)=	12.25	12.25	12.25
RUNOFF VOLUME (mm)=	107.84	61.45	89.27
TOTAL RAINFALL (mm)=	109.84	109.84	109.84
RUNOFF COEFFICIENT =	0.98	0.56	0.81

***** 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)=	0.08
ID= 1 DT= 5.0 min	Total Imp(%)=	69.00 Dir. Conn.(%)= 38.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.02
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	23.09	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.76	12.250	134.44	18.33	1.98
0.167	0.00	6.250	1.76	12.333	15.83	18.42	1.98
0.250	0.00	6.333	1.98	12.417	15.82	18.50	1.98
0.333	1.21	6.417	1.98	12.500	15.82	18.58	1.98
0.417	1.21	6.500	1.98	12.583	15.82	18.67	1.98
0.500	1.21	6.583	1.98	12.667	15.82	18.75	1.98
0.583	1.21	6.667	1.98	12.750	15.82	18.83	1.98
0.667	1.21	6.750	1.98	12.833	8.13	18.92	1.98
0.750	1.21	6.833	1.98	12.917	8.13	19.00	1.98
0.833	1.21	6.917	1.98	13.000	8.13	19.08	1.98
0.917	1.21	7.000	1.98	13.083	8.13	19.17	1.98
1.000	1.21	7.083	1.98	13.167	8.13	19.25	1.98
1.083	1.21	7.167	1.98	13.250	8.13	19.33	1.98
1.167	1.21	7.250	1.98	13.333	5.93	19.42	1.98
1.250	1.21	7.333	2.42	13.417	5.93	19.50	1.98
1.333	1.21	7.417	2.42	13.500	5.93	19.58	1.98
1.417	1.21	7.500	2.42	13.583	5.93	19.67	1.98
1.500	1.21	7.583	2.42	13.667	5.93	19.75	1.98
1.583	1.21	7.667	2.42	13.750	5.93	19.83	1.98
1.667	1.21	7.750	2.42	13.833	4.61	19.92	1.98

1.750	1.21	7.833	2.42	13.917	4.61	20.00	1.98
1.833	1.21	7.917	2.42	14.000	4.61	20.08	1.98
1.917	1.21	8.000	2.42	14.083	4.61	20.17	1.98
2.000	1.21	8.083	2.42	14.167	4.61	20.25	1.98
2.083	1.21	8.167	2.42	14.250	4.61	20.33	1.32
2.167	1.21	8.250	2.42	14.333	3.30	20.42	1.32
2.250	1.21	8.333	2.86	14.417	3.30	20.50	1.32
2.333	1.43	8.417	2.86	14.500	3.30	20.58	1.32
2.417	1.43	8.500	2.86	14.583	3.30	20.67	1.32
2.500	1.43	8.583	2.86	14.667	3.30	20.75	1.32
2.583	1.43	8.667	2.86	14.750	3.30	20.83	1.32
2.667	1.43	8.750	2.86	14.833	3.30	20.92	1.32
2.750	1.43	8.833	3.08	14.917	3.30	21.00	1.32
2.833	1.43	8.917	3.08	15.000	3.30	21.08	1.32
2.917	1.43	9.000	3.08	15.083	3.30	21.17	1.32
3.000	1.43	9.083	3.08	15.167	3.30	21.25	1.32
3.083	1.43	9.167	3.08	15.250	3.30	21.33	1.32
3.167	1.43	9.250	3.08	15.333	3.30	21.42	1.32
3.250	1.43	9.333	3.51	15.417	3.30	21.50	1.32
3.333	1.43	9.417	3.51	15.500	3.30	21.58	1.32
3.417	1.43	9.500	3.51	15.583	3.30	21.67	1.32
3.500	1.43	9.583	3.51	15.667	3.30	21.75	1.32
3.583	1.43	9.667	3.51	15.750	3.30	21.83	1.32
3.667	1.43	9.750	3.51	15.833	3.30	21.92	1.32
3.750	1.43	9.833	3.95	15.917	3.30	22.00	1.32
3.833	1.43	9.917	3.95	16.000	3.30	22.08	1.32
3.917	1.43	10.000	3.95	16.083	3.30	22.17	1.32
4.000	1.43	10.083	3.95	16.167	3.30	22.25	1.32
4.083	1.43	10.167	3.95	16.250	3.30	22.33	1.32
4.167	1.43	10.250	3.95	16.333	1.98	22.42	1.32
4.250	1.43	10.333	5.05	16.417	1.98	22.50	1.32
4.333	1.76	10.417	5.05	16.500	1.98	22.58	1.32
4.417	1.76	10.500	5.05	16.583	1.98	22.67	1.32
4.500	1.76	10.583	5.05	16.667	1.98	22.75	1.32
4.583	1.76	10.667	5.05	16.750	1.98	22.83	1.32
4.667	1.76	10.750	5.05	16.833	1.98	22.92	1.32
4.750	1.76	10.833	6.81	16.917	1.98	23.00	1.32
4.833	1.76	10.917	6.81	17.000	1.98	23.08	1.32
4.917	1.76	11.000	6.81	17.083	1.98	23.17	1.32
5.000	1.76	11.083	6.81	17.167	1.98	23.25	1.32
5.083	1.76	11.167	6.81	17.250	1.98	23.33	1.32
5.167	1.76	11.250	6.81	17.333	1.98	23.42	1.32
5.250	1.76	11.333	10.54	17.417	1.98	23.50	1.32
5.333	1.76	11.417	10.54	17.500	1.98	23.58	1.32
5.417	1.76	11.500	10.54	17.583	1.98	23.67	1.32
5.500	1.76	11.583	10.54	17.667	1.98	23.75	1.32
5.583	1.76	11.667	10.54	17.750	1.98	23.83	1.32
5.667	1.76	11.750	10.54	17.833	1.98	23.92	1.32
5.750	1.76	11.833	32.51	17.917	1.98	24.00	1.32
5.833	1.76	11.917	32.51	18.000	1.98	24.08	1.32
5.917	1.76	12.000	32.51	18.083	1.98	24.17	1.32
6.000	1.76	12.083	134.43	18.167	1.98	24.25	1.32
6.083	1.76	12.167	134.44	18.250	1.98		

Max.Eff.Inten.(mm/hr)=	134.44	218.55	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.77 (ii)	3.47 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.26	
			TOTALS
PEAK FLOW (cms)=	0.01	0.02	0.026 (iii)
TIME TO PEAK (hrs)=	12.25	12.25	12.25
RUNOFF VOLUME (mm)=	107.84	75.82	87.97
TOTAL RAINFALL (mm)=	109.84	109.84	109.84
RUNOFF COEFFICIENT =	0.98	0.69	0.80

***** 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.

ADD HYD (0904)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0203):	0.08	0.026	12.25	87.97	
+ ID2= 2 (0204):	0.24	0.077	12.25	85.91	
ID = 3 (0904):	0.32	0.104	12.25	86.42	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0904)					
3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 3 (0904):	0.32	0.104	12.25	86.42	
+ ID2= 2 (0205):	0.23	0.074	12.25	85.54	
ID = 1 (0904):	0.55	0.177	12.25	86.05	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
--------------------
| ADD HYD  (  0904)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0904):     0.55   0.177    12.25    86.05
     + ID2= 2 (  0206):     0.18   0.059    12.25    89.27
       ================================================
       ID = 3 (  0904):     0.73   0.236    12.25    86.85

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0304)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  31.00   Dir. Conn.(%)=   5.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.16
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         0.50
     Length            (m)=      39.16       100.00
     Mannings n           =      0.013        0.250

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

                          ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.76 |12.250  134.44 | 18.33    1.98
 0.167    0.00 | 6.250    1.76 |12.333   15.83 | 18.42    1.98
 0.250    0.00 | 6.333    1.98 |12.417   15.82 | 18.50    1.98
 0.333    1.21 | 6.417    1.98 |12.500   15.82 | 18.58    1.98
 0.417    1.21 | 6.500    1.98 |12.583   15.82 | 18.67    1.98
 0.500    1.21 | 6.583    1.98 |12.667   15.82 | 18.75    1.98
 0.583    1.21 | 6.667    1.98 |12.750   15.82 | 18.83    1.98
 0.667    1.21 | 6.750    1.98 |12.833    8.13 | 18.92    1.98
 0.750    1.21 | 6.833    1.98 |12.917    8.13 | 19.00    1.98
 0.833    1.21 | 6.917    1.98 |13.000    8.13 | 19.08    1.98
 0.917    1.21 | 7.000    1.98 |13.083    8.13 | 19.17    1.98
 1.000    1.21 | 7.083    1.98 |13.167    8.13 | 19.25    1.98
 1.083    1.21 | 7.167    1.98 |13.250    8.13 | 19.33    1.98
 1.167    1.21 | 7.250    1.98 |13.333    5.93 | 19.42    1.98
 1.250    1.21 | 7.333    2.42 |13.417    5.93 | 19.50    1.98
 1.333    1.21 | 7.417    2.42 |13.500    5.93 | 19.58    1.98
 1.417    1.21 | 7.500    2.42 |13.583    5.93 | 19.67    1.98
 1.500    1.21 | 7.583    2.42 |13.667    5.93 | 19.75    1.98
 1.583    1.21 | 7.667    2.42 |13.750    5.93 | 19.83    1.98
 1.667    1.21 | 7.750    2.42 |13.833    4.61 | 19.92    1.98
 1.750    1.21 | 7.833    2.42 |13.917    4.61 | 20.00    1.98
 1.833    1.21 | 7.917    2.42 |14.000    4.61 | 20.08    1.98
 1.917    1.21 | 8.000    2.42 |14.083    4.61 | 20.17    1.98
 2.000    1.21 | 8.083    2.42 |14.167    4.61 | 20.25    1.98
 2.083    1.21 | 8.167    2.42 |14.250    4.61 | 20.33    1.32
 2.167    1.21 | 8.250    2.42 |14.333    3.30 | 20.42    1.32
 2.250    1.21 | 8.333    2.86 |14.417    3.30 | 20.50    1.32
 2.333    1.43 | 8.417    2.86 |14.500    3.30 | 20.58    1.32
 2.417    1.43 | 8.500    2.86 |14.583    3.30 | 20.67    1.32
 2.500    1.43 | 8.583    2.86 |14.667    3.30 | 20.75    1.32
 2.583    1.43 | 8.667    2.86 |14.750    3.30 | 20.83    1.32
 2.667    1.43 | 8.750    2.86 |14.833    3.30 | 20.92    1.32
 2.750    1.43 | 8.833    3.08 |14.917    3.30 | 21.00    1.32
 2.833    1.43 | 8.917    3.08 |15.000    3.30 | 21.08    1.32
 2.917    1.43 | 9.000    3.08 |15.083    3.30 | 21.17    1.32
 3.000    1.43 | 9.083    3.08 |15.167    3.30 | 21.25    1.32
 3.083    1.43 | 9.167    3.08 |15.250    3.30 | 21.33    1.32
 3.167    1.43 | 9.250    3.08 |15.333    3.30 | 21.42    1.32
 3.250    1.43 | 9.333    3.51 |15.417    3.30 | 21.50    1.32
 3.333    1.43 | 9.417    3.51 |15.500    3.30 | 21.58    1.32
 3.417    1.43 | 9.500    3.51 |15.583    3.30 | 21.67    1.32
 3.500    1.43 | 9.583    3.51 |15.667    3.30 | 21.75    1.32
 3.583    1.43 | 9.667    3.51 |15.750    3.30 | 21.83    1.32
 3.667    1.43 | 9.750    3.51 |15.833    3.30 | 21.92    1.32
 3.750    1.43 | 9.833    3.95 |15.917    3.30 | 22.00    1.32
 3.833    1.43 | 9.917    3.95 |16.000    3.30 | 22.08    1.32
 3.917    1.43 |10.000    3.95 |16.083    3.30 | 22.17    1.32
 4.000    1.43 |10.083    3.95 |16.167    3.30 | 22.25    1.32
 4.083    1.43 |10.167    3.95 |16.250    3.30 | 22.33    1.32
 4.167    1.43 |10.250    3.95 |16.333    1.98 | 22.42    1.32
 4.250    1.43 |10.333    5.05 |16.417    1.98 | 22.50    1.32
 4.333    1.76 |10.417    5.05 |16.500    1.98 | 22.58    1.32
 4.417    1.76 |10.500    5.05 |16.583    1.98 | 22.67    1.32
 4.500    1.76 |10.583    5.05 |16.667    1.98 | 22.75    1.32
 4.583    1.76 |10.667    5.05 |16.750    1.98 | 22.83    1.32
 4.667    1.76 |10.750    5.05 |16.833    1.98 | 22.92    1.32
 4.750    1.76 |10.833    6.81 |16.917    1.98 | 23.00    1.32
 4.833    1.76 |10.917    6.81 |17.000    1.98 | 23.08    1.32
 4.917    1.76 |11.000    6.81 |17.083    1.98 | 23.17    1.32
 5.000    1.76 |11.083    6.81 |17.167    1.98 | 23.25    1.32
 5.083    1.76 |11.167    6.81 |17.250    1.98 | 23.33    1.32
 5.167    1.76 |11.250    6.81 |17.333    1.98 | 23.42    1.32
 5.250    1.76 |11.333   10.54 |17.417    1.98 | 23.50    1.32
 5.333    1.76 |11.417   10.54 |17.500    1.98 | 23.58    1.32
 5.417    1.76 |11.500   10.54 |17.583    1.98 | 23.67    1.32
 5.500    1.76 |11.583   10.54 |17.667    1.98 | 23.75    1.32
 5.583    1.76 |11.667   10.54 |17.750    1.98 | 23.83    1.32
 5.667    1.76 |11.750   10.54 |17.833    1.98 | 23.92    1.32
 5.750    1.76 |11.833   32.51 |17.917    1.98 | 24.00    1.32
 5.833    1.76 |11.917   32.51 |18.000    1.98 | 24.08    1.32
 5.917    1.76 |12.000   32.51 |18.083    1.98 | 24.17    1.32
```

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              6.000    1.76 |12.083  134.43 |18.167    1.98 | 24.25    1.32
              6.083    1.76 |12.167  134.44 |18.250    1.98 |

     Max.Eff.Inten.(mm/hr)=     134.44       101.87
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       1.05 (ii)   19.45 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.34         0.06
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.03         0.029 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.42         12.42
     RUNOFF VOLUME    (mm)=     107.84        65.96         68.00
     TOTAL RAINFALL   (mm)=     109.84       109.84        109.84
     RUNOFF COEFFICIENT   =       0.98         0.60          0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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

--------------------
| ADD HYD  (  0906)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0202):     0.16   0.019    12.42    60.32
      + ID2= 2 (  0304):     0.23   0.029    12.42    68.00
        ================================================
        ID = 3 (  0906):     0.39   0.048    12.42    64.85

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

--------------------
| ADD HYD  (  0906)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0906):     0.39   0.048    12.42    64.85
      + ID2= 2 (  0904):     0.73   0.236    12.25    86.85
        ================================================
        ID = 1 (  0906):     1.12   0.274    12.25    79.19

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
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       V    V   I    SSSSS  U   U    A    L             (v 6.1.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

  Output  filename:
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e3793-2e6c-47e3-922c-f7971d56b384\sc
  Summary filename:
C:\Users\JBirchard\AppData\Local\Civica\VH5\d640becb-967e-4731-b5f6-00a4892452ca\619
e3793-2e6c-47e3-922c-f7971d56b384\sc


DATE: 07/25/2023                          TIME: 10:13:54

USER:


COMMENTS: _____

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  ***********************************************
  ** SIMULATION : (6) 100 Year Design Storm - S **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\JBirchard\AppD
|                  |              ata\Local\Temp\
```

	ddb5ea80-a20e-4ff4-9c74-beb6735bad9d\3c054a99
Ptotal=120.77 mm	Comments: 100yr 24hr 15min SCS

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	6.50	2.17	12.75	17.39	19.00	2.17
0.50	1.33	6.75	2.17	13.00	8.94	19.25	2.17
0.75	1.33	7.00	2.17	13.25	8.94	19.50	2.17
1.00	1.33	7.25	2.17	13.50	6.52	19.75	2.17
1.25	1.33	7.50	2.66	13.75	6.52	20.00	2.17
1.50	1.33	7.75	2.66	14.00	5.07	20.25	2.17
1.75	1.33	8.00	2.66	14.25	5.07	20.50	1.45
2.00	1.33	8.25	2.66	14.50	3.62	20.75	1.45
2.25	1.33	8.50	3.14	14.75	3.62	21.00	1.45
2.50	1.57	8.75	3.14	15.00	3.62	21.25	1.45
2.75	1.57	9.00	3.38	15.25	3.62	21.50	1.45
3.00	1.57	9.25	3.38	15.50	3.62	21.75	1.45
3.25	1.57	9.50	3.86	15.75	3.62	22.00	1.45
3.50	1.57	9.75	3.86	16.00	3.62	22.25	1.45
3.75	1.57	10.00	4.35	16.25	3.62	22.50	1.45
4.00	1.57	10.25	4.35	16.50	2.17	22.75	1.45
4.25	1.57	10.50	5.56	16.75	2.17	23.00	1.45
4.50	1.93	10.75	5.56	17.00	2.17	23.25	1.45
4.75	1.93	11.00	7.49	17.25	2.17	23.50	1.45
5.00	1.93	11.25	7.49	17.50	2.17	23.75	1.45
5.25	1.93	11.50	11.59	17.75	2.17	24.00	1.45
5.50	1.93	11.75	11.59	18.00	2.17	24.25	1.45
5.75	1.93	12.00	35.75	18.25	2.17		
6.00	1.93	12.25	147.82	18.50	2.17		
6.25	1.93	12.50	17.39	18.75	2.17		

CALIB	
STANDHYD (0303)	Area (ha)= 0.33
ID= 1 DT= 5.0 min	Total Imp(%)= 30.00 Dir. Conn.(%)= 5.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.10	0.23
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	0.70
Length	(m)=	46.90	160.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.93	12.250	147.82	18.33	2.17
0.167	0.00	6.250	1.93	12.333	17.41	18.42	2.17
0.250	0.00	6.333	2.17	12.417	17.39	18.50	2.17
0.333	1.33	6.417	2.17	12.500	17.39	18.58	2.17
0.417	1.33	6.500	2.17	12.583	17.39	18.67	2.17
0.500	1.33	6.583	2.17	12.667	17.39	18.75	2.17
0.583	1.33	6.667	2.17	12.750	17.39	18.83	2.17
0.667	1.33	6.750	2.17	12.833	8.94	18.92	2.17
0.750	1.33	6.833	2.17	12.917	8.94	19.00	2.17
0.833	1.33	6.917	2.17	13.000	8.94	19.08	2.17
0.917	1.33	7.000	2.17	13.083	8.94	19.17	2.17
1.000	1.33	7.083	2.17	13.167	8.94	19.25	2.17
1.083	1.33	7.167	2.17	13.250	8.94	19.33	2.17
1.167	1.33	7.250	2.17	13.333	6.52	19.42	2.17
1.250	1.33	7.333	2.66	13.417	6.52	19.50	2.17
1.333	1.33	7.417	2.66	13.500	6.52	19.58	2.17
1.417	1.33	7.500	2.66	13.583	6.52	19.67	2.17
1.500	1.33	7.583	2.66	13.667	6.52	19.75	2.17
1.583	1.33	7.667	2.66	13.750	6.52	19.83	2.17
1.667	1.33	7.750	2.66	13.833	5.07	19.92	2.17
1.750	1.33	7.833	2.66	13.917	5.07	20.00	2.17
1.833	1.33	7.917	2.66	14.000	5.07	20.08	2.17
1.917	1.33	8.000	2.66	14.083	5.07	20.17	2.17
2.000	1.33	8.083	2.66	14.167	5.07	20.25	2.17
2.083	1.33	8.167	2.66	14.250	5.07	20.33	1.45
2.167	1.33	8.250	2.66	14.333	3.62	20.42	1.45
2.250	1.33	8.333	3.14	14.417	3.62	20.50	1.45
2.333	1.57	8.417	3.14	14.500	3.62	20.58	1.45
2.417	1.57	8.500	3.14	14.583	3.62	20.67	1.45
2.500	1.57	8.583	3.14	14.667	3.62	20.75	1.45
2.583	1.57	8.667	3.14	14.750	3.62	20.83	1.45
2.667	1.57	8.750	3.14	14.833	3.62	20.92	1.45
2.750	1.57	8.833	3.38	14.917	3.62	21.00	1.45
2.833	1.57	8.917	3.38	15.000	3.62	21.08	1.45
2.917	1.57	9.000	3.38	15.083	3.62	21.17	1.45
3.000	1.57	9.083	3.38	15.167	3.62	21.25	1.45
3.083	1.57	9.167	3.38	15.250	3.62	21.33	1.45
3.167	1.57	9.250	3.38	15.333	3.62	21.42	1.45
3.250	1.57	9.333	3.86	15.417	3.62	21.50	1.45
3.333	1.57	9.417	3.86	15.500	3.62	21.58	1.45
3.417	1.57	9.500	3.86	15.583	3.62	21.67	1.45
3.500	1.57	9.583	3.86	15.667	3.62	21.75	1.45
3.583	1.57	9.667	3.86	15.750	3.62	21.83	1.45
3.667	1.57	9.750	3.86	15.833	3.62	21.92	1.45
3.750	1.57	9.833	4.35	15.917	3.62	22.00	1.45
3.833	1.57	9.917	4.35	16.000	3.62	22.08	1.45
3.917	1.57	10.000	4.35	16.083	3.62	22.17	1.45
4.000	1.57	10.083	4.35	16.167	3.62	22.25	1.45
4.083	1.57	10.167	4.35	16.250	3.62	22.33	1.45

4.167	1.57	10.250	4.35	16.333	2.17	22.42	1.45
4.250	1.57	10.333	5.56	16.417	2.17	22.50	1.45
4.333	1.93	10.417	5.56	16.500	2.17	22.58	1.45
4.417	1.93	10.500	5.56	16.583	2.17	22.67	1.45
4.500	1.93	10.583	5.56	16.667	2.17	22.75	1.45
4.583	1.93	10.667	5.56	16.750	2.17	22.83	1.45
4.667	1.93	10.750	5.56	16.833	2.17	22.92	1.45
4.750	1.93	10.833	7.49	16.917	2.17	23.00	1.45
4.833	1.93	10.917	7.49	17.000	2.17	23.08	1.45
4.917	1.93	11.000	7.49	17.083	2.17	23.17	1.45
5.000	1.93	11.083	7.49	17.167	2.17	23.25	1.45
5.083	1.93	11.167	7.49	17.250	2.17	23.33	1.45
5.167	1.93	11.250	7.49	17.333	2.17	23.42	1.45
5.250	1.93	11.333	11.59	17.417	2.17	23.50	1.45
5.333	1.93	11.417	11.59	17.500	2.17	23.58	1.45
5.417	1.93	11.500	11.59	17.583	2.17	23.67	1.45
5.500	1.93	11.583	11.59	17.667	2.17	23.75	1.45
5.583	1.93	11.667	11.59	17.750	2.17	23.83	1.45
5.667	1.93	11.750	11.59	17.833	2.17	23.92	1.45
5.750	1.93	11.833	35.75	17.917	2.17	24.00	1.45
5.833	1.93	11.917	35.75	18.000	2.17	24.08	1.45
5.917	1.93	12.000	35.75	18.083	2.17	24.17	1.45
6.000	1.93	12.083	147.81	18.167	2.17	24.25	1.45
6.083	1.93	12.167	147.82	18.250	2.17		

Max.Eff.Inten.(mm/hr)=	147.82	96.92	
over (min)	5.00	25.00	
Storage Coeff. (min)=	1.13 (ii)	23.62 (ii)	
Unit Hyd. Tpeak (min)=	5.00	25.00	
Unit Hyd. peak (cms)=	0.34	0.05	
			TOTALS
PEAK FLOW (cms)=	0.01	0.04	0.041 (iii)
TIME TO PEAK (hrs)=	12.25	12.50	12.50
RUNOFF VOLUME (mm)=	118.77	74.98	77.12
TOTAL RAINFALL (mm)=	120.77	120.77	120.77
RUNOFF COEFFICIENT =	0.98	0.62	0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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 (0201)| Area (ha)= 0.23
|ID= 1 DT= 5.0 min | Total Imp(%)= 38.00 Dir. Conn.(%)= 5.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.14
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	0.70
Length	(m)=	39.16	160.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.93	12.250	147.82	18.33	2.17
0.167	0.00	6.250	1.93	12.333	17.41	18.42	2.17
0.250	0.00	6.333	2.17	12.417	17.39	18.50	2.17
0.333	1.33	6.417	2.17	12.500	17.39	18.58	2.17
0.417	1.33	6.500	2.17	12.583	17.39	18.67	2.17
0.500	1.33	6.583	2.17	12.667	17.39	18.75	2.17
0.583	1.33	6.667	2.17	12.750	17.39	18.83	2.17
0.667	1.33	6.750	2.17	12.833	8.94	18.92	2.17
0.750	1.33	6.833	2.17	12.917	8.94	19.00	2.17
0.833	1.33	6.917	2.17	13.000	8.94	19.08	2.17
0.917	1.33	7.000	2.17	13.083	8.94	19.17	2.17
1.000	1.33	7.083	2.17	13.167	8.94	19.25	2.17
1.083	1.33	7.167	2.17	13.250	8.94	19.33	2.17
1.167	1.33	7.250	2.17	13.333	6.52	19.42	2.17
1.250	1.33	7.333	2.66	13.417	6.52	19.50	2.17
1.333	1.33	7.417	2.66	13.500	6.52	19.58	2.17
1.417	1.33	7.500	2.66	13.583	6.52	19.67	2.17
1.500	1.33	7.583	2.66	13.667	6.52	19.75	2.17
1.583	1.33	7.667	2.66	13.750	6.52	19.83	2.17
1.667	1.33	7.750	2.66	13.833	5.07	19.92	2.17
1.750	1.33	7.833	2.66	13.917	5.07	20.00	2.17
1.833	1.33	7.917	2.66	14.000	5.07	20.08	2.17
1.917	1.33	8.000	2.66	14.083	5.07	20.17	2.17
2.000	1.33	8.083	2.66	14.167	5.07	20.25	2.17
2.083	1.33	8.167	2.66	14.250	5.07	20.33	1.45
2.167	1.33	8.250	2.66	14.333	3.62	20.42	1.45
2.250	1.33	8.333	3.14	14.417	3.62	20.50	1.45
2.333	1.57	8.417	3.14	14.500	3.62	20.58	1.45
2.417	1.57	8.500	3.14	14.583	3.62	20.67	1.45
2.500	1.57	8.583	3.14	14.667	3.62	20.75	1.45
2.583	1.57	8.667	3.14	14.750	3.62	20.83	1.45
2.667	1.57	8.750	3.14	14.833	3.62	20.92	1.45
2.750	1.57	8.833	3.38	14.917	3.62	21.00	1.45
2.833	1.57	8.917	3.38	15.000	3.62	21.08	1.45

2.917	1.57	9.000	3.38	15.083	3.62	21.17	1.45
3.000	1.57	9.083	3.38	15.167	3.62	21.25	1.45
3.083	1.57	9.167	3.38	15.250	3.62	21.33	1.45
3.167	1.57	9.250	3.38	15.333	3.62	21.42	1.45
3.250	1.57	9.333	3.86	15.417	3.62	21.50	1.45
3.333	1.57	9.417	3.86	15.500	3.62	21.58	1.45
3.417	1.57	9.500	3.86	15.583	3.62	21.67	1.45
3.500	1.57	9.583	3.86	15.667	3.62	21.75	1.45
3.583	1.57	9.667	3.86	15.750	3.62	21.83	1.45
3.667	1.57	9.750	3.86	15.833	3.62	21.92	1.45
3.750	1.57	9.833	4.35	15.917	3.62	22.00	1.45
3.833	1.57	9.917	4.35	16.000	3.62	22.08	1.45
3.917	1.57	10.000	4.35	16.083	3.62	22.17	1.45
4.000	1.57	10.083	4.35	16.167	3.62	22.25	1.45
4.083	1.57	10.167	4.35	16.250	3.62	22.33	1.45
4.167	1.57	10.250	4.35	16.333	2.17	22.42	1.45
4.250	1.57	10.333	5.56	16.417	2.17	22.50	1.45
4.333	1.93	10.417	5.56	16.500	2.17	22.58	1.45
4.417	1.93	10.500	5.56	16.583	2.17	22.67	1.45
4.500	1.93	10.583	5.56	16.667	2.17	22.75	1.45
4.583	1.93	10.667	5.56	16.750	2.17	22.83	1.45
4.667	1.93	10.750	5.56	16.833	2.17	22.92	1.45
4.750	1.93	10.833	7.49	16.917	2.17	23.00	1.45
4.833	1.93	10.917	7.49	17.000	2.17	23.08	1.45
4.917	1.93	11.000	7.49	17.083	2.17	23.17	1.45
5.000	1.93	11.083	7.49	17.167	2.17	23.25	1.45
5.083	1.93	11.167	7.49	17.250	2.17	23.33	1.45
5.167	1.93	11.250	7.49	17.333	2.17	23.42	1.45
5.250	1.93	11.333	11.59	17.417	2.17	23.50	1.45
5.333	1.93	11.417	11.59	17.500	2.17	23.58	1.45
5.417	1.93	11.500	11.59	17.583	2.17	23.67	1.45
5.500	1.93	11.583	11.59	17.667	2.17	23.75	1.45
5.583	1.93	11.667	11.59	17.750	2.17	23.83	1.45
5.667	1.93	11.750	11.59	17.833	2.17	23.92	1.45
5.750	1.93	11.833	35.75	17.917	2.17	24.00	1.45
5.833	1.93	11.917	35.75	18.000	2.17	24.08	1.45
5.917	1.93	12.000	35.75	18.083	2.17	24.17	1.45
6.000	1.93	12.083	147.81	18.167	2.17	24.25	1.45
6.083	1.93	12.167	147.82	18.250	2.17		

Max.Eff.Inten.(mm/hr)=	147.82	135.09	
over (min)	5.00	25.00	
Storage Coeff. (min)=	1.01 (ii)	20.71 (ii)	
Unit Hyd. Tpeak (min)=	5.00	25.00	
Unit Hyd. peak (cms)=	0.34	0.05	
			TOTALS
PEAK FLOW (cms)=	0.00	0.03	0.032 (iii)
TIME TO PEAK (hrs)=	12.25	12.50	12.50
RUNOFF VOLUME (mm)=	118.77	78.57	80.53
TOTAL RAINFALL (mm)=	120.77	120.77	120.77

RUNOFF COEFFICIENT = 0.98 0.65 0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(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.

ADD HYD (0903)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0201):		0.23	0.032	12.50	80.53
+ ID2= 2 (0303):		0.33	0.041	12.50	77.12
ID = 3 (0903):		0.56	0.073	12.50	78.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0202)				
ID= 1 DT= 5.0 min	Area (ha)=	0.16	Curve Number (CN)=	76.5
	Ia (mm)=	4.71	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.30		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.93	12.250	147.82	18.33	2.17
0.167	0.00	6.250	1.93	12.333	17.41	18.42	2.17
0.250	0.00	6.333	2.17	12.417	17.39	18.50	2.17
0.333	1.33	6.417	2.17	12.500	17.39	18.58	2.17
0.417	1.33	6.500	2.17	12.583	17.39	18.67	2.17
0.500	1.33	6.583	2.17	12.667	17.39	18.75	2.17
0.583	1.33	6.667	2.17	12.750	17.39	18.83	2.17
0.667	1.33	6.750	2.17	12.833	8.94	18.92	2.17
0.750	1.33	6.833	2.17	12.917	8.94	19.00	2.17
0.833	1.33	6.917	2.17	13.000	8.94	19.08	2.17
0.917	1.33	7.000	2.17	13.083	8.94	19.17	2.17
1.000	1.33	7.083	2.17	13.167	8.94	19.25	2.17
1.083	1.33	7.167	2.17	13.250	8.94	19.33	2.17

1.167	1.33	7.250	2.17	13.333	6.52	19.42	2.17
1.250	1.33	7.333	2.66	13.417	6.52	19.50	2.17
1.333	1.33	7.417	2.66	13.500	6.52	19.58	2.17
1.417	1.33	7.500	2.66	13.583	6.52	19.67	2.17
1.500	1.33	7.583	2.66	13.667	6.52	19.75	2.17
1.583	1.33	7.667	2.66	13.750	6.52	19.83	2.17
1.667	1.33	7.750	2.66	13.833	5.07	19.92	2.17
1.750	1.33	7.833	2.66	13.917	5.07	20.00	2.17
1.833	1.33	7.917	2.66	14.000	5.07	20.08	2.17
1.917	1.33	8.000	2.66	14.083	5.07	20.17	2.17
2.000	1.33	8.083	2.66	14.167	5.07	20.25	2.17
2.083	1.33	8.167	2.66	14.250	5.07	20.33	1.45
2.167	1.33	8.250	2.66	14.333	3.62	20.42	1.45
2.250	1.33	8.333	3.14	14.417	3.62	20.50	1.45
2.333	1.57	8.417	3.14	14.500	3.62	20.58	1.45
2.417	1.57	8.500	3.14	14.583	3.62	20.67	1.45
2.500	1.57	8.583	3.14	14.667	3.62	20.75	1.45
2.583	1.57	8.667	3.14	14.750	3.62	20.83	1.45
2.667	1.57	8.750	3.14	14.833	3.62	20.92	1.45
2.750	1.57	8.833	3.38	14.917	3.62	21.00	1.45
2.833	1.57	8.917	3.38	15.000	3.62	21.08	1.45
2.917	1.57	9.000	3.38	15.083	3.62	21.17	1.45
3.000	1.57	9.083	3.38	15.167	3.62	21.25	1.45
3.083	1.57	9.167	3.38	15.250	3.62	21.33	1.45
3.167	1.57	9.250	3.38	15.333	3.62	21.42	1.45
3.250	1.57	9.333	3.86	15.417	3.62	21.50	1.45
3.333	1.57	9.417	3.86	15.500	3.62	21.58	1.45
3.417	1.57	9.500	3.86	15.583	3.62	21.67	1.45
3.500	1.57	9.583	3.86	15.667	3.62	21.75	1.45
3.583	1.57	9.667	3.86	15.750	3.62	21.83	1.45
3.667	1.57	9.750	3.86	15.833	3.62	21.92	1.45
3.750	1.57	9.833	4.35	15.917	3.62	22.00	1.45
3.833	1.57	9.917	4.35	16.000	3.62	22.08	1.45
3.917	1.57	10.000	4.35	16.083	3.62	22.17	1.45
4.000	1.57	10.083	4.35	16.167	3.62	22.25	1.45
4.083	1.57	10.167	4.35	16.250	3.62	22.33	1.45
4.167	1.57	10.250	4.35	16.333	2.17	22.42	1.45
4.250	1.57	10.333	5.56	16.417	2.17	22.50	1.45
4.333	1.93	10.417	5.56	16.500	2.17	22.58	1.45
4.417	1.93	10.500	5.56	16.583	2.17	22.67	1.45
4.500	1.93	10.583	5.56	16.667	2.17	22.75	1.45
4.583	1.93	10.667	5.56	16.750	2.17	22.83	1.45
4.667	1.93	10.750	5.56	16.833	2.17	22.92	1.45
4.750	1.93	10.833	7.49	16.917	2.17	23.00	1.45
4.833	1.93	10.917	7.49	17.000	2.17	23.08	1.45
4.917	1.93	11.000	7.49	17.083	2.17	23.17	1.45
5.000	1.93	11.083	7.49	17.167	2.17	23.25	1.45
5.083	1.93	11.167	7.49	17.250	2.17	23.33	1.45
5.167	1.93	11.250	7.49	17.333	2.17	23.42	1.45
5.250	1.93	11.333	11.59	17.417	2.17	23.50	1.45
5.333	1.93	11.417	11.59	17.500	2.17	23.58	1.45
5.417	1.93	11.500	11.59	17.583	2.17	23.67	1.45
5.500	1.93	11.583	11.59	17.667	2.17	23.75	1.45
5.583	1.93	11.667	11.59	17.750	2.17	23.83	1.45
5.667	1.93	11.750	11.59	17.833	2.17	23.92	1.45
5.750	1.93	11.833	35.75	17.917	2.17	24.00	1.45
5.833	1.93	11.917	35.75	18.000	2.17	24.08	1.45
5.917	1.93	12.000	35.75	18.083	2.17	24.17	1.45
6.000	1.93	12.083	147.81	18.167	2.17	24.25	1.45
6.083	1.93	12.167	147.82	18.250	2.17		

Unit Hyd Qpeak (cms)= 0.020

PEAK FLOW (cms)= 0.022 (i)
TIME TO PEAK (hrs)= 12.417
RUNOFF VOLUME (mm)= 69.371
TOTAL RAINFALL (mm)= 120.770
RUNOFF COEFFICIENT = 0.574

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

CALIB	
STANDHYD (0204)	Area (ha)= 0.24
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 36.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.08
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	40.00	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.93	12.250	147.82	18.33	2.17
0.167	0.00	6.250	1.93	12.333	17.41	18.42	2.17
0.250	0.00	6.333	2.17	12.417	17.39	18.50	2.17
0.333	1.33	6.417	2.17	12.500	17.39	18.58	2.17
0.417	1.33	6.500	2.17	12.583	17.39	18.67	2.17
0.500	1.33	6.583	2.17	12.667	17.39	18.75	2.17
0.583	1.33	6.667	2.17	12.750	17.39	18.83	2.17
0.667	1.33	6.750	2.17	12.833	8.94	18.92	2.17
0.750	1.33	6.833	2.17	12.917	8.94	19.00	2.17
0.833	1.33	6.917	2.17	13.000	8.94	19.08	2.17

```
0.917    1.33 | 7.000    2.17 |13.083    8.94 | 19.17    2.17
1.000    1.33 | 7.083    2.17 |13.167    8.94 | 19.25    2.17
1.083    1.33 | 7.167    2.17 |13.250    8.94 | 19.33    2.17
1.167    1.33 | 7.250    2.17 |13.333    6.52 | 19.42    2.17
1.250    1.33 | 7.333    2.66 |13.417    6.52 | 19.50    2.17
1.333    1.33 | 7.417    2.66 |13.500    6.52 | 19.58    2.17
1.417    1.33 | 7.500    2.66 |13.583    6.52 | 19.67    2.17
1.500    1.33 | 7.583    2.66 |13.667    6.52 | 19.75    2.17
1.583    1.33 | 7.667    2.66 |13.750    6.52 | 19.83    2.17
1.667    1.33 | 7.750    2.66 |13.833    5.07 | 19.92    2.17
1.750    1.33 | 7.833    2.66 |13.917    5.07 | 20.00    2.17
1.833    1.33 | 7.917    2.66 |14.000    5.07 | 20.08    2.17
1.917    1.33 | 8.000    2.66 |14.083    5.07 | 20.17    2.17
2.000    1.33 | 8.083    2.66 |14.167    5.07 | 20.25    2.17
2.083    1.33 | 8.167    2.66 |14.250    5.07 | 20.33    1.45
2.167    1.33 | 8.250    2.66 |14.333    3.62 | 20.42    1.45
2.250    1.33 | 8.333    3.14 |14.417    3.62 | 20.50    1.45
2.333    1.57 | 8.417    3.14 |14.500    3.62 | 20.58    1.45
2.417    1.57 | 8.500    3.14 |14.583    3.62 | 20.67    1.45
2.500    1.57 | 8.583    3.14 |14.667    3.62 | 20.75    1.45
2.583    1.57 | 8.667    3.14 |14.750    3.62 | 20.83    1.45
2.667    1.57 | 8.750    3.14 |14.833    3.62 | 20.92    1.45
2.750    1.57 | 8.833    3.38 |14.917    3.62 | 21.00    1.45
2.833    1.57 | 8.917    3.38 |15.000    3.62 | 21.08    1.45
2.917    1.57 | 9.000    3.38 |15.083    3.62 | 21.17    1.45
3.000    1.57 | 9.083    3.38 |15.167    3.62 | 21.25    1.45
3.083    1.57 | 9.167    3.38 |15.250    3.62 | 21.33    1.45
3.167    1.57 | 9.250    3.38 |15.333    3.62 | 21.42    1.45
3.250    1.57 | 9.333    3.86 |15.417    3.62 | 21.50    1.45
3.333    1.57 | 9.417    3.86 |15.500    3.62 | 21.58    1.45
3.417    1.57 | 9.500    3.86 |15.583    3.62 | 21.67    1.45
3.500    1.57 | 9.583    3.86 |15.667    3.62 | 21.75    1.45
3.583    1.57 | 9.667    3.86 |15.750    3.62 | 21.83    1.45
3.667    1.57 | 9.750    3.86 |15.833    3.62 | 21.92    1.45
3.750    1.57 | 9.833    4.35 |15.917    3.62 | 22.00    1.45
3.833    1.57 | 9.917    4.35 |16.000    3.62 | 22.08    1.45
3.917    1.57 |10.000    4.35 |16.083    3.62 | 22.17    1.45
4.000    1.57 |10.083    4.35 |16.167    3.62 | 22.25    1.45
4.083    1.57 |10.167    4.35 |16.250    3.62 | 22.33    1.45
4.167    1.57 |10.250    4.35 |16.333    2.17 | 22.42    1.45
4.250    1.57 |10.333    5.56 |16.417    2.17 | 22.50    1.45
4.333    1.93 |10.417    5.56 |16.500    2.17 | 22.58    1.45
4.417    1.93 |10.500    5.56 |16.583    2.17 | 22.67    1.45
4.500    1.93 |10.583    5.56 |16.667    2.17 | 22.75    1.45
4.583    1.93 |10.667    5.56 |16.750    2.17 | 22.83    1.45
4.667    1.93 |10.750    5.56 |16.833    2.17 | 22.92    1.45
4.750    1.93 |10.833    7.49 |16.917    2.17 | 23.00    1.45
4.833    1.93 |10.917    7.49 |17.000    2.17 | 23.08    1.45
4.917    1.93 |11.000    7.49 |17.083    2.17 | 23.17    1.45
5.000    1.93 |11.083    7.49 |17.167    2.17 | 23.25    1.45
5.083    1.93 |11.167    7.49 |17.250    2.17 | 23.33    1.45
5.167    1.93 |11.250    7.49 |17.333    2.17 | 23.42    1.45
5.250    1.93 |11.333   11.59 |17.417    2.17 | 23.50    1.45
5.333    1.93 |11.417   11.59 |17.500    2.17 | 23.58    1.45
5.417    1.93 |11.500   11.59 |17.583    2.17 | 23.67    1.45
5.500    1.93 |11.583   11.59 |17.667    2.17 | 23.75    1.45
5.583    1.93 |11.667   11.59 |17.750    2.17 | 23.83    1.45
5.667    1.93 |11.750   11.59 |17.833    2.17 | 23.92    1.45
5.750    1.93 |11.833   35.75 |17.917    2.17 | 24.00    1.45
5.833    1.93 |11.917   35.75 |18.000    2.17 | 24.08    1.45
5.917    1.93 |12.000   35.75 |18.083    2.17 | 24.17    1.45
6.000    1.93 |12.083  147.81 |18.167    2.17 | 24.25    1.45
6.083    1.93 |12.167  147.82 |18.250    2.17 |
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     Max.Eff.Inten.(mm/hr)=     147.82       220.02
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.02 (ii)    3.82 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.25
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.04         0.05          0.086 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.25          12.25
     RUNOFF VOLUME    (mm)=     118.77        83.51          96.19
     TOTAL RAINFALL   (mm)=     120.77       120.77         120.77
     RUNOFF COEFFICIENT   =       0.98         0.69           0.80

***** 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.

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| CALIB            |
| STANDHYD (  0205)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  37.00
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                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.15         0.08
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         1.00
     Length            (m)=      39.16         8.00
     Mannings n           =      0.013        0.250

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.93	12.250	147.82	18.33	2.17
0.167	0.00	6.250	1.93	12.333	17.41	18.42	2.17
0.250	0.00	6.333	2.17	12.417	17.39	18.50	2.17
0.333	1.33	6.417	2.17	12.500	17.39	18.58	2.17
0.417	1.33	6.500	2.17	12.583	17.39	18.67	2.17
0.500	1.33	6.583	2.17	12.667	17.39	18.75	2.17
0.583	1.33	6.667	2.17	12.750	17.39	18.83	2.17
0.667	1.33	6.750	2.17	12.833	8.94	18.92	2.17
0.750	1.33	6.833	2.17	12.917	8.94	19.00	2.17
0.833	1.33	6.917	2.17	13.000	8.94	19.08	2.17
0.917	1.33	7.000	2.17	13.083	8.94	19.17	2.17
1.000	1.33	7.083	2.17	13.167	8.94	19.25	2.17
1.083	1.33	7.167	2.17	13.250	8.94	19.33	2.17
1.167	1.33	7.250	2.17	13.333	6.52	19.42	2.17
1.250	1.33	7.333	2.66	13.417	6.52	19.50	2.17
1.333	1.33	7.417	2.66	13.500	6.52	19.58	2.17
1.417	1.33	7.500	2.66	13.583	6.52	19.67	2.17
1.500	1.33	7.583	2.66	13.667	6.52	19.75	2.17
1.583	1.33	7.667	2.66	13.750	6.52	19.83	2.17
1.667	1.33	7.750	2.66	13.833	5.07	19.92	2.17
1.750	1.33	7.833	2.66	13.917	5.07	20.00	2.17
1.833	1.33	7.917	2.66	14.000	5.07	20.08	2.17
1.917	1.33	8.000	2.66	14.083	5.07	20.17	2.17
2.000	1.33	8.083	2.66	14.167	5.07	20.25	2.17
2.083	1.33	8.167	2.66	14.250	5.07	20.33	1.45
2.167	1.33	8.250	2.66	14.333	3.62	20.42	1.45
2.250	1.33	8.333	3.14	14.417	3.62	20.50	1.45
2.333	1.57	8.417	3.14	14.500	3.62	20.58	1.45
2.417	1.57	8.500	3.14	14.583	3.62	20.67	1.45
2.500	1.57	8.583	3.14	14.667	3.62	20.75	1.45
2.583	1.57	8.667	3.14	14.750	3.62	20.83	1.45
2.667	1.57	8.750	3.14	14.833	3.62	20.92	1.45
2.750	1.57	8.833	3.38	14.917	3.62	21.00	1.45
2.833	1.57	8.917	3.38	15.000	3.62	21.08	1.45
2.917	1.57	9.000	3.38	15.083	3.62	21.17	1.45
3.000	1.57	9.083	3.38	15.167	3.62	21.25	1.45
3.083	1.57	9.167	3.38	15.250	3.62	21.33	1.45
3.167	1.57	9.250	3.38	15.333	3.62	21.42	1.45
3.250	1.57	9.333	3.86	15.417	3.62	21.50	1.45
3.333	1.57	9.417	3.86	15.500	3.62	21.58	1.45
3.417	1.57	9.500	3.86	15.583	3.62	21.67	1.45
3.500	1.57	9.583	3.86	15.667	3.62	21.75	1.45
3.583	1.57	9.667	3.86	15.750	3.62	21.83	1.45
3.667	1.57	9.750	3.86	15.833	3.62	21.92	1.45
3.750	1.57	9.833	4.35	15.917	3.62	22.00	1.45
3.833	1.57	9.917	4.35	16.000	3.62	22.08	1.45
3.917	1.57	10.000	4.35	16.083	3.62	22.17	1.45
4.000	1.57	10.083	4.35	16.167	3.62	22.25	1.45
4.083	1.57	10.167	4.35	16.250	3.62	22.33	1.45
4.167	1.57	10.250	4.35	16.333	2.17	22.42	1.45
4.250	1.57	10.333	5.56	16.417	2.17	22.50	1.45
4.333	1.93	10.417	5.56	16.500	2.17	22.58	1.45
4.417	1.93	10.500	5.56	16.583	2.17	22.67	1.45
4.500	1.93	10.583	5.56	16.667	2.17	22.75	1.45
4.583	1.93	10.667	5.56	16.750	2.17	22.83	1.45
4.667	1.93	10.750	5.56	16.833	2.17	22.92	1.45
4.750	1.93	10.833	7.49	16.917	2.17	23.00	1.45
4.833	1.93	10.917	7.49	17.000	2.17	23.08	1.45
4.917	1.93	11.000	7.49	17.083	2.17	23.17	1.45
5.000	1.93	11.083	7.49	17.167	2.17	23.25	1.45
5.083	1.93	11.167	7.49	17.250	2.17	23.33	1.45
5.167	1.93	11.250	7.49	17.333	2.17	23.42	1.45
5.250	1.93	11.333	11.59	17.417	2.17	23.50	1.45
5.333	1.93	11.417	11.59	17.500	2.17	23.58	1.45
5.417	1.93	11.500	11.59	17.583	2.17	23.67	1.45
5.500	1.93	11.583	11.59	17.667	2.17	23.75	1.45
5.583	1.93	11.667	11.59	17.750	2.17	23.83	1.45
5.667	1.93	11.750	11.59	17.833	2.17	23.92	1.45
5.750	1.93	11.833	35.75	17.917	2.17	24.00	1.45
5.833	1.93	11.917	35.75	18.000	2.17	24.08	1.45
5.917	1.93	12.000	35.75	18.083	2.17	24.17	1.45
6.000	1.93	12.083	147.81	18.167	2.17	24.25	1.45
6.083	1.93	12.167	147.82	18.250	2.17		

Max.Eff.Inten.(mm/hr)=	147.82	208.03	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.01 (ii)	3.81 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.25	
			TOTALS
PEAK FLOW (cms)=	0.03	0.05	0.082 (iii)
TIME TO PEAK (hrs)=	12.25	12.25	12.25
RUNOFF VOLUME (mm)=	118.77	82.31	95.80
TOTAL RAINFALL (mm)=	120.77	120.77	120.77
RUNOFF COEFFICIENT =	0.98	0.68	0.79

***** 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 (0206)| Area (ha)= 0.18
|ID= 1 DT= 5.0 min | Total Imp(%)= 66.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.12	0.06
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	34.64	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.93	12.250	147.82	18.33	2.17
0.167	0.00	6.250	1.93	12.333	17.41	18.42	2.17
0.250	0.00	6.333	2.17	12.417	17.39	18.50	2.17
0.333	1.33	6.417	2.17	12.500	17.39	18.58	2.17
0.417	1.33	6.500	2.17	12.583	17.39	18.67	2.17
0.500	1.33	6.583	2.17	12.667	17.39	18.75	2.17
0.583	1.33	6.667	2.17	12.750	17.39	18.83	2.17
0.667	1.33	6.750	2.17	12.833	8.94	18.92	2.17
0.750	1.33	6.833	2.17	12.917	8.94	19.00	2.17
0.833	1.33	6.917	2.17	13.000	8.94	19.08	2.17
0.917	1.33	7.000	2.17	13.083	8.94	19.17	2.17
1.000	1.33	7.083	2.17	13.167	8.94	19.25	2.17
1.083	1.33	7.167	2.17	13.250	8.94	19.33	2.17
1.167	1.33	7.250	2.17	13.333	6.52	19.42	2.17
1.250	1.33	7.333	2.66	13.417	6.52	19.50	2.17
1.333	1.33	7.417	2.66	13.500	6.52	19.58	2.17
1.417	1.33	7.500	2.66	13.583	6.52	19.67	2.17
1.500	1.33	7.583	2.66	13.667	6.52	19.75	2.17
1.583	1.33	7.667	2.66	13.750	6.52	19.83	2.17
1.667	1.33	7.750	2.66	13.833	5.07	19.92	2.17
1.750	1.33	7.833	2.66	13.917	5.07	20.00	2.17
1.833	1.33	7.917	2.66	14.000	5.07	20.08	2.17
1.917	1.33	8.000	2.66	14.083	5.07	20.17	2.17
2.000	1.33	8.083	2.66	14.167	5.07	20.25	2.17
2.083	1.33	8.167	2.66	14.250	5.07	20.33	1.45
2.167	1.33	8.250	2.66	14.333	3.62	20.42	1.45
2.250	1.33	8.333	3.14	14.417	3.62	20.50	1.45
2.333	1.57	8.417	3.14	14.500	3.62	20.58	1.45
2.417	1.57	8.500	3.14	14.583	3.62	20.67	1.45
2.500	1.57	8.583	3.14	14.667	3.62	20.75	1.45
2.583	1.57	8.667	3.14	14.750	3.62	20.83	1.45
2.667	1.57	8.750	3.14	14.833	3.62	20.92	1.45
2.750	1.57	8.833	3.38	14.917	3.62	21.00	1.45
2.833	1.57	8.917	3.38	15.000	3.62	21.08	1.45
2.917	1.57	9.000	3.38	15.083	3.62	21.17	1.45
3.000	1.57	9.083	3.38	15.167	3.62	21.25	1.45
3.083	1.57	9.167	3.38	15.250	3.62	21.33	1.45
3.167	1.57	9.250	3.38	15.333	3.62	21.42	1.45
3.250	1.57	9.333	3.86	15.417	3.62	21.50	1.45
3.333	1.57	9.417	3.86	15.500	3.62	21.58	1.45
3.417	1.57	9.500	3.86	15.583	3.62	21.67	1.45
3.500	1.57	9.583	3.86	15.667	3.62	21.75	1.45
3.583	1.57	9.667	3.86	15.750	3.62	21.83	1.45
3.667	1.57	9.750	3.86	15.833	3.62	21.92	1.45
3.750	1.57	9.833	4.35	15.917	3.62	22.00	1.45
3.833	1.57	9.917	4.35	16.000	3.62	22.08	1.45
3.917	1.57	10.000	4.35	16.083	3.62	22.17	1.45
4.000	1.57	10.083	4.35	16.167	3.62	22.25	1.45
4.083	1.57	10.167	4.35	16.250	3.62	22.33	1.45
4.167	1.57	10.250	4.35	16.333	2.17	22.42	1.45
4.250	1.57	10.333	5.56	16.417	2.17	22.50	1.45
4.333	1.93	10.417	5.56	16.500	2.17	22.58	1.45
4.417	1.93	10.500	5.56	16.583	2.17	22.67	1.45
4.500	1.93	10.583	5.56	16.667	2.17	22.75	1.45
4.583	1.93	10.667	5.56	16.750	2.17	22.83	1.45
4.667	1.93	10.750	5.56	16.833	2.17	22.92	1.45
4.750	1.93	10.833	7.49	16.917	2.17	23.00	1.45
4.833	1.93	10.917	7.49	17.000	2.17	23.08	1.45
4.917	1.93	11.000	7.49	17.083	2.17	23.17	1.45
5.000	1.93	11.083	7.49	17.167	2.17	23.25	1.45
5.083	1.93	11.167	7.49	17.250	2.17	23.33	1.45
5.167	1.93	11.250	7.49	17.333	2.17	23.42	1.45
5.250	1.93	11.333	11.59	17.417	2.17	23.50	1.45
5.333	1.93	11.417	11.59	17.500	2.17	23.58	1.45
5.417	1.93	11.500	11.59	17.583	2.17	23.67	1.45
5.500	1.93	11.583	11.59	17.667	2.17	23.75	1.45
5.583	1.93	11.667	11.59	17.750	2.17	23.83	1.45
5.667	1.93	11.750	11.59	17.833	2.17	23.92	1.45
5.750	1.93	11.833	35.75	17.917	2.17	24.00	1.45
5.833	1.93	11.917	35.75	18.000	2.17	24.08	1.45
5.917	1.93	12.000	35.75	18.083	2.17	24.17	1.45
6.000	1.93	12.083	147.81	18.167	2.17	24.25	1.45
6.083	1.93	12.167	147.82	18.250	2.17		

Max.Eff.Inten.	(mm/hr)=	147.82	121.97	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	0.94 (ii)	3.19 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	0.34	0.27	
				TOTALS
PEAK FLOW	(cms)=	0.04	0.02	0.065 (iii)
TIME TO PEAK	(hrs)=	12.25	12.25	12.25
RUNOFF VOLUME	(mm)=	118.77	70.57	99.48
TOTAL RAINFALL	(mm)=	120.77	120.77	120.77

RUNOFF COEFFICIENT = 0.98 0.58 0.82

***** 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)= 0.08
Total Imp(%)= 69.00 Dir. Conn.(%)= 38.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.02
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	2.00	1.00
Length	(m)=	23.09	8.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.93	12.250	147.82	18.33	2.17
0.167	0.00	6.250	1.93	12.333	17.41	18.42	2.17
0.250	0.00	6.333	2.17	12.417	17.39	18.50	2.17
0.333	1.33	6.417	2.17	12.500	17.39	18.58	2.17
0.417	1.33	6.500	2.17	12.583	17.39	18.67	2.17
0.500	1.33	6.583	2.17	12.667	17.39	18.75	2.17
0.583	1.33	6.667	2.17	12.750	17.39	18.83	2.17
0.667	1.33	6.750	2.17	12.833	8.94	18.92	2.17
0.750	1.33	6.833	2.17	12.917	8.94	19.00	2.17
0.833	1.33	6.917	2.17	13.000	8.94	19.08	2.17
0.917	1.33	7.000	2.17	13.083	8.94	19.17	2.17
1.000	1.33	7.083	2.17	13.167	8.94	19.25	2.17
1.083	1.33	7.167	2.17	13.250	8.94	19.33	2.17
1.167	1.33	7.250	2.17	13.333	6.52	19.42	2.17
1.250	1.33	7.333	2.66	13.417	6.52	19.50	2.17
1.333	1.33	7.417	2.66	13.500	6.52	19.58	2.17
1.417	1.33	7.500	2.66	13.583	6.52	19.67	2.17
1.500	1.33	7.583	2.66	13.667	6.52	19.75	2.17
1.583	1.33	7.667	2.66	13.750	6.52	19.83	2.17
1.667	1.33	7.750	2.66	13.833	5.07	19.92	2.17
1.750	1.33	7.833	2.66	13.917	5.07	20.00	2.17
1.833	1.33	7.917	2.66	14.000	5.07	20.08	2.17
1.917	1.33	8.000	2.66	14.083	5.07	20.17	2.17
2.000	1.33	8.083	2.66	14.167	5.07	20.25	2.17
2.083	1.33	8.167	2.66	14.250	5.07	20.33	1.45
2.167	1.33	8.250	2.66	14.333	3.62	20.42	1.45
2.250	1.33	8.333	3.14	14.417	3.62	20.50	1.45
2.333	1.57	8.417	3.14	14.500	3.62	20.58	1.45
2.417	1.57	8.500	3.14	14.583	3.62	20.67	1.45
2.500	1.57	8.583	3.14	14.667	3.62	20.75	1.45
2.583	1.57	8.667	3.14	14.750	3.62	20.83	1.45
2.667	1.57	8.750	3.14	14.833	3.62	20.92	1.45
2.750	1.57	8.833	3.38	14.917	3.62	21.00	1.45
2.833	1.57	8.917	3.38	15.000	3.62	21.08	1.45
2.917	1.57	9.000	3.38	15.083	3.62	21.17	1.45
3.000	1.57	9.083	3.38	15.167	3.62	21.25	1.45
3.083	1.57	9.167	3.38	15.250	3.62	21.33	1.45
3.167	1.57	9.250	3.38	15.333	3.62	21.42	1.45
3.250	1.57	9.333	3.86	15.417	3.62	21.50	1.45
3.333	1.57	9.417	3.86	15.500	3.62	21.58	1.45
3.417	1.57	9.500	3.86	15.583	3.62	21.67	1.45
3.500	1.57	9.583	3.86	15.667	3.62	21.75	1.45
3.583	1.57	9.667	3.86	15.750	3.62	21.83	1.45
3.667	1.57	9.750	3.86	15.833	3.62	21.92	1.45
3.750	1.57	9.833	4.35	15.917	3.62	22.00	1.45
3.833	1.57	9.917	4.35	16.000	3.62	22.08	1.45
3.917	1.57	10.000	4.35	16.083	3.62	22.17	1.45
4.000	1.57	10.083	4.35	16.167	3.62	22.25	1.45
4.083	1.57	10.167	4.35	16.250	3.62	22.33	1.45
4.167	1.57	10.250	4.35	16.333	2.17	22.42	1.45
4.250	1.57	10.333	5.56	16.417	2.17	22.50	1.45
4.333	1.93	10.417	5.56	16.500	2.17	22.58	1.45
4.417	1.93	10.500	5.56	16.583	2.17	22.67	1.45
4.500	1.93	10.583	5.56	16.667	2.17	22.75	1.45
4.583	1.93	10.667	5.56	16.750	2.17	22.83	1.45
4.667	1.93	10.750	5.56	16.833	2.17	22.92	1.45
4.750	1.93	10.833	7.49	16.917	2.17	23.00	1.45
4.833	1.93	10.917	7.49	17.000	2.17	23.08	1.45
4.917	1.93	11.000	7.49	17.083	2.17	23.17	1.45
5.000	1.93	11.083	7.49	17.167	2.17	23.25	1.45
5.083	1.93	11.167	7.49	17.250	2.17	23.33	1.45
5.167	1.93	11.250	7.49	17.333	2.17	23.42	1.45
5.250	1.93	11.333	11.59	17.417	2.17	23.50	1.45
5.333	1.93	11.417	11.59	17.500	2.17	23.58	1.45
5.417	1.93	11.500	11.59	17.583	2.17	23.67	1.45
5.500	1.93	11.583	11.59	17.667	2.17	23.75	1.45
5.583	1.93	11.667	11.59	17.750	2.17	23.83	1.45
5.667	1.93	11.750	11.59	17.833	2.17	23.92	1.45
5.750	1.93	11.833	35.75	17.917	2.17	24.00	1.45
5.833	1.93	11.917	35.75	18.000	2.17	24.08	1.45
5.917	1.93	12.000	35.75	18.083	2.17	24.17	1.45

```
              6.000    1.93 |12.083  147.81 |18.167    2.17 | 24.25    1.45
              6.083    1.93 |12.167  147.82 |18.250    2.17 |

     Max.Eff.Inten.(mm/hr)=     147.82       246.26
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.74 (ii)    3.34 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.26
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.02         0.029 (iii)
     TIME TO PEAK    (hrs)=      12.25        12.25          12.25
     RUNOFF VOLUME    (mm)=     118.77        85.87          98.35
     TOTAL RAINFALL   (mm)=     120.77       120.77         120.77
     RUNOFF COEFFICIENT   =       0.98         0.71           0.81

***** 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.

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

--------------------
| ADD HYD  (  0904)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0203):     0.08   0.029    12.25    98.35
      + ID2= 2 (  0204):     0.24   0.086    12.25    96.19
        ================================================
        ID = 3 (  0904):     0.32   0.116    12.25    96.73

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

--------------------
| ADD HYD  (  0904)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0904):     0.32   0.116    12.25    96.73
      + ID2= 2 (  0205):     0.23   0.082    12.25    95.80
        ================================================
        ID = 1 (  0904):     0.55   0.198    12.25    96.34

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

--------------------
| ADD HYD  (  0904)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0904):     0.55   0.198    12.25    96.34
      + ID2= 2 (  0206):     0.18   0.065    12.25    99.48
        ================================================
        ID = 3 (  0904):     0.73   0.264    12.25    97.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0304)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  31.00   Dir. Conn.(%)=   5.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.16
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       2.00         0.50
     Length            (m)=      39.16       100.00
     Mannings n            =      0.013        0.250

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

                              ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.00 | 6.167    1.93 |12.250  147.82 | 18.33    2.17
 0.167    0.00 | 6.250    1.93 |12.333   17.41 | 18.42    2.17
 0.250    0.00 | 6.333    2.17 |12.417   17.39 | 18.50    2.17
 0.333    1.33 | 6.417    2.17 |12.500   17.39 | 18.58    2.17
 0.417    1.33 | 6.500    2.17 |12.583   17.39 | 18.67    2.17
 0.500    1.33 | 6.583    2.17 |12.667   17.39 | 18.75    2.17
 0.583    1.33 | 6.667    2.17 |12.750   17.39 | 18.83    2.17
 0.667    1.33 | 6.750    2.17 |12.833    8.94 | 18.92    2.17
 0.750    1.33 | 6.833    2.17 |12.917    8.94 | 19.00    2.17
 0.833    1.33 | 6.917    2.17 |13.000    8.94 | 19.08    2.17
 0.917    1.33 | 7.000    2.17 |13.083    8.94 | 19.17    2.17
 1.000    1.33 | 7.083    2.17 |13.167    8.94 | 19.25    2.17
 1.083    1.33 | 7.167    2.17 |13.250    8.94 | 19.33    2.17
 1.167    1.33 | 7.250    2.17 |13.333    6.52 | 19.42    2.17
 1.250    1.33 | 7.333    2.66 |13.417    6.52 | 19.50    2.17
 1.333    1.33 | 7.417    2.66 |13.500    6.52 | 19.58    2.17
 1.417    1.33 | 7.500    2.66 |13.583    6.52 | 19.67    2.17
 1.500    1.33 | 7.583    2.66 |13.667    6.52 | 19.75    2.17
 1.583    1.33 | 7.667    2.66 |13.750    6.52 | 19.83    2.17
 1.667    1.33 | 7.750    2.66 |13.833    5.07 | 19.92    2.17
 1.750    1.33 | 7.833    2.66 |13.917    5.07 | 20.00    2.17
 1.833    1.33 | 7.917    2.66 |14.000    5.07 | 20.08    2.17
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1.917    1.33 | 8.000    2.66 |14.083    5.07 | 20.17    2.17
2.000    1.33 | 8.083    2.66 |14.167    5.07 | 20.25    2.17
2.083    1.33 | 8.167    2.66 |14.250    5.07 | 20.33    1.45
2.167    1.33 | 8.250    2.66 |14.333    3.62 | 20.42    1.45
2.250    1.33 | 8.333    3.14 |14.417    3.62 | 20.50    1.45
2.333    1.57 | 8.417    3.14 |14.500    3.62 | 20.58    1.45
2.417    1.57 | 8.500    3.14 |14.583    3.62 | 20.67    1.45
2.500    1.57 | 8.583    3.14 |14.667    3.62 | 20.75    1.45
2.583    1.57 | 8.667    3.14 |14.750    3.62 | 20.83    1.45
2.667    1.57 | 8.750    3.14 |14.833    3.62 | 20.92    1.45
2.750    1.57 | 8.833    3.38 |14.917    3.62 | 21.00    1.45
2.833    1.57 | 8.917    3.38 |15.000    3.62 | 21.08    1.45
2.917    1.57 | 9.000    3.38 |15.083    3.62 | 21.17    1.45
3.000    1.57 | 9.083    3.38 |15.167    3.62 | 21.25    1.45
3.083    1.57 | 9.167    3.38 |15.250    3.62 | 21.33    1.45
3.167    1.57 | 9.250    3.38 |15.333    3.62 | 21.42    1.45
3.250    1.57 | 9.333    3.86 |15.417    3.62 | 21.50    1.45
3.333    1.57 | 9.417    3.86 |15.500    3.62 | 21.58    1.45
3.417    1.57 | 9.500    3.86 |15.583    3.62 | 21.67    1.45
3.500    1.57 | 9.583    3.86 |15.667    3.62 | 21.75    1.45
3.583    1.57 | 9.667    3.86 |15.750    3.62 | 21.83    1.45
3.667    1.57 | 9.750    3.86 |15.833    3.62 | 21.92    1.45
3.750    1.57 | 9.833    4.35 |15.917    3.62 | 22.00    1.45
3.833    1.57 | 9.917    4.35 |16.000    3.62 | 22.08    1.45
3.917    1.57 |10.000    4.35 |16.083    3.62 | 22.17    1.45
4.000    1.57 |10.083    4.35 |16.167    3.62 | 22.25    1.45
4.083    1.57 |10.167    4.35 |16.250    3.62 | 22.33    1.45
4.167    1.57 |10.250    4.35 |16.333    2.17 | 22.42    1.45
4.250    1.57 |10.333    5.56 |16.417    2.17 | 22.50    1.45
4.333    1.93 |10.417    5.56 |16.500    2.17 | 22.58    1.45
4.417    1.93 |10.500    5.56 |16.583    2.17 | 22.67    1.45
4.500    1.93 |10.583    5.56 |16.667    2.17 | 22.75    1.45
4.583    1.93 |10.667    5.56 |16.750    2.17 | 22.83    1.45
4.667    1.93 |10.750    5.56 |16.833    2.17 | 22.92    1.45
4.750    1.93 |10.833    7.49 |16.917    2.17 | 23.00    1.45
4.833    1.93 |10.917    7.49 |17.000    2.17 | 23.08    1.45
4.917    1.93 |11.000    7.49 |17.083    2.17 | 23.17    1.45
5.000    1.93 |11.083    7.49 |17.167    2.17 | 23.25    1.45
5.083    1.93 |11.167    7.49 |17.250    2.17 | 23.33    1.45
5.167    1.93 |11.250    7.49 |17.333    2.17 | 23.42    1.45
5.250    1.93 |11.333   11.59 |17.417    2.17 | 23.50    1.45
5.333    1.93 |11.417   11.59 |17.500    2.17 | 23.58    1.45
5.417    1.93 |11.500   11.59 |17.583    2.17 | 23.67    1.45
5.500    1.93 |11.583   11.59 |17.667    2.17 | 23.75    1.45
5.583    1.93 |11.667   11.59 |17.750    2.17 | 23.83    1.45
5.667    1.93 |11.750   11.59 |17.833    2.17 | 23.92    1.45
5.750    1.93 |11.833   35.75 |17.917    2.17 | 24.00    1.45
5.833    1.93 |11.917   35.75 |18.000    2.17 | 24.08    1.45
5.917    1.93 |12.000   35.75 |18.083    2.17 | 24.17    1.45
6.000    1.93 |12.083  147.81 |18.167    2.17 | 24.25    1.45
               6.083    1.93 |12.167  147.82 |18.250    2.17 |

     Max.Eff.Inten.(mm/hr)=     147.82       116.52
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       1.01 (ii)   18.45 (ii)
     Unit Hyd. Tpeak (min)=        5.00        20.00
     Unit Hyd. peak  (cms)=        0.34         0.06
                                                          *TOTALS*
     PEAK FLOW       (cms)=        0.00         0.03          0.034 (iii)
     TIME TO PEAK    (hrs)=       12.25        12.42          12.42
     RUNOFF VOLUME    (mm)=     118.77        75.41          77.53
     TOTAL RAINFALL   (mm)=     120.77       120.77         120.77
     RUNOFF COEFFICIENT   =        0.98         0.62           0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (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.

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

--------------------
| ADD HYD  (  0906)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0202):     0.16   0.022    12.42    69.37
      + ID2= 2 (  0304):     0.23   0.034    12.42    77.53
        ================================================
        ID = 3 (  0906):     0.39   0.056    12.42    74.18

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

--------------------
| ADD HYD  (  0906)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0906):     0.39   0.056    12.42    74.18
      + ID2= 2 (  0904):     0.73   0.264    12.25    97.12
        ================================================
        ID = 1 (  0906):     1.12   0.308    12.25    89.13

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

Appendix C: Storage and Conveyance Calculations

TATHAM ENGINEERING	PROJECT: Cranberry Marsh Estates	FILE: 120181	
		DATE: July 25, 2023	
	SUBJECT: Quality Control Swale Volume	NAME: JB	
		PAGE: 1 OF 1	

ENCHANCED DITCH OUTLET WEIR CALCULATIONS

Target Volume, V_{25mm} = 98.3 m^3 (VO Output - 25mm Chicago Storm - Catchemnt 203/204/205/206)

DIMENSIONS

L =	228.00	m	(Length of swale)
w_1 =	1.80	m	(Width of bottom of swale)
w_2 =	3.90	m	(Width of top of swale assuming 3:1)
h =	0.185	m	(Depth of swale)
s =	0.0	%	(Grade of swale)

VOLUME

Assumption: Side slopes of swale are 3:1

$V = Lhw_1 + 3h^2L$ = 99.3 m^3 > V_{25mm} = 98.3 m^3 (Acceptable)

PROJECT	Cranberry Marsh Estates	FILE	120181
		DATE	July 25, 2023
SUBJECT	Overflow For Enhanced Grass Ditch	NAME	JB
		PAGE	1 OF 1

ENCHANCED DITCH OUTLET WEIR CALCULATIONS

Trapezoidal Broad Crested Weir

Source: Hydraulic Structures, C.D.Smith, University of Saskatchewan

Trapezoidal Weir

The trapezoidal weir is a combination of the rectangular weir and the triangular weir

Target Storm

100 -Year Storm Peak Flow For Catchments 203, 204, 205 and 206 (m^3/s) = 0.257

W	Weir Bottom Width (m)	2.9
H	Head (m)	0.160
L	Weir Downstream Length (m)	10
S	Side Slope (horizontal):1	3

RECTANGULAR WEIR

$$Q = CWH^{3/2}$$

H/L 0.016

C 1.4

Result

Q Rectangular Weir Flow (m^3/s) 0.261

TRIANGULAR WEIR

$$Q = CH^{5/2}\tan(\theta/2)$$

Notch Angle (one side) 71.6 degrees

Notch Angle (one side) 1.25 radians

$\tan(\theta/2)$ 3.00

Triangular H/L 0.016

C 1.05

Result

Q Triangular Weir Flow (m^3/s) 0.0323

Total Rectangular + Triangular Weir

Q Total	**Flow (m^3/s)**	**0.261**	**+**	**0.032**	**=**	**0.293**	> 0.257

TATHAM ENGINEERING

PROJECT	Cranberry Marsh Estates	FILE	120181
		DATE	July 25, 2023
SUBJECT	Culvert - Catchment 201/303	NAME	JB
		PAGE	1 OF 1

NORTHWEST CULVERT CALCULATIONS

CATCHMENT 201/303	5-YEAR PEAK FLOW CHI	SCS	
Prop. Catch. =	0.01	0.026	cms

Circular Pipe, Full Flow

Manning's Coeff, n	0.013	
Slope, S	0.03	m/m
Diameter, D	0.200	m
Area, A	0.0314	m^2
Perimeter, P	0.6283	m
Hydraulic Radius, R	0.05	m

Flow, Q 0.057 cms > Q_{peak} = 0.026 cms (Acceptable)

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