FUNCTIONAL SERVICING AND STORMWATER MANAGEMENT REPORT

1354 Bronte Road

Town of Oakville

Prepared for

Eaglewood Communities
Project #: 21-272

February 2022

Urbantech® Consulting, A Division of Leighton-Zec West Ltd. | 2030 Bristol Circle, Suite 105・Oakville・ON・L6H 0H2 905.829.8818
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1 INTRODUCTION

Urbantech Consulting has been retained as consulting engineers by Eaglewood Communities to complete a Functional Servicing Report (FSR) in support of a zoning bylaw amendment application for the proposed 0.47 ha development in the Town of Oakville.

As shown on Drawing **SLP-1**, the subject property is bounded by the following:

- To the north by an existing residential dwelling;
- To the south by a future development site (Bronte River Limited Partnership Lands);
- To the east by Bronte Road;
- To the west by Bronte Creek Provincial Park.

The site is comprised of municipal Lot 31, Concession 2, South of Dundas Street as shown on the October 7, 2021, survey prepared by A.T. McLaren Limited.

The site falls within the Town of Oakville Liveable Oakville Plan and currently is occupied by a single-family dwelling adjacent to Bronte Road.

The subject development lies within the 14 Mile Creek subwatershed, refer to Drawing **STM-1**.

1.1 Study Purpose

This FSR outlines the servicing details for the proposed storm drainage, sanitary sewer and water distribution systems required to service the subject development. The recommended servicing plans have been prepared in accordance with design criteria and requirements of the Town of Oakville, Region of Halton, and Conservation Halton (CH). The information in this report is intended to assist regulatory agencies in their review of the planning applications for the proposed development. Notably, the subject property is dependent on the development of the Bronte River Limited Partnership lands to the south for road access, and mutual services within Street A.

1.2 Planning Context

Eaglewood Communities is proposing to develop the subject property with medium density uses consistent with the Livable Oakville Plan.

Several pre-consultation meetings have been conducted with Town of Oakville, Halton Region Planning staff and CH staff, the first on March 3, 2021, the second on June 23, 2021, and the latest on September 22, 2021, which outlined the submission requirements.

At the beginning of 2021 an application was made to remove the Parkway Belt West Plan and Amendment and the Ministry's Zoning Order to allow for the future development of the site. The proposed development conforms to the Provincial Policy Statement (PPS), the Growth Plan, the Region of Halton Official Plan, and the policies of the Town of Oakville Livable Oakville Official Plan. The property is located within a Settlement Area defined by the PPS and growth Plan policies that direct and manage growth and are consistent with the growth policies of the

Region of Halton and Livable Oakville Official Plans which direct growth to the Urban Area and Built Boundary. Refer to Planning Justification Brief by GSAI for further details.

1.3 Development Concept

In reference to the **Site Plan** prepared by KNYMH, the subject development consists of:

1. 4-storey residential building with 71 units;
2. Private driveway off of Street A;
3. 17 surface and 94 underground parking spaces.

Access to the property will be through Street A, located on the development to the south, which aligns with the opposing Saw Whet Boulevard. The private driveway will also provide an access for the future development to the north.

1.4 Background Studies

The servicing plan and development concept presented within this report are an extension of the information contained in the following reports:

1. Drainage and Stormwater Management Draft Detailed Design Report (March 2010) by McCormick Rankin Corporation.
2. Bronte Green Development / Enns Property Stormwater Management Requirements (September 2016) by J.F. Sabourin and Associates

3 EXISTING CONDITIONS

3.1 Land Use

The existing development consists of a single-family residential dwelling that is also used as a cat hotel.

Refer to Drawing **EXC-1** for a visual summary of the existing conditions.

3.2 Geotechnical and Hydrogeology

In support of the draft plan application, site-specific soils reports have been prepared by DS Consultants Ltd. The study dated November 2021 is reproduced in **Appendix F**.

The report outlines the following subsurface conditions:

- Fill material and upper weathered/disturbed soils consisting of silty clay till, sandy silt to silty sand, sand and clayey silt to silty clay were encountered in all the boreholes, extending to depths of 1.1 to 1.5 m below the ground surface.
- Under the fill material upper native soil consisting of silty clay till was encountered in boreholes up to depths of 3.1 to 4.6 m.
- Sandy silt to silty sand till were encountered in the boreholes below the silty clay till extending to the depths of 6.1 to 7.6 m.
- A water bearing sand and gravel deposit was found below a depth of 6.1 to 7.6 m below the ground surface.

Groundwater levels were measured by DS Consultants in November 2021 which indicated that the groundwater ranged from 5.6 to 7.1 m below the ground surface.

4 GRADING DESIGN

4.1 Design Standards

The proposed grading design of the subject development considers the following requirements and constraints:

1. Conforms to the Town of Oakville design criteria.
2. Provided appropriate cover on proposed servicing.
3. Achieve stormwater management and environmental objectives;
4. Provides overland flow conveyance for major storm conditions;
5. Addresses boundary drainage conditions where surrounding lands are not developing at the present time;
6. Matches existing vertical boundary conditions;
7. Optimizes cut and fill operations to minimize import/export.;
8. Ensures compatibility with extensions of a road to the property at the north;
9. Minimizes the need for retaining walls;

5 STORM DRAINAGE AND STORMWATER MANAGEMENT

5.1 Drainage Criteria

In accordance with the Town of Oakville, Halton Region and CH standards, the design criteria for the site are as follows:

1. Meet the pre-development targets outlined in Bronte Green Development / Enns Property Stormwater Management Requirements (September 2016) by J.F. Sabourin and Associates for 14 Mile Creek.
2. Provide extended detention for 24-48 hour drawdown.
3. Ensure minimum MECP enhanced (Level 1) stormwater quality treatment of runoff is provided.
4. Maintain pre-development water balance through the use of LID measures.
5. Provide safe overland flow conveyance of the 100-year event

As identified in the document Bronte Green Development / Enns Property Stormwater Management Requirements (September 2016) by J.F. Sabourin and Associates, the site drains down Bronte Road via a ditch to node E733 where it is discharged to 14 Mile Creek. 49.18 ha of drainage area drain to node E733 including the subject property. **Table 4-1** shows the unitary target rates to meet pre-development rates in 14 Mile Creek based on the total drainage area.

Table 5-1: 14 Mile Creek Target Flow Rates

Storm Event	Existing Flow (m^3/s)	Existing Flow Unit Rate ($m^3/s/ha$)
2-year	0.895	0.018
5-year	1.928	0.039
10-year	2.723	0.055
25-year	3.844	0.078
50-year	4.679	0.095
100-year	5.554	0.113
Regional	6.05	0.123

5.2 Existing Conditions

A Visual Otthymo model was created to model the drainage from the site and the Bronte River LP development to the south to 14 Mile Creek. Based on the Town of Oakville Standards a 24-hour Chicago rainfall Distribution was used to simulate the rainfall on the site.

Under existing conditions the subject property drains to the east to Bronte Road where it is conveyed north by an existing ditch, approximately 245 m long, on the west side of the Bronte Road which outlets to 14 Mile Creek.

Table 4-2 provides flows entering 14 Mile Creek from the site (0.47 ha) and the external areas (3.61 ha) under existing conditions.

Table 5-2: Existing Flows to 14 Mile Creek

Outlet	Area	Storm	Flow (m^3/s)
14 Mile Creek	4.08 ha	25 mm 4-hour	0.049
		5-year	0.235
		100-year	0.589

The pre-development drainage areas are shown on **Drawing STM-1**.

5.3 Storm Sewer Design

The storm sewer within the private driveway is 300 mm and is sized to convey the 5-year storm primarily from external lands to the west in accordance with Town of Oakville Standards. The sewer will connect to the proposed sewers in Street A located within the Bronte River LP lands to the south.

See **Drawing STM-2** for drainage areas and pipe networks and **Appendix B** for storm design sheets. The following sections describe the key elements of the storm sewer system.

5.3.1 Bronte Road Storm Sewer

Bronte Road contains an existing storm sewer that ranges in size from 375 to 750 mm and receives flows primarily from the Bronte Road ROW. Flows from the site and surrounding external lands within the 14 Mile Creek watershed are propose to be discharged to the existing sewer via a new 450 mm storm sewer where Street A connects to Bronte Road.

A dual drainage analysis with PCSWMM was undertaken to verify the capacity of the Bronte Road storm sewer. The capacity analysis has indicated that there is a minimum 264 L/s of surplus capacity during the 10-year event. The limiting pipe in the system is a 450 mm diameter storm sewer located between MH 26 and MH 41. Refer to Urbantech Bronte Road Storm Sewer Capacity Analysis in **Appendix C** for further details.

The PCSWMM model was also used to demonstrate that the 100-year controlled flow from the site and the surrounding external lands can be conveyed in the sewer with surcharge while maintaining the hydraulic grade line below the ground surface. Refer to Section 4.5 in the report for more details regarding the proposed on-site controls

5.3.2 Super Pipe

To achieve target flows for the external areas discharging to 14 Mile Creek and the portion of the site that fronts on Street A, a super pipe is proposed upstream of MH 24. The super pipe will be a 51 m long- 1500 mm diameter concrete storm sewer. A 129 mm orifice plate will be located within MH 25 to create the storage in the super pipe. The super pipe provides 90 m^3 of storage. Storage for the majority of the subject property will be provided in a tank in the underground parking as outlined in Section 4.5 below.

Drawing PP-1 shows the location of the super pipe.

5.4 Quality Control

Due to the small total area of the subject property (0.47 ha) it is not practical to provide 24 hours of detention with a minimum 75 mm orifice. A waiver of the extended detention requirement is requested.

Enhanced (Level 1) water quality protection will be achieved though the use of an OGS located adjacent to MH25 which is located at the most downstream end of Street A and downstream of the outlet from the subject property.

Final sizing of the OGS will be provided at detailed design.

5.5 Quantity Control

Quantity controls for the site will be provided through a storage tank within the underground parking and with a super pipe within Street A. The flows will be controlled to unit flow targets presented in the Bronte Green Development / Enns Property Stormwater Management Requirements (September 2016) by J.F. Sabourin and Associates based on the natural existing drainage from the three properties that is being conveyed to 14 Mile Creek watershed. The 5-year release rates for the tank and Bronte River LP property superpipe were determined on an area x RC basis based on the total allowable release rates, where the subject property is 60% and Bronte River LP is 40%. As the subject property's tank is restricted by the release rate of one orifice, a weir is proposed downstream of the super pipe to use the additional allocated flows for the properties.

The target flow rates to 14 Mile Creek and the flow values from the VO6 model downstream of the confluence of the storage tank and super pipe are shown in **Table 4-3** below.

Table 5-3: 14 Mile Creek Flow Rates

Storm Event	Existing Flow Unit Rate ($m^3/s/ha$)	Target Flow Rate based on 4.08 ha (m^3/s)	Post Development Flows Bronte River - Uncontrolled (m^3/s)	Post Development Flows Bronte River – Superpipe (m^3/s)	Post Development Flows Eaglewood Communities Tank (m^3/s)	Total Flow to 14 Mile Creek (m^3/s)[1]
5-year	0.039	0.160	0.035	0.055	0.093	0.160
10-year	0.055	0.226	0.042	0.140	0.105	0.213
25-year	0.078	0.319	0.051	0.178	0.121	0.265
50-year	0.095	0.388	0.060	0.205	0.132	0.314
100-year	0.113	0.461	0.067	0.234	0.141	0.361
Regional	0.123	0.502	0.02	0.092	0.069	0.181

[1]Note total flows are based on AddHyd 51 in VO6 which adds the flows based on hydrograph timing and not arithmetically.

The target flow rates are met through the use of the following measures:

a) A 105 m^3 storage tank within the subject property outfitted with a 247 mm orifice plate, and
b) A 51 m long 1500 mm super pipe and 45.6 m of 450 mm pipe providing 97 m^3 of storage within Street A outfitted with a 129 mm orifice plate and 1 m wide weir.

The orifice calculations and VO6 output can be found in **Appendix B.**

As mentioned in section 4.3.2, the controlled flows being conveyed to the 14 Mile Creek watershed will enter directly into the Bronte Road storm sewer, including 100-year capture on Street A. The controlled flows from the super pipe will enter the Bronte Road storm sewer at MH 26 and the controlled flows from the tank will enter the system at MH 25. The uncontrolled flows from Bronte River will be entering the Bronte Road storm system at existing MH 37.

An HGL for the Bronte Road storm sewer was computed using PCSWMM using the controlled 100-year flows from the site to verify that all water is able to be contained within the storm infrastructure in Bronte Road. The outlet to 14 Mile Creek was set to have tailwater located at the obvert of the outlet pipe. The model indicated that the 100-year flows from the site including the 100-year flows captured on Bronte Road can be conveyed in the existing storm sewer under surcharge. The PCSWMM model shows that the 100-year flows from the site do not result in a hydraulic grade line that is above the Bronte Road surface. Key results of the HGL analysis are shown in **Table 4-4** below.

Table 5-4: 100-Year HGL Results

Name	Rim Elev. (m)	Max. Surface Depth (m)	Max. HGL (m)	Freeboard (m)
CBMH_51	129.168	0.18	127.1	2.068
CBMH_55	129.437	0.1	126.7	2.737
CBMH_57	129.61	0.09	126.62	2.99
CBMH_59	129.831	0.06	127.75	2.081
CBMH53	129.245	0.12	126.89	2.355
OGS1	130.25	-	128.44	1.81
MH25	130.25	-	128.46	1.79
MH24	130.96	-	128.48	2.48
MH_31	130.839	0.07	128.87	1.969
MH_37	130.223	0.1	128.3	1.923
MH_41	129.693	0.11	127.75	1.943
MH_47	129.299	0.14	127.44	1.859
MH_49	129.224	0.12	127.21	2.014
MH27NULL	129.941	0.1	128.29	1.651
OGS_1	129.742	-	126.76	2.982

Refer to the SWM Calculations, VO6 model output and PCSWMM model output provided in **Appendix B**.

5.6 Water Balance

The Town of Oakville standards indicate that the stormwater management plan for the site should include LIDs. **Table 4-5** outlines possible measures that could be utilized in residential land uses. Measures to be employed on the site are shown in bold typeface.

Table 5-5: LID Measures

LID Measure	Notes
Rainwater Harvesting	**Collection/Storage of runoff and re-use for irrigation.**
Downspout Disconnection	Enhanced groundwater recharge when used in conjunction with topsoil amendments.
Soak Away Pits/ Infiltration Chambers	Engineered underground rock filled galleries or chambers that store and infiltrate runoff.
Bio-infiltration Swales	Enhanced vegetative swale with filtration, attenuation and infiltration capabilities.
Permeable Pavement	Promote infiltration/filtration through paved surfaces.
Grassed Swales	Conveyance LID to be located on continuous strips of green space. Promote infiltration and TSS removal.
Additional Topsoil	**Minimum 200 mm of topsoil in landscape enhances water balance.**
Rear Yard Infiltration Trenches/Swales	Rear yard drainage swale with 150mm topsoil granular storage media and perforated underdrain.
Perforated Pipe Systems	Dual purpose (conveyance and infiltration) perforated storm sewer designed to exfiltrate into surrounding bedding.
Rain Gardens	Landscape elements designed to attenuate / infiltrate runoff, usually from nearby roofs
Enhanced Tree Pits	**Enlarged tree pits or topsoil filled chamber designed to receive direct runoff from streets for infiltration.**

It should be noted that due to the extent of the underground parking garage, there are limited opportunities for infiltration in the design. LID measures and objectives will be refined as the site design advances and updated geotechnical and hydrogeological information is available.

6 WASTEWATER SERVICING

6.1 Design Criteria

The wastewater design criteria used in this report is in accordance with the Halton Region Water and Wastewater Linear Design Manual and Town of Oakville design standards:

Design Flow:

- Residential Flow = 0.275 m^3 per capita / day
- Harmon Peaking Factor: min = 2.0, max = 4.0
- Infiltration Allowance = 0.286 L/ha/s

Population Equivalents

- Apartments = 285 pp/ha
- Apartments = 2.75 ppu (where unit No. are known)

6.2 Existing Conditions

The existing wastewater network in the vicinity of the site includes:

- A 300 mm dia. Sanitary Sewer on Bronte Road.
- A 200 mm Stub Sanitary Sewer located on Yellow Rose Circle

Refer to **Drawing SAN-1** for the location of the existing wastewater network in the vicinity of the site.

6.3 Proposed Wastewater

The site will be serviced through a new service connection to a new 200 mm sanitary sewer to be situated on the west side of the Bronte Road ROW. proposed by the Bronte River Limited Partnership development to the south.

The site has a total service area of 0.45 ha and contemplates 71 apartment units with a total population of 196. The anticipated wastewater flow from the site including infiltration and peaking is 2.9 l/s.

A new outfall sewer is proposed within the west boulevard of the Bronte Road by the development to the south which ultimately crosses Bronte Road and connects to a stub within Yellow Rose Circle.

The stub sewer was installed within Yellow Rose Circle was intended to service the subject property and is appropriately sized.

The proposed crossing of Bronte Road will likely intercept an existing 300mm sewer hence diverting flows into the new outfall. The Bronte Green design made accommodation for some lands situated to the north of the subject property.

The placement of the outfall sewer within the west boulevard of Bronte Road is based on initial discussions with Halton Region with a view to minimizing disturbance within the paved portion of Bronte Road. The final placement of the sewer will be subject to further study as it relates to utility conflicts and property needs.

Refer to **Drawing SAN-1** for drainage areas and the proposed sanitary sewer layout, **Drawing PP-2** for details of the outfall Sewer within the Bronte Road Right of way and to **Appendix C** for sanitary sewer capacity calculations.

7 WATER SERVICING

7.1 Design Criteria

The watermain design criteria used in this report is in accordance with the Halton Region Water and Wastewater Linear Design Manual and Town of Oakville design standards:

Water Demand Design Criteria:

- Average Daily Demand = 0.275 m^3 per capita
- Maximum Daily Demand Peaking Factor = 2.25
- Peak Hourly Demand Peaking Factor = 4

Population Equivalents

- Apartments = 285 pp/ha
- Apartments = 2.75 ppu (where unit No. are known)

7.2 Existing Conditions

The existing water network in the vicinity of the site includes:

- A 300 mm dia. watermain on Bronte Road;
- A 1050 mm dia. Watermain on Bronte Road.

Refer to **Drawing WM-1** for the location of the existing watermains in the vicinity of the site.

7.3 Local Watermains

Water servicing will be provided to the development through a connection to the proposed watermain on Street A. Refer to **Drawing WM-1** for details of the preliminary site watermain layout.

Final watermain sizes will be determined at the detailed design stage.

7.4 Watermain Connection Options

The subject property is located at the upper end of Pressure Zone 2. As a result, when a hydrant flow test was conducted on an existing hydrant situated on the east side of Bronte Road north of Saw Whet Boulevard it showed a lower than typical available flow of 99.6 L/s @ 20 psi. Fire flow calculations and the hydrant flow rate test results are provided in **Appendix D**. In order to service the site three options for watermain connections are being considered:

1) Move the Pressure Zone 3 boundary south by relocating the existing check valve from Bronte Road just north of Yellow Rose Circle to south of Saw Whet Boulevard. The subject property will then be able to connect to the existing 300 mm diameter watermain on Bronte Road. This option is preferred and was identified through consultation with Halton Region.

2) Extend a new watermain along Saw Whet Boulevard and connect to an existing 300 mm diameter Pressure Zone 3 watermain on Merton Road within the Bronte Green subdivision.

3) Connect to existing the 300 mm diameter watermain on Bronte Road within Pressure Zone 2. Additional studies and water modelling would be required to demonstrate that the site is able to be serviced by the infrastructure in Bronte Road in its current state.

The final water connection details will be determined through further study and collaboration with Halton Region.

Halton Region has advised that that water pressure zones are being revised but the subject property will not be impacted by the change.

8 EROSION AND SEDIMENT CONTROL

Erosion and sediment controls will be implemented during all site construction works including topsoil stripping, bulk earthworks, foundation excavation, site servicing and stockpiling of materials and will conform to the **Erosion and Sediment Control Guide for Urban Construction (2019).** These measures will include:

1) Installing heavy duty silt control fencing along the perimeter of the site at strategic locations.
2) Installing a temporary mud mat at the construction site entrance.
3) Installing temporary cutoff swales or ESC ponds.
4) Wrapping the tops of all inlet structures with filter fabric and using install silt sacks after servicing.
5) Maintenance of flow from external lands during construction.
6) Inspecting all sediment and erosion controls to maintain them in good repair until such time as the Engineer or the City approves their removal.
7) Appropriate dewatering of existing ponds in compliance with Agency discharge requirements.

Refer to **Drawings ESC-1** for Erosion and Sediment control measures and details.

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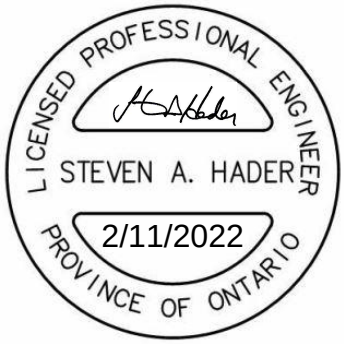
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9 CONCLUSIONS

This report has demonstrated that:

- The proposed site can be graded to match to existing elevations at all property lines while adhering to Town of Oakville grading standards and specifications.
- Storm sewers are sized based on the 5-year Town IDF parameters. 100-year capture is assumed for Street A at Bronte Road.
- Quantity control will be provided in a super pipe within Street A and an underground storage tank to be installed in the underground parking.
- Quality control will be achieved through the use of an OGS placed on public property that will serve all lands that are tributary to the Bronte Road storm system.
- Water balance requirements (if any) through the use of LIDs will be determined at detailed design.
- Wastewater servicing to the site will be provided by a new sewer to be installed along Bronte Road connecting to an existing sewer stub at Yellow Rose Circle that was designed to accommodate the site.
- Water servicing to the site will be provided via a new water connection to existing infrastructure located within Bronte Road. The site may need to be connected to Pressure Zone 3. Details of the connection to Pressure Zone 3 will be determined at a later date.
- Erosion and sediment control measures will be implemented during all construction works and will be maintained and inspected regularly.

Report Prepared by:



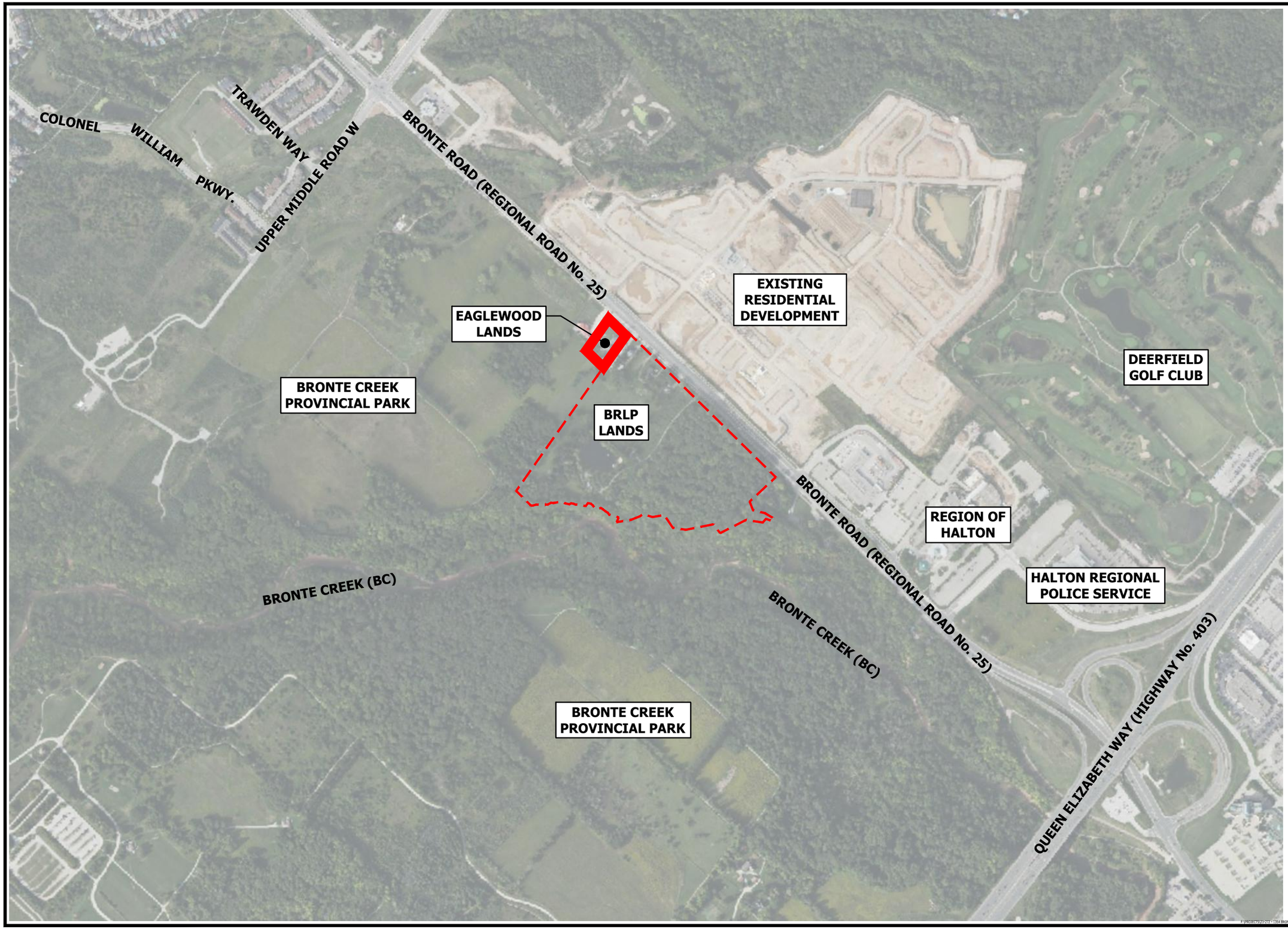
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Municipal Design Assistant

APPENDIX A
Drawings and Figures

- SLP-1 Site Location Plan
- GR-1 Grading Plan
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N

LEGEND

LIMIT OF EAGLEWOOD DEVELOPMENT

LIMIT OF BRONTE RIVER LIMITED PARTNERSHIP DEVELOPMENT

BENCHMARK
ELEVATIONS ARE REFERRED TO TOWN OF OAKVILLE BENCHMARK No. 101 HAVING A PUBLISHED ELEVATION OF 115.838 METRES.

ELEVATION NOTE
ELEVATIONS ARE OF GEODETIC ORIGIN (CGVD-1928:78) AND ARE DERIVED FROM GNSS OBSERVATIONS AND NATURAL RESOURCES CANADA'S GEODIC MODEL HT 2.0.

URBANTECH

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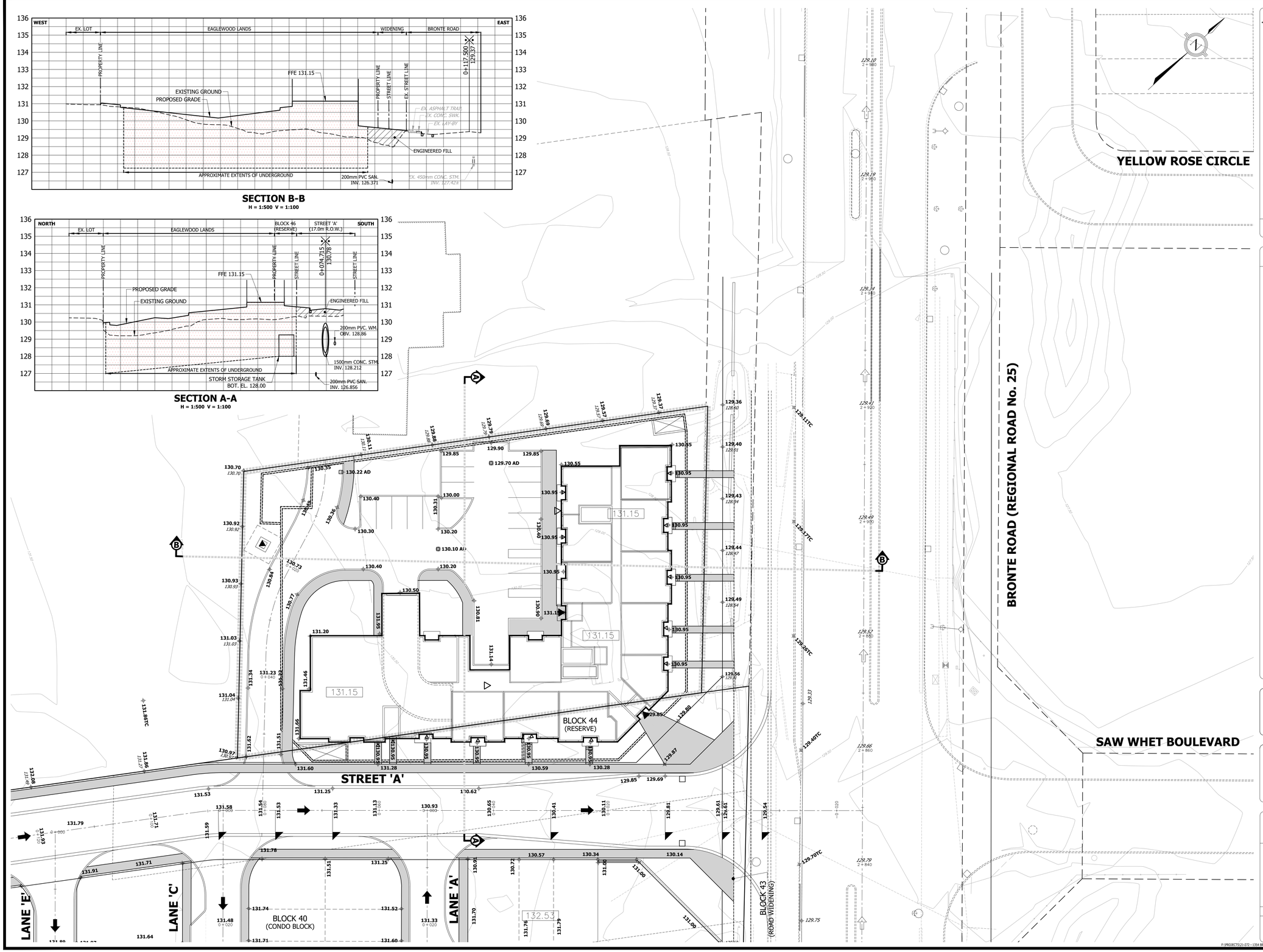
EAGLEWOOD COMMUNITIES
TOWN OF OAKVILLE

SITE LOCATION PLAN

PROJECT No.	DATE	SCALE	DWG No.
21-272	FEB. 2022	1:7500	**SLP-1**

SECTION B-B
H = 1:500 V = 1:100

SECTION A-A
H = 1:500 V = 1:100





KEY PLAN
N.T.S.

LEGEND

- LIMIT OF EAGLEWOOD DEVELOPMENT
- 130.50 PROPOSED ELEVATION
- 130.50 EXISTING ELEVATION
- 132.81 FINISH FLOOR ELEVATION
- MAXIMUM 3:1 (UNLESS OTHERWISE NOTED)
- PROPOSED OVERLAND FLOW ROUTE
- EXISTING OVERLAND FLOW ROUTE
- EXISTING CONTOUR & ELEVATION
- SECTION MARKER

BENCHMARK
ELEVATIONS ARE REFERRED TO TOWN OF OAKVILLE BENCHMARK No. 101 HAVING A PUBLISHED ELEVATION OF 115.838 METRES.

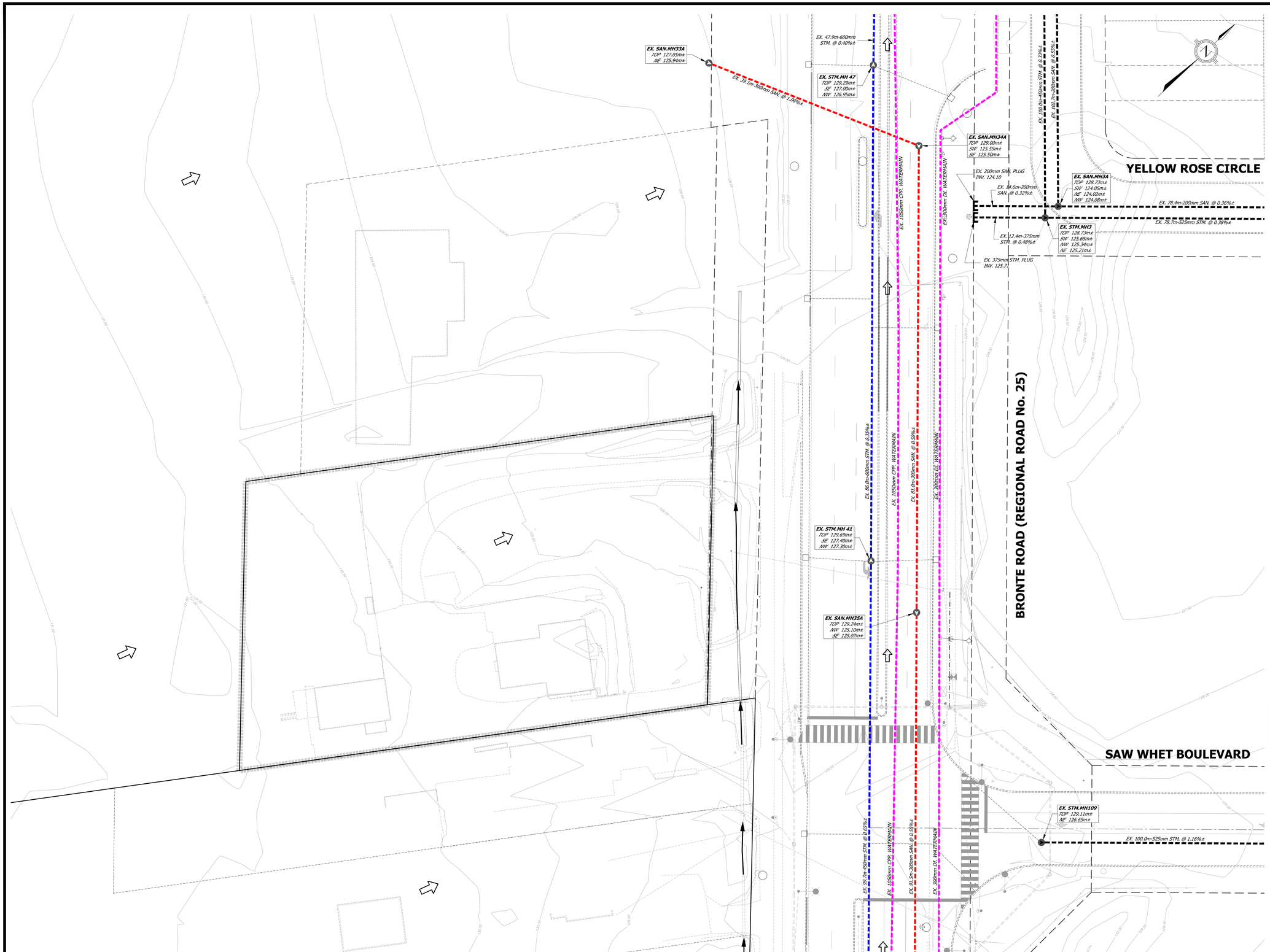
ELEVATION NOTE
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EAGLEWOOD COMMUNITIES
TOWN OF OAKVILLE

PRELIMINARY GRADING PLAN

PROJECT No.	DATE	SCALE	DWG No.
21-272	FEB. 2022	1:300	**GR-1**





KEY PLAN
N.T.S.

LEGEND

- LIMIT OF EAGLEWOOD DEVELOPMENT
- EXISTING STORM SEWER
- EX. STM.MH 37 (TOP 130.02m±, SE 128.13m±, NW 128.05m±) — EXISTING STORM MANHOLE ID / EXISTING GROUND ELEVATION / EXISTING SEWER INVERTS
- EXISTING SANITARY SEWER
- EX. SAN.MH35A (TOP 129.34m±, NW 125.10m±, SE 125.07m±) — EXISTING SANITARY MANHOLE ID / EXISTING GROUND ELEVATION / EXISTING SEWER INVERTS
- EXISTING WATERMAIN
- EXISTING OVERLAND FLOW ROUTE
- EXISTING CONTOUR & ELEVATION
- EXISTING DITCH

BENCHMARK
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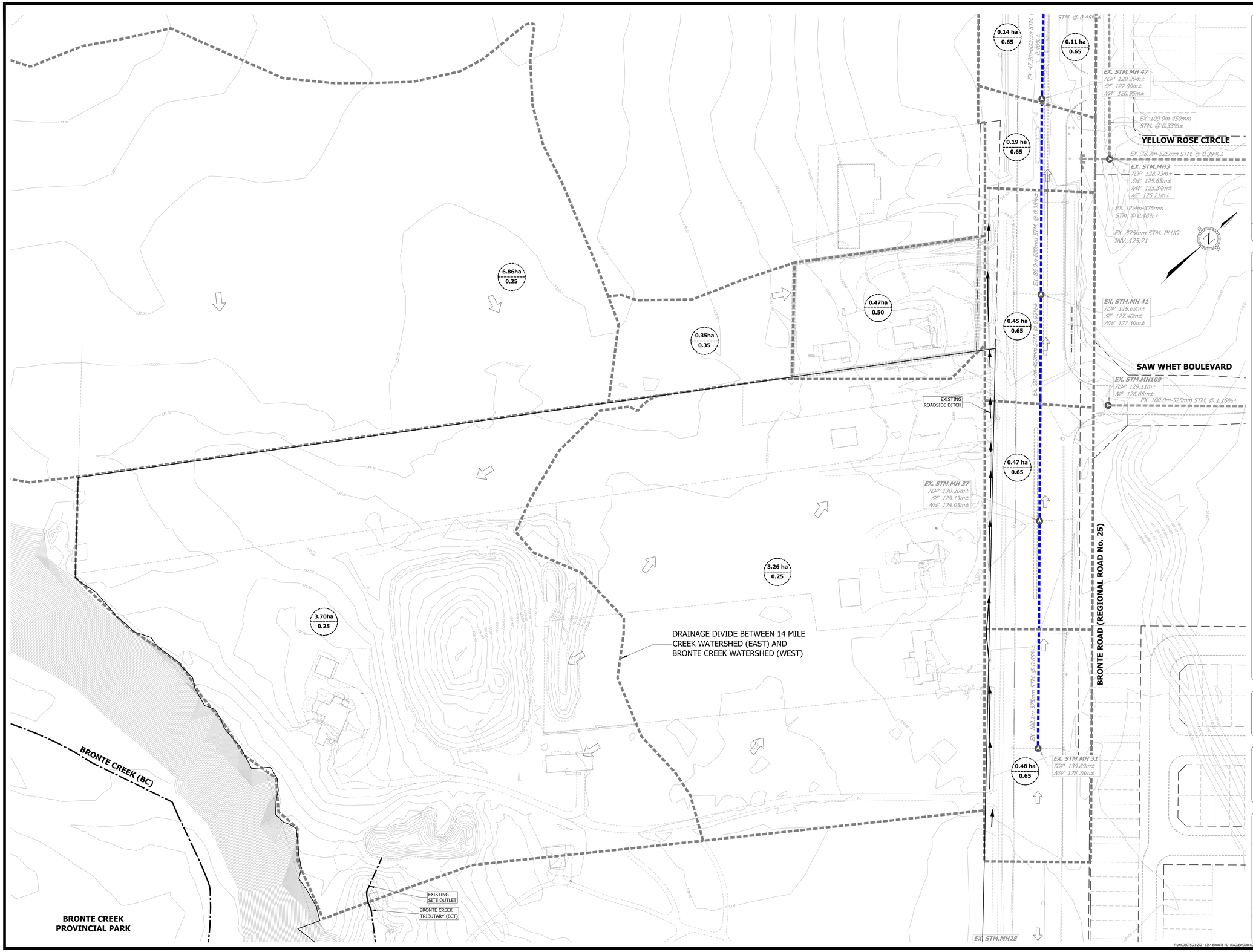
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EAGLEWOOD COMMUNITIES
TOWN OF OAKVILLE

EXISTING CONDITIONS PLAN

PROJECT No.	DATE	SCALE	DWG No.
21-272	FEB. 2022	1:300	**EXC-1**





KEY PLAN
N.T.S.

LEGEND

- LIMIT OF EAGLEWOOD DEVELOPMENT
- EXISTING STORM SEWER
- EXISTING STORM MANHOLE ID
- EXISTING GROUND ELEVATION
- EXISTING SEWER INVERTS
- EXISTING STORM DRAINAGE BOUNDARY
- 3.70ha / 0.25 — EXISTING DRAINAGE AREA / EXISTING RUNOFF COEFFICIENT
- EXISTING OVERLAND FLOW ROUTE
- EXISTING CONTOUR & ELEVATION

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EAGLEWOOD COMMUNITIES
TOWN OF OAKVILLE

PRE-DEVELOPMENT STORM DRAINAGE PLAN

PROJECT No.	DATE	SCALE	DWG No.
21-272	FEB. 2022	1:750	**STM-1**

REFER TO EXTERNAL AREA 2 INSET ON THIS DWG.

EXTERNAL AREA 2
SCALE 1:750

BRONTE ROAD (REGIONAL ROAD No. 25)

YELLOW ROSE CIRCLE

SAW WHET BOULEVARD

BRONTE ROAD (REGIONAL ROAD No. 25)

14 MILE CREEK WATERSHED

BRONTE CREEK WATERSHED

BRONTE CREEK PROVINCIAL PARK

BRONTE CREEK (BC)

BRONTE CREEK TRIBUTARY (BCT)

STREET 'A'

LANE 'B'

LANE 'C'

LANE 'D'

LANE 'E'

BLOCK 40 (CONDO BLOCK)

BLOCK 41 (BUFFER)

BLOCK 42 (WOODLOT)

BLOCK 43 (ROAD WIDENING)

BLOCK 44 (CONDO BLOCK)

LOT 15 (EXISTING DWELLING)

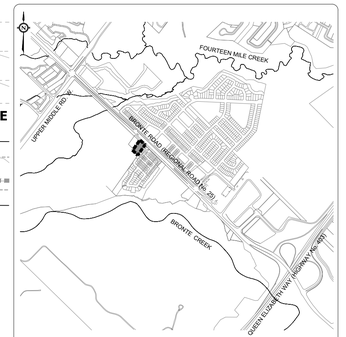
(SWM SEWER EASEMENT)

(OVERLAND FLOW & STORM OUTFALL EASEMENT)

(BIO-FILTRATION SWALE)

FOR CHANNEL DETAILS (REFER TO GEOMORPHIX PLANS)

0.49 ha 0.65
0.23 ha 0.65
0.22 ha 0.65
0.14 ha 0.65
0.11 ha 0.65
0.19 ha 0.65
0.22ha 0.65
0.07ha 0.65
0.40ha 0.90
0.24ha 0.65
0.35ha 0.25
0.10ha 0.65
0.13ha 0.65
0.14ha 0.65
0.47 ha 0.65
0.48 ha 0.65



KEY PLAN
N.T.S.

LEGEND

- LIMIT OF EAGLEWOOD DEVELOPMENT
- PROPOSED STORM SEWER
- PROPOSED CLEAN WATER SEWER
- EXISTING STORM SEWER
- STORM MANHOLE ID
- PROPOSED GRADE ELEVATION
- PROPOSED SEWER INVERTS
- CLEAN WATER SEWER MANHOLE ID
- PROPOSED GRADE ELEVATION
- PROPOSED SEWER INVERTS
- EXISTING STORM MANHOLE ID
- EXISTING GROUND ELEVATION
- EXISTING SEWER INVERTS
- PROPOSED DRAINAGE AREA
- PROPOSED RUNOFF COEFFICIENT
- EXISTING DRAINAGE AREA
- EXISTING RUNOFF COEFFICIENT
- STORM DRAINAGE BOUNDARY
- EXISTING STORM DRAINAGE BOUNDARY
- EXISTING TOP OF BANK AS STAKED BY CONSERVATION HALTON
- DRIPLINE AS STAKED BY REGION OF HALTON
- 15.0m SETBACK FROM (LTSTB)
- LONG TERM STABLE TOP OF BANK (LTSTB)
- PROPOSED OVERLAND FLOW ROUTE
- EXISTING OVERLAND FLOW ROUTE
- EXISTING CONTOUR & ELEVATION
- DENOTES LAND DRAINING TO BRONTE CREEK

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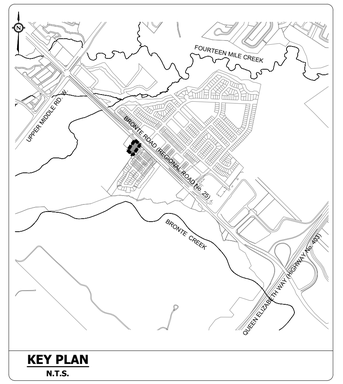
EAGLEWOOD COMMUNITIES
TOWN OF OAKVILLE

POST-DEVELOPEMNT STORM DRAINAGE PLAN

PROJECT No.	DATE	SCALE	DWG No.
21-272	FEB. 2022	1:750	**STM-2**



BRONTE GREEN SUBDIVISION
24T-14004
EXISTING DEVELOPMENT
PREPARED BY DSEL ENGINEERING LTD.
SCALE N.T.S.



KEY PLAN
N.T.S.

LEGEND

- LIMIT OF EAGLEWOOD DEVELOPMENT
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- SANITARY MANHOLE ID
- PROPOSED GROUND ELEVATION
- PROPOSED SEWER INVERTS
- EXISTING SANITARY MANHOLE ID
- EXISTING GROUND ELEVATION
- EXISTING SEWER INVERTS
- 0.32ha / 55 / 18 — PROPOSED DRAINAGE AREA; PROPOSED POPULATION; PROPOSED # OF UNITS/OR POPULATION PER HECTARE
- SANITARY DRAINAGE BOUNDARY
- OTHER LANDS CONTRIBUTING TO THE SANITARY SEWER NETWORK BRONTE RIVER LIMITED PARTNERSHIP DEVELOPMENT

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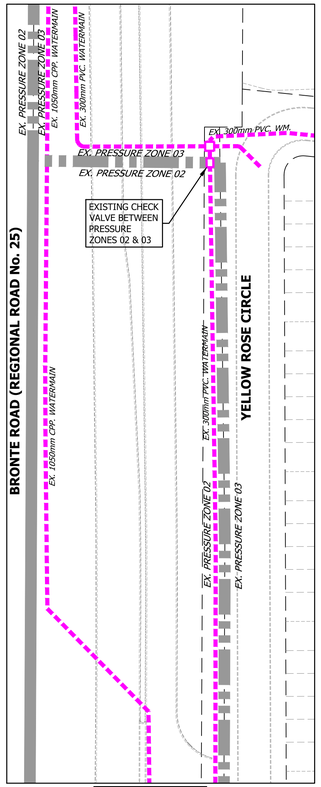
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EAGLEWOOD COMMUNITIES
TOWN OF OAKVILLE

PRELIMINARY SANITARY DRAINAGE PLAN

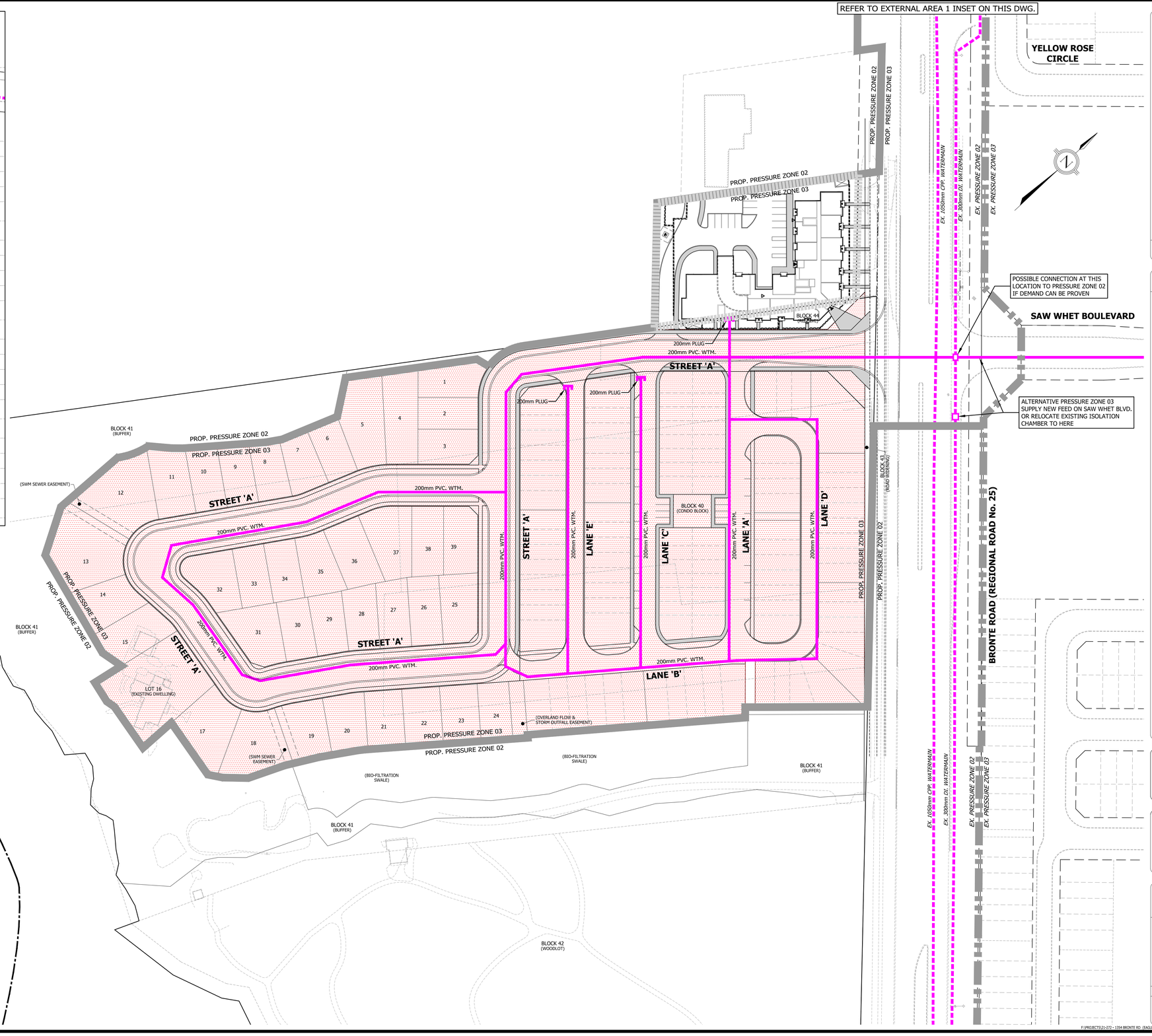
PROJECT No.	DATE	SCALE	DWG No.
21-272	FEB. 2022	1:750	**SAN-1**

F:\PROJECTS\21-272 - 1354 BRONTE RD (EAGLEWOOD COMM. VALERY - OAKVILLE)\DRAWINGS\PRELIMINARY ENGINEERING & FIGURES\21-272_FSR+SANITARY DRAINAGE PLAN.DWG



EXTERNAL AREA 1
SCALE 1:750

REFER TO EXTERNAL AREA 1 INSET ON THIS DWG.





KEY PLAN
N.T.S.

LEGEND

- LIMIT OF EAGLEWOOD DEVELOPMENT
- PROPOSED WATERMAIN
- EXISTING WATERMAIN
- PROPOSED PRESSURE ZONE
- EXISTING PRESSURE ZONE
- OTHER LANDS CONTRIBUTING TO THE WATERMAIN NETWORK BRONTE RIVER LIMITED PARTNERSHIP DEVELOPMENT

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EAGLEWOOD COMMUNITIES
TOWN OF OAKVILLE

WATERMAIN DISTRIBUTION PLAN

PROJECT No.	DATE	SCALE	DWG No.
21-272	FEB. 2022	1:750	**WM-1**

F:\PROJECTS\21-272 • 1354 BRONTE RD (EAGLEWOOD COMM, VALERY - OAKVILLE)\DRAWINGS\PRELIMINARY ENGINEERING & FIGURES\21-272_PSR-WATERMAIN DISTRIBUTION PLAN1.DWG

HEAVY-DUTY SILT FENCE BARRIER (AS PER OPSD 219.130)

PROPOSED CUT-OFF SWALE @ 0.50%

ROCK FLOW CHECK DAM AS PER OPSD 219.211 TYP.

ROCK FLOW CHECK DAM AS PER OPSD 219.211 TYP.

PROVIDE MUD MAT AT CONSTRUCTION ACCESS 20M(L)X10M(W), (C/W. TIRE WASH STATION AT ACCESS) REFER TO DETAIL DWG. ESC-2

HEAVY-DUTY SILT FENCE BARRIER (AS PER OPSD 219.130)

HEAVY-DUTY SILT FENCE BARRIER (AS PER OPSD 219.130)

RELOCATE MUD MAT TO THIS LOCATION WHEN NEW STREET IS OPEN

EX. SAN.MH33A
TOP 127.05m±
NE 125.94m±

EX. 47.9m-600mm STM. @ 0.40%±

EX. STM.MH 47
TOP 129.29m±
SE 127.00m±
NW 126.95m±

EX. 34.9m-300mm SAN. @ 0.57%±

EX. 100.0m-450mm STM. @ 0.33%±

EX. SAN.MH34A
TOP 129.00m±
SW 125.55m±
SE 125.50m±

EX. 200mm SAN. PLUG
INV. 124.16

EX. 16.6m-200mm SAN. @ 0.32%±

EX. 200mm DI. WATERMAIN

EX. 1050mm CPP. WATERMAIN

YELLOW ROSE CIRCLE

EX. SAN.MH3A
TOP 128.73m±
SW 124.05m±
NE 124.02m±
NW 124.08m±

EX. 78.4m-200mm SAN. @ 0.36%±

EX. STM.MH3
TOP 128.73m±
SW 125.65m±
NW 125.34m±
NE 125.21m±

EX. 78.7m-525mm STM. @ 0.38%±

EX. 12.4m-375mm STM. @ 0.48%±

EX. 375mm STM. PLUG
INV. 125.7

EX. 54.0m-600mm STM. @ 0.56%±

EX. 1050mm CPP. WATERMAIN

EX. 81.0m-300mm SAN. @ 0.50%±

EX. 300mm DI. WATERMAIN

BRONTE ROAD (REGIONAL ROAD No. 25)

EX. STM.MH 41
TOP 129.69m±
SE 127.40m±
NW 127.30m±

EX. SAN.MH35A
TOP 129.24m±
NW 125.10m±
SE 125.07m±

EX. 1050mm CPP. WATERMAIN

EX. 41.5m-300mm SAN. @ 0.50%±

EX. 300mm DI. WATERMAIN

SAW WHET BOULEVARD

EX. STM.MH109
TOP 129.11m±
NE 126.65m±

EX. 100.0m-525mm STM. @ 1.46%±



KEY PLAN
N.T.S.

LEGEND

- LIMIT OF EAGLEWOOD DEVELOPMENT
- EXISTING STORM SEWER
- EX. STM.MH 37 (TOP 130.02m±, SE 128.13m±, NW 128.05m±) — EXISTING STORM MANHOLE ID / EXISTING GROUND ELEVATION / EXISTING SEWER INVERTS
- EXISTING SANITARY SEWER
- EX. SAN.MH35A (TOP 129.24m±, NW 125.10m±, SE 125.07m±) — EXISTING SANITARY MANHOLE ID / EXISTING GROUND ELEVATION / EXISTING SEWER INVERTS
- EXISTING WATERMAIN
- EXISTING OVERLAND FLOW ROUTE
- EXISTING CONTOUR & ELEVATION
- EXISTING DITCH
- HEAVY-DUTY SILT FENCE (OPSD 219.130)
- CATCHBASIN SILT PROTECTION
- ROCK FLOW CHECK DAM (OPSD 219.211)

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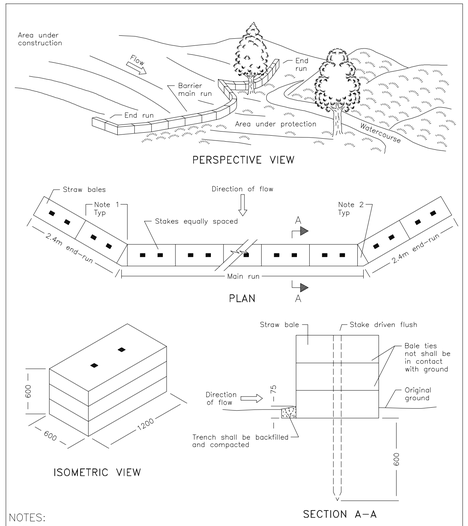
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EAGLEWOOD COMMUNITIES
TOWN OF OAKVILLE

EROSION AND SEDIMENT CONTROL PLAN

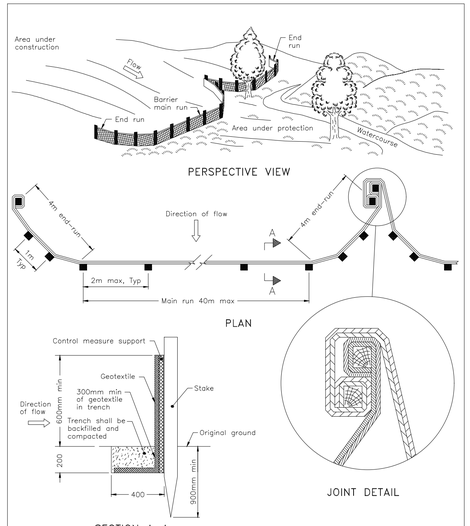
PROJECT No.	DATE	SCALE	DWG No.
21-272	FEB. 2022	1:300	**ESC-1**



NOTES:

1 Straw bales shall be butted tightly against adjoining bales to prevent sediment flow through barrier.
2 Caulk and compact gaps with loose straw.
A All dimensions are in millimetres unless otherwise shown.

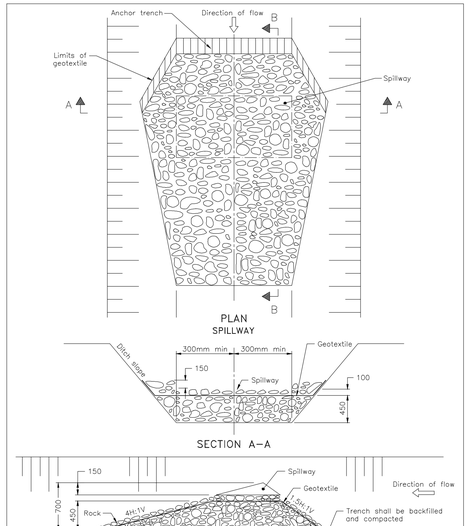
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev	2
LIGHT–DUTY STRAW BALE BARRIER			OPSD 219.100



NOTE:

A All dimensions are in millimetres unless otherwise shown.

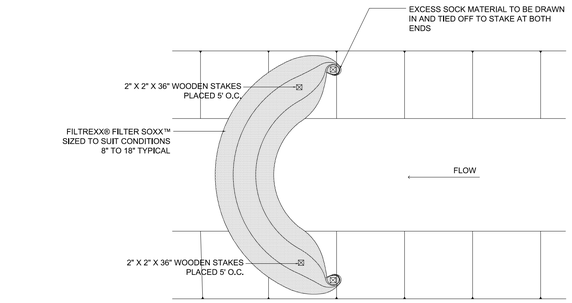
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev	2
HEAVY–DUTY SILT FENCE BARRIER			OPSD 219.130



NOTE:

A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev	2
TEMPORARY ROCK FLOW CHECK DAM FLAT BOTTOM DITCH			OPSD 219.211

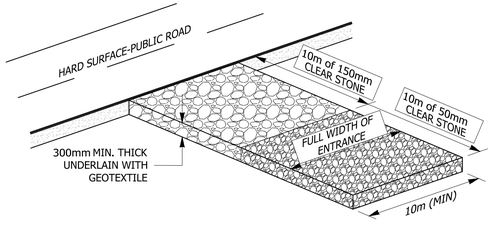


NOTES:

1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. CHECK DAMS SHOULD BE USED IN AREAS THAT DRAIN 10 ACRES OR LESS.
3. SEDIMENT SHOULD BE REMOVED FROM BEHIND CHECK DAM ONCE THE ACCUMULATED HEIGHT HAS REACHED 1/2 THE HEIGHT OF THE CHECK DAM.
4. CHECK DAM CAN BE DIRECT SEEDED AT THE TIME OF INSTALLATION.
5. CONTRACTOR IS REQUIRED TO BE A FILTREXX CERTIFIED INSTALLER.

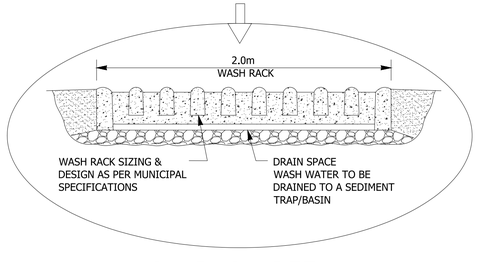
FILTREXX® FILTER SOXX

NTS



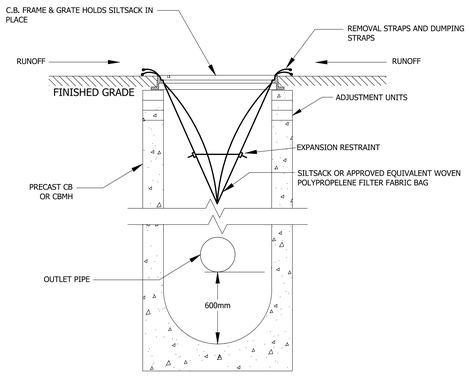
CONSTRUCTION ACCESS DETAIL

N.T.S.



WASH RACK DETAIL

N.T.S.

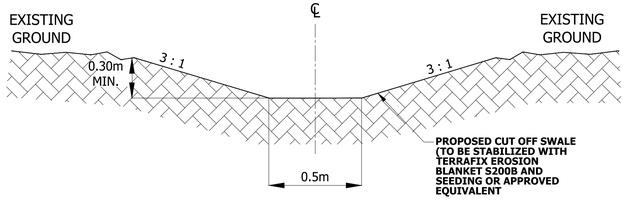


MAINTENANCE SCHEDULE

-INSPECT AFTER EVERY MAJOR RAIN EVENT.
-INSPECT EVERY 3 WEEKS MINIMUM.
-SILTSACK SHOULD NEVER BE OVER HALF FULL.
-FULL BAG CAN BE REMOVED, DUMPED, CLEANED AND REUSED (TO REMOVE INSERT 25mm REBAR INTO REMOVAL FLAP POCKETS) (TO DUMP INSERT 25mm REBAR INTO BOTH DUMPING STRAPS)

SILTSACK DETAIL

N.T.S.



TEMPORARY CUT-OFF SWALE

(N.T.S.)

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EAGLEWOOD COMMUNITIES
TOWN OF OAKVILLE

EROSION AND SEDIMENT CONTROL DETAILS

PROJECT No.	DATE	SCALE	DWG No.
21-272	FEB. 2022	N.T.S.	**ESC-2**

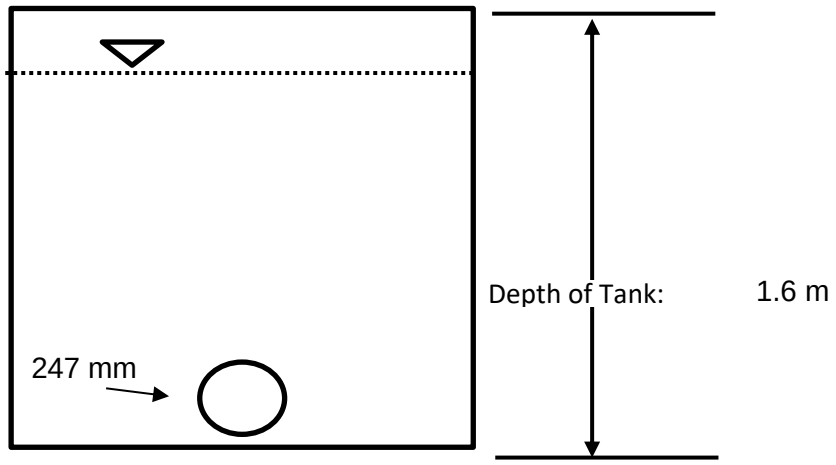
APPENDIX B
SWM Calculations

CALCULATION OF STORAGE SIZE AND RATING CURVE BASED ON ORIFICE SIZE
Eaglewood Tank

Project Name: Eaglewood
Municipality: Oakville
Project No.: 21-272
Date: 14-Dec-21

Prepared by: J.P.O
Checked by: S.H

Elevation (m)	Height (m)	Volume (m^3)	Flow rate (m^3/s)
128.25	0.00	0.00	0.000
128.25	0.00	0.00	0.000
128.40	0.15	10.16	0.021
128.55	0.30	20.32	0.053
128.70	0.45	30.48	0.073
128.85	0.60	40.65	0.088
129.00	0.75	50.81	0.100
129.15	0.90	60.97	0.112
129.30	1.05	71.13	0.122
129.45	1.20	81.29	0.132
129.60	1.35	91.45	0.140
129.80	1.55	105.00	0.152



Calculation of Orifice

$A = \pi D^2 \div 4$	0.048	m²
$h = Depth\ of\ Tank\ - (\frac{D}{2})$ $(2270mm) - (\frac{75}{2})$=	1.427	m
C	0.6	
$2g = 2 \times 9.81$	19.62	m/s²
$Q = CA\sqrt{2gh}$	0.152	m³/s
Q target (from VH model)	**0.141**	m³/s

Q and Q target are matched
Therefore, orifice is 247 mm

Invert: **127.73** m
Orifice size: **247** mm

Name	Description			Result	
Eaglewood Tank	Quantity control only				
	Storage tank footprint			**68**	m²
	Depth of Storage Tank			**1.55**	m
	Provided Volume	105	m³		
	Required Volume from VO6	103	m³		
			Total	**105**	m³

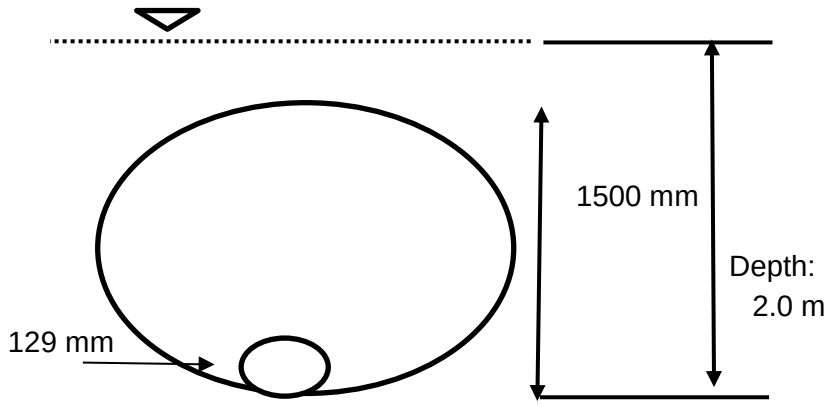
CALCULATION OF STORAGE SIZE AND RATING CURVE BASED ON ORIFICE SIZE
BRLP Super Pipe

URBANTECH®

Project Name: Eaglewood
Municipality: Oakville
Project No.: 21-272
Date: 14-Dec-21

Prepared by: J.P.O
Checked by: S.H

Elevation (m)	Height (m)	Volume (m³)	Flow rate (m³/s)
128.00	0.00	0.00	0.000
129.25	1.25	52.25	0.039
130.00	2.00	97.25	0.239



Calculation of Orifice

$A = \pi D^2 \div 4$	0.013	m²
$h = Depth\ of\ Tank - (\frac{D}{2})$ $(1500mm) - (\frac{196}{2})$=	1.94	m
C	0.82	
2g = 2 × 9.81	19.62	m/s²
$Q = CA\sqrt{2gh}$	0.050	m³/s

Calculation of Weir

$Q = BxCdxH^{3/2} + SxCdxH^{5/2}$

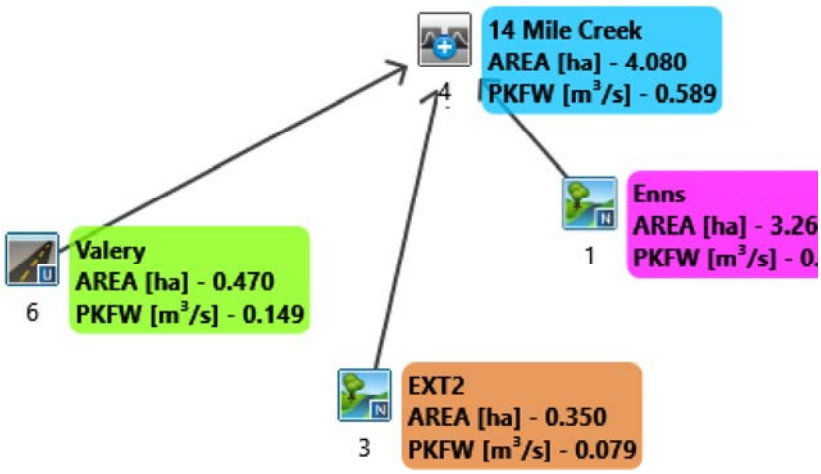
where:
Q=flow rate (m3/s)
H= head on the weir (m)
B=width of the weir (m)
S = side slopes of weir (H:V)

Side Slope	1	:1
Flow Depth	0.22	m
Bottom Width	1.0	m
Capacity, Q	0.19	m³/s

Invert: **128.00** m
Orifice size: **0.129** mm

Name	Description		Result
SUPER PIPE	Quantity control only		
	Depth		**2.00** m
	Provided Volume	97 m³	
	Required Volume from VO6	91 m³	
		Total	**97** m³

VO6 Pre-Development Schematic



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

       V    V   I    SSSSS  U   U    A    L              (v 6.1.2003)
       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-New\VO2\voin.dat

  Output  filename:
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a20a473f-48ea-440e-b3f5-4fa113e2fb8a\


DATE: 12/14/2021                          TIME: 09:51:29

USER:



COMMENTS: _____________________________________________________________


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  ***********************************************
  ** SIMULATION : 100-yr 24hr                   **
  ***********************************************

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| CHICAGO STORM    |    IDF curve parameters: A=2150.000
| Ptotal= 98.13 mm |                          B=   5.700
--------------------                          C=   0.861
```

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

Duration of storm = 24.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.59	6.17	2.22	12.17	1.96	18.17	0.87
0.33	0.60	6.33	2.43	12.33	1.89	18.33	0.86
0.50	0.61	6.50	2.70	12.50	1.82	18.50	0.85
0.67	0.63	6.67	3.03	12.67	1.76	18.67	0.84
0.83	0.64	6.83	3.46	12.83	1.71	18.83	0.82
1.00	0.65	7.00	4.04	13.00	1.65	19.00	0.81
1.17	0.67	7.17	4.89	13.17	1.60	19.17	0.80
1.33	0.68	7.33	6.21	13.33	1.56	19.33	0.79
1.50	0.70	7.50	8.59	13.50	1.52	19.50	0.78
1.67	0.71	7.67	14.09	13.67	1.48	19.67	0.77
1.83	0.73	7.83	39.57	13.83	1.44	19.83	0.76
2.00	0.75	8.00	200.80	14.00	1.40	20.00	0.75
2.17	0.77	8.17	54.10	14.17	1.37	20.17	0.74
2.33	0.79	8.33	25.64	14.33	1.33	20.33	0.73
2.50	0.81	8.50	16.48	14.50	1.30	20.50	0.73
2.67	0.83	8.67	12.09	14.67	1.27	20.67	0.72
2.83	0.85	8.83	9.54	14.83	1.24	20.83	0.71
3.00	0.88	9.00	7.88	15.00	1.22	21.00	0.70
3.17	0.91	9.17	6.73	15.17	1.19	21.17	0.69
3.33	0.94	9.33	5.87	15.33	1.17	21.33	0.69
3.50	0.97	9.50	5.22	15.50	1.14	21.50	0.68
3.67	1.00	9.67	4.70	15.67	1.12	21.67	0.67
3.83	1.04	9.83	4.28	15.83	1.10	21.83	0.66
4.00	1.08	10.00	3.93	16.00	1.08	22.00	0.66
4.17	1.12	10.17	3.63	16.17	1.06	22.17	0.65
4.33	1.16	10.33	3.38	16.33	1.04	22.33	0.64
4.50	1.22	10.50	3.16	16.50	1.02	22.50	0.64
4.67	1.27	10.67	2.97	16.67	1.01	22.67	0.63
4.83	1.33	10.83	2.81	16.83	0.99	22.83	0.62
5.00	1.40	11.00	2.66	17.00	0.97	23.00	0.62
5.17	1.48	11.17	2.53	17.17	0.96	23.17	0.61
5.33	1.56	11.33	2.41	17.33	0.94	23.33	0.61
5.50	1.66	11.50	2.30	17.50	0.93	23.50	0.60
5.67	1.77	11.67	2.20	17.67	0.91	23.67	0.59
5.83	1.90	11.83	2.11	17.83	0.90	23.83	0.59
6.00	2.04	12.00	2.03	18.00	0.88	24.00	0.58

CALIB					
NASHYD (0001)	Area (ha)=	3.26	Curve Number	(CN)=	73.0

|ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
--- U.H. Tp(hrs)= 0.18

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68

3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Unit Hyd Qpeak (cms)= 0.707

PEAK FLOW (cms)= 0.460 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 46.221
TOTAL RAINFALL (mm)= 98.135
RUNOFF COEFFICIENT = 0.471

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

CALIB					
NASHYD (0003)	Area (ha)=	0.35	Curve Number (CN)=	73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.08		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66

3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.079 (i)
TIME TO PEAK (hrs)= 8.000
RUNOFF VOLUME (mm)= 43.506
TOTAL RAINFALL (mm)= 98.135
RUNOFF COEFFICIENT = 0.443

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

CALIB
STANDHYD (0006)
ID= 1 DT= 5.0 min

Area (ha)= 0.47
Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.27
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	55.98	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67

3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)=	200.80	88.98	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.36 (ii)	8.76 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.33	0.12	
			TOTALS
PEAK FLOW (cms)=	0.11	0.04	0.149 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	97.13	46.37	68.18
TOTAL RAINFALL (mm)=	98.13	98.13	98.13
RUNOFF COEFFICIENT =	0.99	0.47	0.69

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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  (  0004)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     3.26   0.460     8.08    46.22
      + ID2= 2 (  0003):     0.35   0.079     8.00    43.51
        ================================================
        ID = 3 (  0004):     3.61   0.510     8.08    45.96

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

--------------------
| ADD HYD  (  0004)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0004):     3.61   0.510     8.08    45.96
      + ID2= 2 (  0006):     0.47   0.149     8.00    68.18
        ================================================
        ID = 1 (  0004):     4.08   0.589     8.00    48.52

     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 6.1.2003)
       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-New\VO2\voin.dat

  Output  filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\
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0bd6d1c9-05ac-4d95-8969-44863a6e594a\
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0bd6d1c9-05ac-4d95-8969-44863a6e594a\

DATE: 12/14/2021 TIME: 09:51:29

USER:

COMMENTS: _____

  ****
  ** SIMULATION : 10-yr 24hr **
  ****

| CHICAGO STORM |
| Ptotal= 70.24 mm |

IDF curve parameters: A=1400.000
B= 5.800
C= 0.848
used in: INTENSITY = A / (t + B)^C

Duration of storm = 24.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.46	6.17	1.69	12.17	1.49	18.17	0.68
0.33	0.47	6.33	1.85	12.33	1.44	18.33	0.67
0.50	0.48	6.50	2.04	12.50	1.39	18.50	0.66
0.67	0.49	6.67	2.29	12.67	1.35	18.67	0.65
0.83	0.50	6.83	2.61	12.83	1.31	18.83	0.64
1.00	0.51	7.00	3.04	13.00	1.27	19.00	0.63
1.17	0.52	7.17	3.65	13.17	1.23	19.17	0.62
1.33	0.53	7.33	4.61	13.33	1.20	19.33	0.62
1.50	0.54	7.50	6.32	13.50	1.16	19.50	0.61
1.67	0.55	7.67	10.23	13.67	1.13	19.67	0.60
1.83	0.57	7.83	27.82	13.83	1.10	19.83	0.59
2.00	0.58	8.00	134.79	14.00	1.08	20.00	0.59
2.17	0.60	8.17	37.76	14.17	1.05	20.17	0.58
2.33	0.61	8.33	18.29	14.33	1.03	20.33	0.57
2.50	0.63	8.50	11.91	14.50	1.00	20.50	0.56
2.67	0.64	8.67	8.81	14.67	0.98	20.67	0.56
2.83	0.66	8.83	7.00	14.83	0.96	20.83	0.55

3.00	0.68	9.00	5.82	15.00	0.94	21.00	0.55
3.17	0.70	9.17	4.99	15.17	0.92	21.17	0.54
3.33	0.73	9.33	4.37	15.33	0.90	21.33	0.53
3.50	0.75	9.50	3.89	15.50	0.88	21.50	0.53
3.67	0.77	9.67	3.52	15.67	0.87	21.67	0.52
3.83	0.80	9.83	3.21	15.83	0.85	21.83	0.52
4.00	0.83	10.00	2.95	16.00	0.83	22.00	0.51
4.17	0.86	10.17	2.74	16.17	0.82	22.17	0.51
4.33	0.90	10.33	2.55	16.33	0.81	22.33	0.50
4.50	0.94	10.50	2.39	16.50	0.79	22.50	0.50
4.67	0.98	10.67	2.25	16.67	0.78	22.67	0.49
4.83	1.02	10.83	2.13	16.83	0.76	22.83	0.49
5.00	1.08	11.00	2.02	17.00	0.75	23.00	0.48
5.17	1.13	11.17	1.92	17.17	0.74	23.17	0.48
5.33	1.20	11.33	1.83	17.33	0.73	23.33	0.47
5.50	1.27	11.50	1.75	17.50	0.72	23.50	0.47
5.67	1.35	11.67	1.68	17.67	0.71	23.67	0.46
5.83	1.45	11.83	1.61	17.83	0.70	23.83	0.46
6.00	1.56	12.00	1.55	18.00	0.69	24.00	0.46

CALIB NASHYD (0001)	Area (ha)= 3.26	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.18	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62

1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47

5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Unit Hyd Qpeak (cms)= 0.707

PEAK FLOW (cms)= 0.237 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 26.652
TOTAL RAINFALL (mm)= 70.237
RUNOFF COEFFICIENT = 0.379

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

CALIB					
NASHYD (0003)	Area (ha)=	0.35	Curve Number (CN)=	73.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.08			

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	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60

1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46

5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.040 (i)
TIME TO PEAK (hrs)= 8.000
RUNOFF VOLUME (mm)= 25.087
TOTAL RAINFALL (mm)= 70.237
RUNOFF COEFFICIENT = 0.357

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

CALIB STANDHYD (0006)	Area (ha)= 0.47
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.27
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	55.98	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61

1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46

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               5.750    1.45 |11.750    1.61 |17.750    0.70 | 23.75    0.46
               5.833    1.45 |11.833    1.61 |17.833    0.70 | 23.83    0.46
               5.917    1.56 |11.917    1.55 |17.917    0.69 | 23.92    0.46
               6.000    1.56 |12.000    1.55 |18.000    0.69 | 24.00    0.46

     Max.Eff.Inten.(mm/hr)=     134.79        45.43
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       1.60 (ii)   11.28 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.32         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.08         0.02          0.086 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.17           8.00
     RUNOFF VOLUME    (mm)=      69.24        26.74          45.00
     TOTAL RAINFALL   (mm)=      70.24        70.24          70.24
     RUNOFF COEFFICIENT   =       0.99         0.38           0.64

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0004)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     3.26   0.237     8.08    26.65
      + ID2= 2 (  0003):     0.35   0.040     8.00    25.09
        ================================================
        ID = 3 (  0004):     3.61   0.264     8.08    26.50

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

--------------------
| ADD HYD  (  0004)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0004):     3.61   0.264     8.08    26.50
      + ID2= 2 (  0006):     0.47   0.086     8.00    45.00
        ================================================
        ID = 1 (  0004):     4.08   0.309     8.00    28.63

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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       V    V   I    SSSSS  U   U    A    L              (v 6.1.2003)
       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-New\VO2\voin.dat

  Output  filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\
d7f1fd3b-3838-4b2e-925e-c45d18ca1c87\
  Summary filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\
d7f1fd3b-3838-4b2e-925e-c45d18ca1c87\


DATE: 12/14/2021                          TIME: 09:51:29

USER:



COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------
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  ********************************************
  ** SIMULATION : 25MM4HRC_10min Edited 2012    **
  ********************************************


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

| | 08b07966-0515-41ef-9037-0eaf759178ea\8ba51073
| Ptotal= 25.00 mm | Comments: 25MM4HRC_10min Edited 2012

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	2.07	1.17	5.70	2.17	5.19	3.17	2.80
0.33	2.27	1.33	10.78	2.33	4.47	3.33	2.62
0.50	2.52	1.50	50.21	2.50	3.95	3.50	2.48
0.67	2.88	1.67	13.37	2.67	3.56	3.67	2.35
0.83	3.38	1.83	8.29	2.83	3.25	3.83	2.23
1.00	4.18	2.00	6.30	3.00	3.01	4.00	2.14

CALIB	
NASHYD (0001)	Area (ha)= 3.26 Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.18

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Unit Hyd Qpeak (cms)= 0.707

PEAK FLOW (cms)= 0.027 (i)
TIME TO PEAK (hrs)= 1.667
RUNOFF VOLUME (mm)= 3.498
TOTAL RAINFALL (mm)= 24.996
RUNOFF COEFFICIENT = 0.140

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

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--------------------
| CALIB            |
| NASHYD   (  0003)|   Area    (ha)=   0.35   Curve Number   (CN)= 73.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.08

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

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     Unit Hyd Qpeak  (cms)=   0.171

     PEAK FLOW       (cms)=   0.004 (i)
     TIME TO PEAK    (hrs)=   1.500
     RUNOFF VOLUME    (mm)=   3.293
     TOTAL RAINFALL   (mm)=  24.996
     RUNOFF COEFFICIENT   =   0.132

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0006)|   Area    (ha)=   0.47
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=  43.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.20         0.27
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      55.98        40.00
     Mannings n           =      0.013        0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)=	50.21	2.97		
over (min)	5.00	35.00		
Storage Coeff. (min)=	2.38 (ii)	31.17 (ii)		
Unit Hyd. Tpeak (min)=	5.00	35.00		
Unit Hyd. peak (cms)=	0.30	0.03		
			TOTALS	
PEAK FLOW (cms)=	0.03	0.00	0.028 (iii)	
TIME TO PEAK (hrs)=	1.50	2.17	1.50	
RUNOFF VOLUME (mm)=	24.00	3.51	12.28	
TOTAL RAINFALL (mm)=	25.00	25.00	25.00	
RUNOFF COEFFICIENT =	0.96	0.14	0.49	

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0004)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	3.26	0.027	1.67	3.50
+ ID2= 2 (0003):	0.35	0.004	1.50	3.29
ID = 3 (0004):	3.61	0.029	1.67	3.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
--------------------
| ADD HYD  (  0004)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0004):     3.61   0.029     1.67     3.48
      + ID2= 2 (  0006):     0.47   0.028     1.50    12.28
        ================================================
        ID = 1 (  0004):     4.08   0.049     1.50     4.49

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

       V    V   I    SSSSS  U   U    A    L              (v 6.1.2003)
       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-New\VO2\voin.dat

  Output  filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\
4e6581a0-e2c7-4781-bced-5cc299c8ac52\
  Summary filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\
4e6581a0-e2c7-4781-bced-5cc299c8ac52\


DATE: 12/14/2021                          TIME: 09:51:29

USER:



COMMENTS: _____________________________________________________________
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------------------------------------------------------------------------------
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  ***********************************************
  ** SIMULATION : 25-yr 24hr                    **
  ***********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1680.000
| Ptotal= 82.47 mm |                          B=   5.600
--------------------                          C=   0.851
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  = 24.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.33

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.17    0.53 |  6.17    1.95 | 12.17    1.73 | 18.17    0.78
                0.33    0.54 |  6.33    2.14 | 12.33    1.67 | 18.33    0.77
                0.50    0.55 |  6.50    2.36 | 12.50    1.61 | 18.50    0.76
                0.67    0.56 |  6.67    2.65 | 12.67    1.56 | 18.67    0.75
                0.83    0.57 |  6.83    3.02 | 12.83    1.51 | 18.83    0.74
                1.00    0.58 |  7.00    3.51 | 13.00    1.46 | 19.00    0.73
                1.17    0.60 |  7.17    4.23 | 13.17    1.42 | 19.17    0.72
                1.33    0.61 |  7.33    5.35 | 13.33    1.38 | 19.33    0.71
                1.50    0.62 |  7.50    7.33 | 13.50    1.34 | 19.50    0.70
                1.67    0.64 |  7.67   11.88 | 13.67    1.31 | 19.67    0.69
                1.83    0.65 |  7.83   32.57 | 13.83    1.27 | 19.83    0.68
                2.00    0.67 |  8.00  162.17 | 14.00    1.24 | 20.00    0.67
                2.17    0.69 |  8.17   44.31 | 14.17    1.21 | 20.17    0.67
                2.33    0.70 |  8.33   21.32 | 14.33    1.18 | 20.33    0.66
                2.50    0.72 |  8.50   13.85 | 14.50    1.16 | 20.50    0.65
                2.67    0.74 |  8.67   10.24 | 14.67    1.13 | 20.67    0.64
                2.83    0.76 |  8.83    8.13 | 14.83    1.11 | 20.83    0.64
                3.00    0.79 |  9.00    6.75 | 15.00    1.08 | 21.00    0.63
                3.17    0.81 |  9.17    5.78 | 15.17    1.06 | 21.17    0.62
                3.33    0.84 |  9.33    5.06 | 15.33    1.04 | 21.33    0.61
                3.50    0.86 |  9.50    4.51 | 15.50    1.02 | 21.50    0.61
                3.67    0.89 |  9.67    4.07 | 15.67    1.00 | 21.67    0.60
                3.83    0.92 |  9.83    3.71 | 15.83    0.98 | 21.83    0.60
                4.00    0.96 | 10.00    3.42 | 16.00    0.96 | 22.00    0.59
                4.17    1.00 | 10.17    3.16 | 16.17    0.95 | 22.17    0.58
                4.33    1.04 | 10.33    2.95 | 16.33    0.93 | 22.33    0.58
                4.50    1.08 | 10.50    2.76 | 16.50    0.91 | 22.50    0.57
                4.67    1.13 | 10.67    2.60 | 16.67    0.90 | 22.67    0.57
                4.83    1.18 | 10.83    2.46 | 16.83    0.88 | 22.83    0.56
                5.00    1.24 | 11.00    2.33 | 17.00    0.87 | 23.00    0.56
```

5.17	1.31	11.17	2.22	17.17	0.85	23.17	0.55
5.33	1.38	11.33	2.12	17.33	0.84	23.33	0.54
5.50	1.47	11.50	2.02	17.50	0.83	23.50	0.54
5.67	1.56	11.67	1.94	17.67	0.81	23.67	0.53
5.83	1.67	11.83	1.86	17.83	0.80	23.83	0.53
6.00	1.80	12.00	1.79	18.00	0.79	24.00	0.52

CALIB NASHYD (0001)	Area (ha)= 3.26	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.18	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65

2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Unit Hyd Qpeak (cms)= 0.707

PEAK FLOW (cms)= 0.325 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 34.906
TOTAL RAINFALL (mm)= 82.474

RUNOFF COEFFICIENT = 0.423

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

CALIB NASHYD (0003) ID= 1 DT= 5.0 min	Area (ha)= 0.35 Ia (mm)= 5.00 U.H. Tp(hrs)= 0.08	Curve Number (CN)= 73.0 # of Linear Res.(N)= 3.00

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	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64

2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.056 (i)
TIME TO PEAK (hrs)= 8.000
RUNOFF VOLUME (mm)= 32.855
TOTAL RAINFALL (mm)= 82.474
RUNOFF COEFFICIENT = 0.398

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

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| CALIB            |
| STANDHYD (  0006)|   Area    (ha)=   0.47
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=  43.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.20         0.27
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      55.98        40.00
     Manning 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	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64

2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.49 (ii)	9.99 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.33	0.11	
			TOTALS
PEAK FLOW (cms)=	0.09	0.03	0.114 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00

```
     RUNOFF VOLUME    (mm)=      81.47        35.01          54.98
     TOTAL RAINFALL   (mm)=      82.47        82.47          82.47
     RUNOFF COEFFICIENT   =       0.99         0.42           0.67

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0004)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     3.26   0.325     8.08    34.91
      + ID2= 2 (  0003):     0.35   0.056     8.00    32.86
        ================================================
        ID = 3 (  0004):     3.61   0.362     8.08    34.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0004)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0004):     3.61   0.362     8.08    34.71
      + ID2= 2 (  0006):     0.47   0.114     8.00    54.98
        ================================================
        ID = 1 (  0004):     4.08   0.424     8.00    37.04

     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 6.1.2003)
       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-New\VO2\voin.dat

Output filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\07c48f31-3b22-4c89-a549-0e1840107f39\
Summary filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\07c48f31-3b22-4c89-a549-0e1840107f39\

DATE: 12/14/2021 TIME: 09:51:29

USER:

COMMENTS: _____

****
** SIMULATION : 2-yr 24hr **
****

| CHICAGO STORM |
| Ptotal= 48.69 mm |

IDF curve parameters: A= 725.000
B= 4.800
C= 0.808
used in: INTENSITY = A / (t + B)^C

Duration of storm = 24.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.40	6.17	1.35	12.17	1.21	18.17	0.57
0.33	0.41	6.33	1.47	12.33	1.17	18.33	0.57
0.50	0.41	6.50	1.61	12.50	1.13	18.50	0.56
0.67	0.42	6.67	1.79	12.67	1.10	18.67	0.55
0.83	0.43	6.83	2.02	12.83	1.06	18.83	0.55

1.00	0.44	7.00	2.32	13.00	1.03	19.00	0.54
1.17	0.45	7.17	2.74	13.17	1.01	19.17	0.53
1.33	0.46	7.33	3.39	13.33	0.98	19.33	0.53
1.50	0.47	7.50	4.51	13.50	0.96	19.50	0.52
1.67	0.48	7.67	6.95	13.67	0.93	19.67	0.51
1.83	0.49	7.83	17.30	13.83	0.91	19.83	0.51
2.00	0.50	8.00	82.18	14.00	0.89	20.00	0.50
2.17	0.51	8.17	23.06	14.17	0.87	20.17	0.50
2.33	0.52	8.33	11.78	14.33	0.85	20.33	0.49
2.50	0.54	8.50	7.99	14.50	0.83	20.50	0.48
2.67	0.55	8.67	6.09	14.67	0.81	20.67	0.48
2.83	0.56	8.83	4.95	14.83	0.80	20.83	0.47
3.00	0.58	9.00	4.19	15.00	0.78	21.00	0.47
3.17	0.60	9.17	3.64	15.17	0.77	21.17	0.46
3.33	0.61	9.33	3.23	15.33	0.75	21.33	0.46
3.50	0.63	9.50	2.91	15.50	0.74	21.50	0.46
3.67	0.65	9.67	2.65	15.67	0.73	21.67	0.45
3.83	0.67	9.83	2.44	15.83	0.71	21.83	0.45
4.00	0.70	10.00	2.26	16.00	0.70	22.00	0.44
4.17	0.72	10.17	2.11	16.17	0.69	22.17	0.44
4.33	0.75	10.33	1.98	16.33	0.68	22.33	0.43
4.50	0.78	10.50	1.86	16.50	0.67	22.50	0.43
4.67	0.81	10.67	1.76	16.67	0.66	22.67	0.43
4.83	0.85	10.83	1.67	16.83	0.64	22.83	0.42
5.00	0.89	11.00	1.59	17.00	0.64	23.00	0.42
5.17	0.93	11.17	1.52	17.17	0.63	23.17	0.41
5.33	0.98	11.33	1.46	17.33	0.62	23.33	0.41
5.50	1.04	11.50	1.40	17.50	0.61	23.50	0.41
5.67	1.10	11.67	1.34	17.67	0.60	23.67	0.40
5.83	1.17	11.83	1.29	17.83	0.59	23.83	0.40
6.00	1.26	12.00	1.25	18.00	0.58	24.00	0.40

CALIB			
NASHYD (0001)	Area (ha)=	3.26	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.18	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57

0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43

4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Unit Hyd Qpeak (cms)= 0.707

PEAK FLOW (cms)= 0.100 (i)
TIME TO PEAK (hrs)= 8.167
RUNOFF VOLUME (mm)= 13.824
TOTAL RAINFALL (mm)= 48.688
RUNOFF COEFFICIENT = 0.284

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

CALIB					
NASHYD (0003)	Area (ha)=	0.35	Curve Number (CN)=	73.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.08			

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	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55

0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42

4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.017 (i)
TIME TO PEAK (hrs)= 8.000
RUNOFF VOLUME (mm)= 13.012
TOTAL RAINFALL (mm)= 48.688
RUNOFF COEFFICIENT = 0.267

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

CALIB STANDHYD (0006)	Area (ha)= 0.47
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.27
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	55.98	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56

0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43

4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)=	82.18	15.21	
over (min)	5.00	20.00	
Storage Coeff. (min)=	1.95 (ii)	16.94 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.31	0.06	
			TOTALS
PEAK FLOW (cms)=	0.05	0.01	0.048 (iii)
TIME TO PEAK (hrs)=	8.00	8.25	8.00
RUNOFF VOLUME (mm)=	47.69	13.87	28.39
TOTAL RAINFALL (mm)=	48.69	48.69	48.69
RUNOFF COEFFICIENT =	0.98	0.28	0.58

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0004)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	3.26	0.100	8.17	13.82
+ ID2= 2 (0003):	0.35	0.017	8.00	13.01
ID = 3 (0004):	3.61	0.111	8.08	13.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0004)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0004):     3.61   0.111     8.08    13.75
      + ID2= 2 (  0006):     0.47   0.048     8.00    28.39
        ================================================
        ID = 1 (  0004):     4.08   0.141     8.00    15.43

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
================================================================================
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       V    V   I    SSSSS  U   U    A    L              (v 6.1.2003)
       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-New\VO2\voin.dat

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DATE: 12/14/2021                          TIME: 09:51:29

USER:



COMMENTS: _____________________________________________________________
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------------------------------------------------------------------------------
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  ***********************************************
  ** SIMULATION : 50-yr 24hr                   **
  ***********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1960.000
| Ptotal= 89.46 mm |                          B=   5.800
--------------------                          C=   0.861
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  = 24.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.33
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.54	6.17	2.03	12.17	1.79	18.17	0.80
0.33	0.55	6.33	2.22	12.33	1.72	18.33	0.78
0.50	0.56	6.50	2.46	12.50	1.66	18.50	0.77
0.67	0.57	6.67	2.76	12.67	1.61	18.67	0.76
0.83	0.58	6.83	3.16	12.83	1.56	18.83	0.75
1.00	0.59	7.00	3.69	13.00	1.51	19.00	0.74
1.17	0.61	7.17	4.47	13.17	1.46	19.17	0.73
1.33	0.62	7.33	5.68	13.33	1.42	19.33	0.72
1.50	0.63	7.50	7.86	13.50	1.38	19.50	0.71
1.67	0.65	7.67	12.90	13.67	1.35	19.67	0.70
1.83	0.67	7.83	36.22	13.83	1.31	19.83	0.70
2.00	0.68	8.00	182.06	14.00	1.28	20.00	0.69
2.17	0.70	8.17	49.51	14.17	1.25	20.17	0.68
2.33	0.72	8.33	23.49	14.33	1.22	20.33	0.67
2.50	0.74	8.50	15.09	14.50	1.19	20.50	0.66
2.67	0.76	8.67	11.06	14.67	1.16	20.67	0.65
2.83	0.78	8.83	8.73	14.83	1.14	20.83	0.65
3.00	0.80	9.00	7.21	15.00	1.11	21.00	0.64
3.17	0.83	9.17	6.15	15.17	1.09	21.17	0.63
3.33	0.85	9.33	5.37	15.33	1.07	21.33	0.63
3.50	0.88	9.50	4.77	15.50	1.04	21.50	0.62
3.67	0.91	9.67	4.29	15.67	1.02	21.67	0.61
3.83	0.95	9.83	3.91	15.83	1.00	21.83	0.61
4.00	0.98	10.00	3.59	16.00	0.99	22.00	0.60
4.17	1.02	10.17	3.32	16.17	0.97	22.17	0.59
4.33	1.06	10.33	3.09	16.33	0.95	22.33	0.59
4.50	1.11	10.50	2.89	16.50	0.93	22.50	0.58
4.67	1.16	10.67	2.72	16.67	0.92	22.67	0.57
4.83	1.22	10.83	2.56	16.83	0.90	22.83	0.57
5.00	1.28	11.00	2.43	17.00	0.89	23.00	0.56

5.17	1.35	11.17	2.31	17.17	0.87	23.17	0.56
5.33	1.42	11.33	2.20	17.33	0.86	23.33	0.55
5.50	1.51	11.50	2.10	17.50	0.85	23.50	0.55
5.67	1.61	11.67	2.01	17.67	0.83	23.67	0.54
5.83	1.73	11.83	1.93	17.83	0.82	23.83	0.54
6.00	1.87	12.00	1.85	18.00	0.81	24.00	0.53

CALIB			
NASHYD (0001)	Area (ha)=	3.26	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.18	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66

2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Unit Hyd Qpeak (cms)= 0.707

PEAK FLOW (cms)= 0.390 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 39.857
TOTAL RAINFALL (mm)= 89.457

RUNOFF COEFFICIENT = 0.446

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

CALIB			
NASHYD (0003)	Area (ha)= 0.35	Curve Number (CN)= 73.0	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.08		

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	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65

2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.067 (i)
TIME TO PEAK (hrs)= 8.000
RUNOFF VOLUME (mm)= 37.516
TOTAL RAINFALL (mm)= 89.457
RUNOFF COEFFICIENT = 0.419

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

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| CALIB            |
| STANDHYD (  0006)|   Area    (ha)=   0.47
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=  43.00
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                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.20         0.27
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      55.98        40.00
     Manning 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	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65

2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)=	182.06	75.28		
over (min)	5.00	10.00		
Storage Coeff. (min)=	1.42 (ii)	9.33 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.33	0.12		
			TOTALS	
PEAK FLOW (cms)=	0.10	0.04	0.131 (iii)	
TIME TO PEAK (hrs)=	8.00	8.08	8.00	

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     RUNOFF VOLUME    (mm)=      88.46        39.98          60.81
     TOTAL RAINFALL   (mm)=      89.46        89.46          89.46
     RUNOFF COEFFICIENT   =       0.99         0.45           0.68

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0004)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     3.26   0.390     8.08    39.86
      + ID2= 2 (  0003):     0.35   0.067     8.00    37.52
        ================================================
        ID = 3 (  0004):     3.61   0.433     8.08    39.63

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ADD HYD  (  0004)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0004):     3.61   0.433     8.08    39.63
      + ID2= 2 (  0006):     0.47   0.131     8.00    60.81
        ================================================
        ID = 1 (  0004):     4.08   0.502     8.00    42.07

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

       V    V   I    SSSSS  U   U    A    L              (v 6.1.2003)
       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-New\VO2\voin.dat

Output filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\f9b08468-45f9-4a19-9da1-3412aeee716a\
Summary filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\f9b08468-45f9-4a19-9da1-3412aeee716a\

DATE: 12/14/2021 TIME: 09:51:29

USER:

COMMENTS: _____

****
** SIMULATION : 5-yr 24hr **
****

| CHICAGO STORM |
| Ptotal= 60.87 mm |

IDF curve parameters: A=1170.000
B= 5.800
C= 0.843
used in: INTENSITY = A / (t + B)^C

Duration of storm = 24.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.41	6.17	1.50	12.17	1.32	18.17	0.60
0.33	0.42	6.33	1.64	12.33	1.28	18.33	0.59
0.50	0.43	6.50	1.81	12.50	1.24	18.50	0.59
0.67	0.44	6.67	2.02	12.67	1.20	18.67	0.58
0.83	0.44	6.83	2.30	12.83	1.16	18.83	0.57

1.00	0.45	7.00	2.68	13.00	1.13	19.00	0.56
1.17	0.46	7.17	3.21	13.17	1.09	19.17	0.56
1.33	0.47	7.33	4.05	13.33	1.06	19.33	0.55
1.50	0.48	7.50	5.53	13.50	1.03	19.50	0.54
1.67	0.50	7.67	8.89	13.67	1.01	19.67	0.54
1.83	0.51	7.83	23.90	13.83	0.98	19.83	0.53
2.00	0.52	8.00	114.21	14.00	0.96	20.00	0.52
2.17	0.53	8.17	32.36	14.17	0.93	20.17	0.52
2.33	0.55	8.33	15.80	14.33	0.91	20.33	0.51
2.50	0.56	8.50	10.34	14.50	0.89	20.50	0.50
2.67	0.58	8.67	7.68	14.67	0.87	20.67	0.50
2.83	0.59	8.83	6.11	14.83	0.85	20.83	0.49
3.00	0.61	9.00	5.09	15.00	0.84	21.00	0.49
3.17	0.63	9.17	4.37	15.17	0.82	21.17	0.48
3.33	0.65	9.33	3.83	15.33	0.80	21.33	0.48
3.50	0.67	9.50	3.42	15.50	0.79	21.50	0.47
3.67	0.69	9.67	3.09	15.67	0.77	21.67	0.47
3.83	0.71	9.83	2.82	15.83	0.76	21.83	0.46
4.00	0.74	10.00	2.60	16.00	0.74	22.00	0.46
4.17	0.77	10.17	2.41	16.17	0.73	22.17	0.45
4.33	0.80	10.33	2.25	16.33	0.72	22.33	0.45
4.50	0.83	10.50	2.11	16.50	0.71	22.50	0.44
4.67	0.87	10.67	1.99	16.67	0.69	22.67	0.44
4.83	0.91	10.83	1.88	16.83	0.68	22.83	0.44
5.00	0.96	11.00	1.78	17.00	0.67	23.00	0.43
5.17	1.01	11.17	1.70	17.17	0.66	23.17	0.43
5.33	1.06	11.33	1.62	17.33	0.65	23.33	0.42
5.50	1.13	11.50	1.55	17.50	0.64	23.50	0.42
5.67	1.20	11.67	1.49	17.67	0.63	23.67	0.42
5.83	1.28	11.83	1.43	17.83	0.62	23.83	0.41
6.00	1.38	12.00	1.37	18.00	0.61	24.00	0.41

CALIB		
NASHYD (0001)	Area (ha)= 3.26	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.18	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59

0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44

4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Unit Hyd Qpeak (cms)= 0.707

PEAK FLOW (cms)= 0.176 (i)
TIME TO PEAK (hrs)= 8.167
RUNOFF VOLUME (mm)= 20.772
TOTAL RAINFALL (mm)= 60.873
RUNOFF COEFFICIENT = 0.341

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

CALIB					
NASHYD (0003)	Area (ha)=	0.35	Curve Number (CN)=	73.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.08			

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	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58

0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44

4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.030 (i)
TIME TO PEAK (hrs)= 8.000
RUNOFF VOLUME (mm)= 19.552
TOTAL RAINFALL (mm)= 60.873
RUNOFF COEFFICIENT = 0.321

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

CALIB STANDHYD (0006)	Area (ha)= 0.47
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.27
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	55.98	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59

0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44

4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)=	114.21	26.93	
over (min)	5.00	15.00	
Storage Coeff. (min)=	1.71 (ii)	13.64 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.32	0.08	
			TOTALS
PEAK FLOW (cms)=	0.06	0.01	0.071 (iii)
TIME TO PEAK (hrs)=	8.00	8.17	8.00
RUNOFF VOLUME (mm)=	59.87	20.84	37.60
TOTAL RAINFALL (mm)=	60.87	60.87	60.87
RUNOFF COEFFICIENT =	0.98	0.34	0.62

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0004)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	3.26	0.176	8.17	20.77
+ ID2= 2 (0003):	0.35	0.030	8.00	19.55
ID = 3 (0004):	3.61	0.196	8.08	20.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0004)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0004):     3.61   0.196     8.08    20.65
      + ID2= 2 (  0006):     0.47   0.071     8.00    37.60
        ================================================
        ID = 1 (  0004):     4.08   0.235     8.00    22.61

     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 6.1.2003)
       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-New\VO2\voin.dat

  Output  filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\
352e3f51-25c5-4b2f-9618-a41e45214d9d\
  Summary filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\
352e3f51-25c5-4b2f-9618-a41e45214d9d\


DATE: 12/14/2021                          TIME: 09:51:29

USER:



COMMENTS: _____________________________________________________________
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  ***********************************************
  ** SIMULATION : Hazel                        **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jannaormond\AppD
|                  |              ata\Local\Temp\
|                  |              08b07966-0515-41ef-9037-0eaf759178ea\e59007f2
| Ptotal=212.00 mm |    Comments: Hazel
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                1.00    6.00 |  4.00   13.00 |  7.00   23.00 | 10.00   53.00
                2.00    4.00 |  5.00   17.00 |  8.00   13.00 | 11.00   38.00
                3.00    6.00 |  6.00   13.00 |  9.00   13.00 | 12.00   13.00

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| CALIB            |
| NASHYD   (  0001)|   Area    (ha)=   3.26   Curve Number   (CN)= 73.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.18

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


                          ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
                0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
                0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
                0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
                0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
                0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
                0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
                0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
                0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
                0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
                0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
                1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
                1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
                1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
                1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
```

1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 0.707

PEAK FLOW (cms)= 0.404 (i)
TIME TO PEAK (hrs)= 10.000
RUNOFF VOLUME (mm)= 141.937
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.670

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

CALIB					
NASHYD (0003)	Area (ha)=	0.35	Curve Number (CN)=	73.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.08			

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	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00

0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.041 (i)
TIME TO PEAK (hrs)= 10.000
RUNOFF VOLUME (mm)= 133.601
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.630

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

CALIB
STANDHYD (0006)
ID= 1 DT= 5.0 min

Area (ha)= 0.47
Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.20	0.27

Dep. Storage (mm)=	1.00	5.00	
Average Slope (%)=	1.00	2.00	
Length (m)=	55.98	40.00	
Mannings n =	0.013	0.250	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	45.24
over (min)	5.00	15.00

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     Storage Coeff.  (min)=       2.33 (ii)   12.02 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.30         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.03          0.063 (iii)
     TIME TO PEAK    (hrs)=       9.58        10.00          10.00
     RUNOFF VOLUME    (mm)=     211.00       142.38         171.88
     TOTAL RAINFALL   (mm)=     212.00       212.00         212.00
     RUNOFF COEFFICIENT   =       1.00         0.67           0.81

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0004)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     3.26   0.404    10.00   141.94
      + ID2= 2 (  0003):     0.35   0.041    10.00   133.60
        ================================================
        ID = 3 (  0004):     3.61   0.445    10.00   141.13

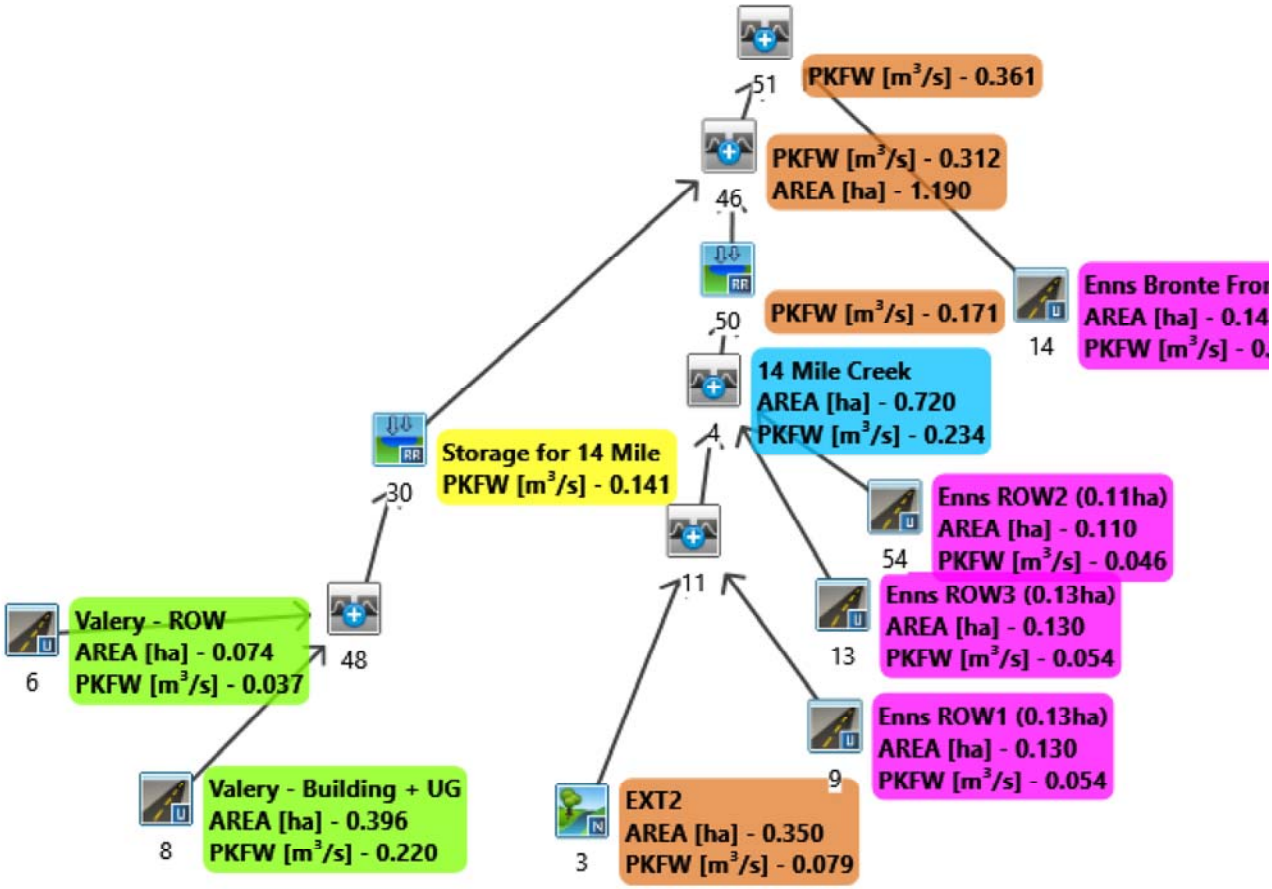
     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0004)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0004):     3.61   0.445    10.00   141.13
      + ID2= 2 (  0006):     0.47   0.063    10.00   171.88
        ================================================
        ID = 1 (  0004):     4.08   0.507    10.00   144.67

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

 FINISH
================================================================================
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VO6 Post-Development Schematic



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================================================================================
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       V    V   I    SSSSS  U   U    A    L              (v 6.1.2003)
       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-New\VO2\voin.dat

  Output  filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\
bb1efcec-f553-4282-9138-3ffe87ae071a\
  Summary filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\
bb1efcec-f553-4282-9138-3ffe87ae071a\


DATE: 12/14/2021                          TIME: 09:53:05

USER:



COMMENTS: _____________________________________________________________


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  ********************************************
  ** SIMULATION : 100-yr 24hr                **
  ********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=2150.000
| Ptotal= 98.13 mm |                          B=   5.700
--------------------                          C=   0.861
```

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

Duration of storm = 24.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.59	6.17	2.22	12.17	1.96	18.17	0.87
0.33	0.60	6.33	2.43	12.33	1.89	18.33	0.86
0.50	0.61	6.50	2.70	12.50	1.82	18.50	0.85
0.67	0.63	6.67	3.03	12.67	1.76	18.67	0.84
0.83	0.64	6.83	3.46	12.83	1.71	18.83	0.82
1.00	0.65	7.00	4.04	13.00	1.65	19.00	0.81
1.17	0.67	7.17	4.89	13.17	1.60	19.17	0.80
1.33	0.68	7.33	6.21	13.33	1.56	19.33	0.79
1.50	0.70	7.50	8.59	13.50	1.52	19.50	0.78
1.67	0.71	7.67	14.09	13.67	1.48	19.67	0.77
1.83	0.73	7.83	39.57	13.83	1.44	19.83	0.76
2.00	0.75	8.00	200.80	14.00	1.40	20.00	0.75
2.17	0.77	8.17	54.10	14.17	1.37	20.17	0.74
2.33	0.79	8.33	25.64	14.33	1.33	20.33	0.73
2.50	0.81	8.50	16.48	14.50	1.30	20.50	0.73
2.67	0.83	8.67	12.09	14.67	1.27	20.67	0.72
2.83	0.85	8.83	9.54	14.83	1.24	20.83	0.71
3.00	0.88	9.00	7.88	15.00	1.22	21.00	0.70
3.17	0.91	9.17	6.73	15.17	1.19	21.17	0.69
3.33	0.94	9.33	5.87	15.33	1.17	21.33	0.69
3.50	0.97	9.50	5.22	15.50	1.14	21.50	0.68
3.67	1.00	9.67	4.70	15.67	1.12	21.67	0.67
3.83	1.04	9.83	4.28	15.83	1.10	21.83	0.66
4.00	1.08	10.00	3.93	16.00	1.08	22.00	0.66
4.17	1.12	10.17	3.63	16.17	1.06	22.17	0.65
4.33	1.16	10.33	3.38	16.33	1.04	22.33	0.64
4.50	1.22	10.50	3.16	16.50	1.02	22.50	0.64
4.67	1.27	10.67	2.97	16.67	1.01	22.67	0.63
4.83	1.33	10.83	2.81	16.83	0.99	22.83	0.62
5.00	1.40	11.00	2.66	17.00	0.97	23.00	0.62
5.17	1.48	11.17	2.53	17.17	0.96	23.17	0.61
5.33	1.56	11.33	2.41	17.33	0.94	23.33	0.61
5.50	1.66	11.50	2.30	17.50	0.93	23.50	0.60
5.67	1.77	11.67	2.20	17.67	0.91	23.67	0.59
5.83	1.90	11.83	2.11	17.83	0.90	23.83	0.59
6.00	2.04	12.00	2.03	18.00	0.88	24.00	0.58

CALIB NASHYD (0003)	Area (ha)= 0.35 Curve Number (CN)= 73.0

|ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
--- U.H. Tp(hrs)= 0.08

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68

3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.079 (i)
TIME TO PEAK (hrs)= 8.000
RUNOFF VOLUME (mm)= 43.506
TOTAL RAINFALL (mm)= 98.135
RUNOFF COEFFICIENT = 0.443

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

CALIB
STANDHYD (0009)
ID= 1 DT= 5.0 min

Area (ha)= 0.13
Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.08	0.05

Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69

3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)=	200.80	88.98	
over (min)	5.00	10.00	
Storage Coeff. (min)=	0.93 (ii)	5.17 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.34	0.16	
			TOTALS
PEAK FLOW (cms)=	0.05	0.01	0.054 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	97.13	46.37	78.84
TOTAL RAINFALL (mm)=	98.13	98.13	98.13
RUNOFF COEFFICIENT =	0.99	0.47	0.80

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0011)					
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0003):		0.35	0.079	8.00	43.51
+ ID2= 2 (0009):		0.13	0.054	8.00	78.84
ID = 3 (0011):		0.48	0.133	8.00	53.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB		
STANDHYD (0013)	Area (ha)=	0.13
ID= 1 DT= 5.0 min	Total Imp(%)=	64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79

1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60

5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)=	200.80	88.98	
over (min)	5.00	10.00	
Storage Coeff. (min)=	0.93 (ii)	5.17 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.34	0.16	
			TOTALS
PEAK FLOW (cms)=	0.05	0.01	0.054 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	97.13	46.37	78.84
TOTAL RAINFALL (mm)=	98.13	98.13	98.13
RUNOFF COEFFICIENT =	0.99	0.47	0.80

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0054)	Area (ha)= 0.11
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.04
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	27.08	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86

0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64

4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)=	200.80	88.98		
over (min)	5.00	10.00		
Storage Coeff. (min)=	0.88 (ii)	5.13 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.34	0.16		
			TOTALS	
PEAK FLOW (cms)=	0.04	0.01	0.046 (iii)	
TIME TO PEAK (hrs)=	8.00	8.08	8.00	
RUNOFF VOLUME (mm)=	97.13	46.37	78.84	
TOTAL RAINFALL (mm)=	98.13	98.13	98.13	
RUNOFF COEFFICIENT =	0.99	0.47	0.80	

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0004)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0011):	0.48	0.133	8.00	53.08
+ ID2= 2 (0013):	0.13	0.054	8.00	78.84
ID = 3 (0004):	0.61	0.187	8.00	58.57

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     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0004)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0004):     0.61   0.187     8.00    58.57
      + ID2= 2 (  0054):     0.11   0.046     8.00    78.84
        ================================================
        ID = 1 (  0004):     0.72   0.234     8.00    61.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR(  0050)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2390      0.0097
                          0.0390     0.0052   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0004)      0.720      0.234      8.00      61.66
   OUTFLOW: ID= 1 (  0050)      0.720      0.171      8.08      61.63

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 73.01
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0091

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0006)|   Area    (ha)=   0.07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.06         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      22.21        40.00
     Mannings n             =     0.013        0.250

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


                              ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
```

hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65

4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)=	200.80	88.98	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.78 (ii)	3.85 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.25	
			TOTALS
PEAK FLOW (cms)=	0.03	0.00	0.037 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	97.13	46.37	86.98
TOTAL RAINFALL (mm)=	98.13	98.13	98.13
RUNOFF COEFFICIENT =	0.99	0.47	0.89

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0008)	Area (ha)= 0.40
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.39	0.00
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	51.38	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73
2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69

3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)=	200.80	88.98	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.30 (ii)	2.15 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.33	0.31	
			TOTALS
PEAK FLOW (cms)=	0.22	0.00	0.220 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	97.13	46.37	96.63
TOTAL RAINFALL (mm)=	98.13	98.13	98.13
RUNOFF COEFFICIENT =	0.99	0.47	0.98

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

```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0048)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0006):     0.07   0.037     8.00    86.98
     + ID2= 2 (  0008):     0.40   0.220     8.00    96.63
       ================================================
       ID = 3 (  0048):     0.47   0.256     8.00    95.11

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR(  0030)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.1120      0.0061
                          0.0210     0.0010   |   0.1220      0.0071
                          0.0530     0.0020   |   0.1320      0.0081
                          0.0730     0.0030   |   0.1400      0.0091
                          0.0880     0.0041   |   0.1520      0.0105
                          0.1000     0.0051   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0048)      0.470      0.256      8.00      95.11
   OUTFLOW: ID= 1 (  0030)      0.470      0.141      8.08      95.10

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 55.02
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0103

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--------------------
| ADD HYD  (  0046)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0030):     0.47   0.141     8.08    95.10
     + ID2= 2 (  0050):     0.72   0.171     8.08    61.63
       ================================================
       ID = 3 (  0046):     1.19   0.312     8.08    74.84
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB		
STANDHYD (0014)	Area (ha)=	0.14
ID= 1 DT= 5.0 min	Total Imp(%)=	71.00 Dir. Conn.(%)= 71.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.10	0.04
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	30.88	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.59	6.083	2.22	12.083	1.96	18.08	0.87
0.167	0.59	6.167	2.22	12.167	1.96	18.17	0.87
0.250	0.60	6.250	2.43	12.250	1.89	18.25	0.86
0.333	0.60	6.333	2.43	12.333	1.89	18.33	0.86
0.417	0.61	6.417	2.70	12.417	1.82	18.42	0.85
0.500	0.61	6.500	2.70	12.500	1.82	18.50	0.85
0.583	0.63	6.583	3.03	12.583	1.76	18.58	0.84
0.667	0.63	6.667	3.03	12.667	1.76	18.67	0.84
0.750	0.64	6.750	3.46	12.750	1.71	18.75	0.82
0.833	0.64	6.833	3.46	12.833	1.71	18.83	0.82
0.917	0.65	6.917	4.04	12.917	1.65	18.92	0.81
1.000	0.65	7.000	4.04	13.000	1.65	19.00	0.81
1.083	0.67	7.083	4.89	13.083	1.60	19.08	0.80
1.167	0.67	7.167	4.89	13.167	1.60	19.17	0.80
1.250	0.68	7.250	6.21	13.250	1.56	19.25	0.79
1.333	0.68	7.333	6.21	13.333	1.56	19.33	0.79
1.417	0.70	7.417	8.59	13.417	1.52	19.42	0.78
1.500	0.70	7.500	8.59	13.500	1.52	19.50	0.78
1.583	0.71	7.583	14.09	13.583	1.48	19.58	0.77
1.667	0.71	7.667	14.09	13.667	1.48	19.67	0.77
1.750	0.73	7.750	39.57	13.750	1.44	19.75	0.76
1.833	0.73	7.833	39.58	13.833	1.44	19.83	0.76
1.917	0.75	7.917	200.80	13.917	1.40	19.92	0.75
2.000	0.75	8.000	200.79	14.000	1.40	20.00	0.75
2.083	0.77	8.083	54.10	14.083	1.37	20.08	0.74
2.167	0.77	8.167	54.10	14.167	1.37	20.17	0.74
2.250	0.79	8.250	25.64	14.250	1.33	20.25	0.73
2.333	0.79	8.333	25.64	14.333	1.33	20.33	0.73
2.417	0.81	8.417	16.48	14.417	1.30	20.42	0.73

2.500	0.81	8.500	16.48	14.500	1.30	20.50	0.73
2.583	0.83	8.583	12.09	14.583	1.27	20.58	0.72
2.667	0.83	8.667	12.09	14.667	1.27	20.67	0.72
2.750	0.85	8.750	9.54	14.750	1.24	20.75	0.71
2.833	0.85	8.833	9.54	14.833	1.24	20.83	0.71
2.917	0.88	8.917	7.88	14.917	1.22	20.92	0.70
3.000	0.88	9.000	7.88	15.000	1.22	21.00	0.70
3.083	0.91	9.083	6.73	15.083	1.19	21.08	0.69
3.167	0.91	9.167	6.73	15.167	1.19	21.17	0.69
3.250	0.94	9.250	5.87	15.250	1.17	21.25	0.69
3.333	0.94	9.333	5.87	15.333	1.17	21.33	0.69
3.417	0.97	9.417	5.22	15.417	1.14	21.42	0.68
3.500	0.97	9.500	5.22	15.500	1.14	21.50	0.68
3.583	1.00	9.583	4.70	15.583	1.12	21.58	0.67
3.667	1.00	9.667	4.70	15.667	1.12	21.67	0.67
3.750	1.04	9.750	4.28	15.750	1.10	21.75	0.66
3.833	1.04	9.833	4.28	15.833	1.10	21.83	0.66
3.917	1.08	9.917	3.93	15.917	1.08	21.92	0.66
4.000	1.08	10.000	3.93	16.000	1.08	22.00	0.66
4.083	1.12	10.083	3.63	16.083	1.06	22.08	0.65
4.167	1.12	10.167	3.63	16.167	1.06	22.17	0.65
4.250	1.16	10.250	3.38	16.250	1.04	22.25	0.64
4.333	1.16	10.333	3.38	16.333	1.04	22.33	0.64
4.417	1.22	10.417	3.16	16.417	1.02	22.42	0.64
4.500	1.22	10.500	3.16	16.500	1.02	22.50	0.64
4.583	1.27	10.583	2.97	16.583	1.01	22.58	0.63
4.667	1.27	10.667	2.97	16.667	1.01	22.67	0.63
4.750	1.33	10.750	2.81	16.750	0.99	22.75	0.62
4.833	1.33	10.833	2.81	16.833	0.99	22.83	0.62
4.917	1.40	10.917	2.66	16.917	0.97	22.92	0.62
5.000	1.40	11.000	2.66	17.000	0.97	23.00	0.62
5.083	1.48	11.083	2.53	17.083	0.96	23.08	0.61
5.167	1.48	11.167	2.53	17.167	0.96	23.17	0.61
5.250	1.56	11.250	2.41	17.250	0.94	23.25	0.61
5.333	1.56	11.333	2.41	17.333	0.94	23.33	0.61
5.417	1.66	11.417	2.30	17.417	0.93	23.42	0.60
5.500	1.66	11.500	2.30	17.500	0.93	23.50	0.60
5.583	1.77	11.583	2.20	17.583	0.91	23.58	0.59
5.667	1.77	11.667	2.20	17.667	0.91	23.67	0.59
5.750	1.90	11.750	2.11	17.750	0.90	23.75	0.59
5.833	1.90	11.833	2.11	17.833	0.90	23.83	0.59
5.917	2.04	11.917	2.03	17.917	0.88	23.92	0.58
6.000	2.04	12.000	2.03	18.000	0.88	24.00	0.58

Max.Eff.Inten.(mm/hr)=	200.80	88.98
over (min)	5.00	5.00
Storage Coeff. (min)=	0.96 (ii)	4.69 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.34	0.22

TOTALS

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     PEAK FLOW       (cms)=       0.06         0.01          0.067 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.00           8.00
     RUNOFF VOLUME    (mm)=      97.13        46.37          82.41
     TOTAL RAINFALL   (mm)=      98.13        98.13          98.13
     RUNOFF COEFFICIENT   =       0.99         0.47           0.84

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0051)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0014):     0.14   0.067     8.00    82.41
     + ID2= 2 (  0046):     1.19   0.312     8.08    74.84
       ================================================
       ID = 3 (  0051):     1.33   0.361     8.00    75.66

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

       V    V   I    SSSSS  U   U    A    L              (v 6.1.2003)
       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-New\VO2\voin.dat
```

Output filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\a31e4b75-62ca-4d9b-add5-dc94d65f3a09\
Summary filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\a31e4b75-62ca-4d9b-add5-dc94d65f3a09\

DATE: 12/14/2021 TIME: 09:53:05

USER:

COMMENTS: _____

****
** SIMULATION : 10-yr 24hr **
****

| CHICAGO STORM |
| Ptotal= 70.24 mm |

IDF curve parameters: A=1400.000
B= 5.800
C= 0.848
used in: INTENSITY = A / (t + B)^C

Duration of storm = 24.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.46	6.17	1.69	12.17	1.49	18.17	0.68
0.33	0.47	6.33	1.85	12.33	1.44	18.33	0.67
0.50	0.48	6.50	2.04	12.50	1.39	18.50	0.66
0.67	0.49	6.67	2.29	12.67	1.35	18.67	0.65
0.83	0.50	6.83	2.61	12.83	1.31	18.83	0.64
1.00	0.51	7.00	3.04	13.00	1.27	19.00	0.63
1.17	0.52	7.17	3.65	13.17	1.23	19.17	0.62
1.33	0.53	7.33	4.61	13.33	1.20	19.33	0.62
1.50	0.54	7.50	6.32	13.50	1.16	19.50	0.61
1.67	0.55	7.67	10.23	13.67	1.13	19.67	0.60
1.83	0.57	7.83	27.82	13.83	1.10	19.83	0.59
2.00	0.58	8.00	134.79	14.00	1.08	20.00	0.59
2.17	0.60	8.17	37.76	14.17	1.05	20.17	0.58
2.33	0.61	8.33	18.29	14.33	1.03	20.33	0.57
2.50	0.63	8.50	11.91	14.50	1.00	20.50	0.56

2.67	0.64	8.67	8.81	14.67	0.98	20.67	0.56
2.83	0.66	8.83	7.00	14.83	0.96	20.83	0.55
3.00	0.68	9.00	5.82	15.00	0.94	21.00	0.55
3.17	0.70	9.17	4.99	15.17	0.92	21.17	0.54
3.33	0.73	9.33	4.37	15.33	0.90	21.33	0.53
3.50	0.75	9.50	3.89	15.50	0.88	21.50	0.53
3.67	0.77	9.67	3.52	15.67	0.87	21.67	0.52
3.83	0.80	9.83	3.21	15.83	0.85	21.83	0.52
4.00	0.83	10.00	2.95	16.00	0.83	22.00	0.51
4.17	0.86	10.17	2.74	16.17	0.82	22.17	0.51
4.33	0.90	10.33	2.55	16.33	0.81	22.33	0.50
4.50	0.94	10.50	2.39	16.50	0.79	22.50	0.50
4.67	0.98	10.67	2.25	16.67	0.78	22.67	0.49
4.83	1.02	10.83	2.13	16.83	0.76	22.83	0.49
5.00	1.08	11.00	2.02	17.00	0.75	23.00	0.48
5.17	1.13	11.17	1.92	17.17	0.74	23.17	0.48
5.33	1.20	11.33	1.83	17.33	0.73	23.33	0.47
5.50	1.27	11.50	1.75	17.50	0.72	23.50	0.47
5.67	1.35	11.67	1.68	17.67	0.71	23.67	0.46
5.83	1.45	11.83	1.61	17.83	0.70	23.83	0.46
6.00	1.56	12.00	1.55	18.00	0.69	24.00	0.46

CALIB			
NASHYD (0003)	Area (ha)=	0.35	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.08	

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	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62

1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47

5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.040 (i)
TIME TO PEAK (hrs)= 8.000
RUNOFF VOLUME (mm)= 25.087
TOTAL RAINFALL (mm)= 70.237
RUNOFF COEFFICIENT = 0.357

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

CALIB STANDHYD (0009) ID= 1 DT= 5.0 min	Area (ha)= 0.13 Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63

1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48

```
                5.250    1.20 |11.250    1.83 |17.250    0.73 | 23.25    0.47
                5.333    1.20 |11.333    1.83 |17.333    0.73 | 23.33    0.47
                5.417    1.27 |11.417    1.75 |17.417    0.72 | 23.42    0.47
                5.500    1.27 |11.500    1.75 |17.500    0.72 | 23.50    0.47
                5.583    1.35 |11.583    1.68 |17.583    0.71 | 23.58    0.46
                5.667    1.35 |11.667    1.68 |17.667    0.71 | 23.67    0.46
                5.750    1.45 |11.750    1.61 |17.750    0.70 | 23.75    0.46
                5.833    1.45 |11.833    1.61 |17.833    0.70 | 23.83    0.46
                5.917    1.56 |11.917    1.55 |17.917    0.69 | 23.92    0.46
                6.000    1.56 |12.000    1.55 |18.000    0.69 | 24.00    0.46

     Max.Eff.Inten.(mm/hr)=     134.79        45.43
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       1.09 (ii)    6.06 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.15
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.00          0.035 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.08           8.00
     RUNOFF VOLUME    (mm)=      69.24        26.74          53.92
     TOTAL RAINFALL   (mm)=      70.24        70.24          70.24
     RUNOFF COEFFICIENT   =       0.99         0.38           0.77

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0011)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0003):     0.35   0.040     8.00    25.09
      + ID2= 2 (  0009):     0.13   0.035     8.00    53.92
        ================================================
        ID = 3 (  0011):     0.48   0.075     8.00    32.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0013)|   Area    (ha)=   0.13
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
```

Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54

3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)=	134.79	45.43	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.09 (ii)	6.06 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.34	0.15	
			TOTALS
PEAK FLOW (cms)=	0.03	0.00	0.035 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	69.24	26.74	53.92
TOTAL RAINFALL (mm)=	70.24	70.24	70.24
RUNOFF COEFFICIENT =	0.99	0.38	0.77

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

```
            CN*  =  73.0    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 (  0054)|   Area    (ha)=   0.11
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.04
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      27.08        40.00
     Mannings n           =      0.013        0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58

2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)=	134.79	45.43
over (min)	5.00	10.00
Storage Coeff. (min)=	1.04 (ii)	6.01 (ii)

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     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.15
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.00          0.030 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.08          8.00
     RUNOFF VOLUME    (mm)=      69.24        26.74         53.92
     TOTAL RAINFALL   (mm)=      70.24        70.24         70.24
     RUNOFF COEFFICIENT   =       0.99         0.38          0.77

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0004)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0011):     0.48   0.075     8.00    32.90
      + ID2= 2 (  0013):     0.13   0.035     8.00    53.92
        ================================================
        ID = 3 (  0004):     0.61   0.110     8.00    37.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0004)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0004):     0.61   0.110     8.00    37.38
      + ID2= 2 (  0054):     0.11   0.030     8.00    53.92
        ================================================
        ID = 1 (  0004):     0.72   0.140     8.00    39.91

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR(  0050)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2390      0.0097
                          0.0390     0.0052   |   0.0000      0.0000
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0004)	0.720	0.140	8.00	39.91
OUTFLOW: ID= 1 (0050)	0.720	0.093	8.08	39.87

PEAK FLOW REDUCTION [Qout/Qin](%)= 66.46
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0069

CALIB STANDHYD (0006) ID= 1 DT= 5.0 min	Area (ha)= 0.07 Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	22.21	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.46	6.083	1.69	12.083	1.49	18.08	0.68
0.167	0.46	6.167	1.69	12.167	1.49	18.17	0.68
0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59

1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

```
     Max.Eff.Inten.(mm/hr)=     134.79        45.43
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      0.92 (ii)    4.52 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=      0.34         0.23
                                                        *TOTALS*
     PEAK FLOW       (cms)=      0.02         0.00         0.024 (iii)
     TIME TO PEAK    (hrs)=      8.00         8.00          8.00
     RUNOFF VOLUME    (mm)=     69.24        26.74         59.64
     TOTAL RAINFALL   (mm)=     70.24        70.24         70.24
     RUNOFF COEFFICIENT   =      0.99         0.38          0.85

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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 (  0008)|   Area    (ha)=   0.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.39         0.00
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      51.38        40.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.083    0.46 | 6.083    1.69 |12.083    1.49 | 18.08    0.68
     0.167    0.46 | 6.167    1.69 |12.167    1.49 | 18.17    0.68
     0.250    0.47 | 6.250    1.85 |12.250    1.44 | 18.25    0.67
     0.333    0.47 | 6.333    1.85 |12.333    1.44 | 18.33    0.67
     0.417    0.48 | 6.417    2.04 |12.417    1.39 | 18.42    0.66
     0.500    0.48 | 6.500    2.04 |12.500    1.39 | 18.50    0.66
     0.583    0.49 | 6.583    2.29 |12.583    1.35 | 18.58    0.65
     0.667    0.49 | 6.667    2.29 |12.667    1.35 | 18.67    0.65
     0.750    0.50 | 6.750    2.61 |12.750    1.31 | 18.75    0.64
     0.833    0.50 | 6.833    2.61 |12.833    1.31 | 18.83    0.64
```

0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50
4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48

```
                5.083    1.13 |11.083    1.92 |17.083    0.74 | 23.08    0.48
                5.167    1.13 |11.167    1.92 |17.167    0.74 | 23.17    0.48
                5.250    1.20 |11.250    1.83 |17.250    0.73 | 23.25    0.47
                5.333    1.20 |11.333    1.83 |17.333    0.73 | 23.33    0.47
                5.417    1.27 |11.417    1.75 |17.417    0.72 | 23.42    0.47
                5.500    1.27 |11.500    1.75 |17.500    0.72 | 23.50    0.47
                5.583    1.35 |11.583    1.68 |17.583    0.71 | 23.58    0.46
                5.667    1.35 |11.667    1.68 |17.667    0.71 | 23.67    0.46
                5.750    1.45 |11.750    1.61 |17.750    0.70 | 23.75    0.46
                5.833    1.45 |11.833    1.61 |17.833    0.70 | 23.83    0.46
                5.917    1.56 |11.917    1.55 |17.917    0.69 | 23.92    0.46
                6.000    1.56 |12.000    1.55 |18.000    0.69 | 24.00    0.46

     Max.Eff.Inten.(mm/hr)=     134.79        45.43
                over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.52 (ii)    2.52 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.29
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.15         0.00          0.147 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.00           8.00
     RUNOFF VOLUME    (mm)=      69.24        26.74          68.81
     TOTAL RAINFALL   (mm)=      70.24        70.24          70.24
     RUNOFF COEFFICIENT   =       0.99         0.38           0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0048)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0006):     0.07   0.024     8.00    59.64
      + ID2= 2 (  0008):     0.40   0.147     8.00    68.81
        ================================================
        ID = 3 (  0048):     0.47   0.171     8.00    67.37

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0030)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
```

```
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.1120      0.0061
                         0.0210     0.0010   |   0.1220      0.0071
                         0.0530     0.0020   |   0.1320      0.0081
                         0.0730     0.0030   |   0.1400      0.0091
                         0.0880     0.0041   |   0.1520      0.0105
                         0.1000     0.0051   |   0.0000      0.0000

                                   AREA     QPEAK     TPEAK       R.V.
                                   (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0048)      0.470      0.171      8.00      67.37
   OUTFLOW: ID= 1 (  0030)      0.470      0.105      8.08      67.35

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 61.54
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0063

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--------------------
| ADD HYD  (  0046)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0030):     0.47   0.105     8.08    67.35
      + ID2= 2 (  0050):     0.72   0.093     8.08    39.87
        ================================================
        ID = 3 (  0046):     1.19   0.198     8.08    50.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0014)|   Area    (ha)=   0.14
|ID= 1 DT= 5.0 min |   Total Imp(%)=  71.00   Dir. Conn.(%)=  71.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.10         0.04
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      30.88        40.00
     Mannings n             =     0.013        0.250

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


                              ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    0.46 | 6.083    1.69 |12.083    1.49 | 18.08    0.68
              0.167    0.46 | 6.167    1.69 |12.167    1.49 | 18.17    0.68
```

0.250	0.47	6.250	1.85	12.250	1.44	18.25	0.67
0.333	0.47	6.333	1.85	12.333	1.44	18.33	0.67
0.417	0.48	6.417	2.04	12.417	1.39	18.42	0.66
0.500	0.48	6.500	2.04	12.500	1.39	18.50	0.66
0.583	0.49	6.583	2.29	12.583	1.35	18.58	0.65
0.667	0.49	6.667	2.29	12.667	1.35	18.67	0.65
0.750	0.50	6.750	2.61	12.750	1.31	18.75	0.64
0.833	0.50	6.833	2.61	12.833	1.31	18.83	0.64
0.917	0.51	6.917	3.04	12.917	1.27	18.92	0.63
1.000	0.51	7.000	3.04	13.000	1.27	19.00	0.63
1.083	0.52	7.083	3.65	13.083	1.23	19.08	0.62
1.167	0.52	7.167	3.65	13.167	1.23	19.17	0.62
1.250	0.53	7.250	4.61	13.250	1.20	19.25	0.62
1.333	0.53	7.333	4.61	13.333	1.20	19.33	0.62
1.417	0.54	7.417	6.32	13.417	1.16	19.42	0.61
1.500	0.54	7.500	6.32	13.500	1.16	19.50	0.61
1.583	0.55	7.583	10.23	13.583	1.13	19.58	0.60
1.667	0.55	7.667	10.23	13.667	1.13	19.67	0.60
1.750	0.57	7.750	27.82	13.750	1.10	19.75	0.59
1.833	0.57	7.833	27.82	13.833	1.10	19.83	0.59
1.917	0.58	7.917	134.79	13.917	1.08	19.92	0.59
2.000	0.58	8.000	134.79	14.000	1.08	20.00	0.59
2.083	0.60	8.083	37.76	14.083	1.05	20.08	0.58
2.167	0.60	8.167	37.76	14.167	1.05	20.17	0.58
2.250	0.61	8.250	18.29	14.250	1.03	20.25	0.57
2.333	0.61	8.333	18.29	14.333	1.03	20.33	0.57
2.417	0.63	8.417	11.91	14.417	1.00	20.42	0.56
2.500	0.63	8.500	11.91	14.500	1.00	20.50	0.56
2.583	0.64	8.583	8.81	14.583	0.98	20.58	0.56
2.667	0.64	8.667	8.81	14.667	0.98	20.67	0.56
2.750	0.66	8.750	7.00	14.750	0.96	20.75	0.55
2.833	0.66	8.833	7.00	14.833	0.96	20.83	0.55
2.917	0.68	8.917	5.82	14.917	0.94	20.92	0.55
3.000	0.68	9.000	5.82	15.000	0.94	21.00	0.55
3.083	0.70	9.083	4.99	15.083	0.92	21.08	0.54
3.167	0.70	9.167	4.99	15.167	0.92	21.17	0.54
3.250	0.73	9.250	4.37	15.250	0.90	21.25	0.53
3.333	0.73	9.333	4.37	15.333	0.90	21.33	0.53
3.417	0.75	9.417	3.89	15.417	0.88	21.42	0.53
3.500	0.75	9.500	3.89	15.500	0.88	21.50	0.53
3.583	0.77	9.583	3.52	15.583	0.87	21.58	0.52
3.667	0.77	9.667	3.52	15.667	0.87	21.67	0.52
3.750	0.80	9.750	3.21	15.750	0.85	21.75	0.52
3.833	0.80	9.833	3.21	15.833	0.85	21.83	0.52
3.917	0.83	9.917	2.95	15.917	0.83	21.92	0.51
4.000	0.83	10.000	2.95	16.000	0.83	22.00	0.51
4.083	0.86	10.083	2.74	16.083	0.82	22.08	0.51
4.167	0.86	10.167	2.74	16.167	0.82	22.17	0.51
4.250	0.90	10.250	2.55	16.250	0.81	22.25	0.50
4.333	0.90	10.333	2.55	16.333	0.81	22.33	0.50

4.417	0.94	10.417	2.39	16.417	0.79	22.42	0.50
4.500	0.94	10.500	2.39	16.500	0.79	22.50	0.50
4.583	0.98	10.583	2.25	16.583	0.78	22.58	0.49
4.667	0.98	10.667	2.25	16.667	0.78	22.67	0.49
4.750	1.02	10.750	2.13	16.750	0.76	22.75	0.49
4.833	1.02	10.833	2.13	16.833	0.76	22.83	0.49
4.917	1.08	10.917	2.02	16.917	0.75	22.92	0.48
5.000	1.08	11.000	2.02	17.000	0.75	23.00	0.48
5.083	1.13	11.083	1.92	17.083	0.74	23.08	0.48
5.167	1.13	11.167	1.92	17.167	0.74	23.17	0.48
5.250	1.20	11.250	1.83	17.250	0.73	23.25	0.47
5.333	1.20	11.333	1.83	17.333	0.73	23.33	0.47
5.417	1.27	11.417	1.75	17.417	0.72	23.42	0.47
5.500	1.27	11.500	1.75	17.500	0.72	23.50	0.47
5.583	1.35	11.583	1.68	17.583	0.71	23.58	0.46
5.667	1.35	11.667	1.68	17.667	0.71	23.67	0.46
5.750	1.45	11.750	1.61	17.750	0.70	23.75	0.46
5.833	1.45	11.833	1.61	17.833	0.70	23.83	0.46
5.917	1.56	11.917	1.55	17.917	0.69	23.92	0.46
6.000	1.56	12.000	1.55	18.000	0.69	24.00	0.46

Max.Eff.Inten.(mm/hr)=	134.79	45.43	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.12 (ii)	5.50 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.34	0.16	
			TOTALS
PEAK FLOW (cms)=	0.04	0.00	0.042 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	69.24	26.74	56.90
TOTAL RAINFALL (mm)=	70.24	70.24	70.24
RUNOFF COEFFICIENT =	0.99	0.38	0.81

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0051)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0014):	0.14	0.042	8.00	56.90
+ ID2= 2 (0046):	1.19	0.198	8.08	50.72

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        ID = 3 (  0051):     1.33   0.213     8.08    51.39

     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 6.1.2003)
       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-New\VO2\voin.dat

  Output  filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\
a0981c04-540c-4e80-850a-12445a166d8f\
  Summary filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\
a0981c04-540c-4e80-850a-12445a166d8f\


DATE: 12/14/2021                           TIME: 09:53:05

USER:



COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------
------------------------
  ***********************************************
  ** SIMULATION : 25MM4HRC_10min Edited 2012    **
  ***********************************************
```

```
--------------------
|    READ STORM    |    Filename: C:\Users\jannaormond\AppD
|                  |              ata\Local\Temp\
|                  |              7a326ecd-b610-4358-a602-a321bec6bdab\8ba51073
| Ptotal= 25.00 mm |    Comments: 25MM4HRC_10min Edited 2012
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	2.07	1.17	5.70	2.17	5.19	3.17	2.80
0.33	2.27	1.33	10.78	2.33	4.47	3.33	2.62
0.50	2.52	1.50	50.21	2.50	3.95	3.50	2.48
0.67	2.88	1.67	13.37	2.67	3.56	3.67	2.35
0.83	3.38	1.83	8.29	2.83	3.25	3.83	2.23
1.00	4.18	2.00	6.30	3.00	3.01	4.00	2.14

```
--------------------
| CALIB            |
| NASHYD   (  0003)|   Area    (ha)=   0.35   Curve Number   (CN)= 73.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.08

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

```
     Unit Hyd Qpeak  (cms)=   0.171

     PEAK FLOW       (cms)=   0.004 (i)
     TIME TO PEAK    (hrs)=   1.500
     RUNOFF VOLUME    (mm)=   3.293
     TOTAL RAINFALL   (mm)=  24.996
     RUNOFF COEFFICIENT   =   0.132
```

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

```
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0009)|   Area    (ha)=   0.13
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.08         0.05
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      29.44        40.00
     Mannings n           =      0.013        0.250

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


                              ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    2.07 | 1.083    5.70 | 2.083    5.19 |  3.08    2.80
              0.167    2.07 | 1.167    5.70 | 2.167    5.19 |  3.17    2.80
              0.250    2.27 | 1.250   10.78 | 2.250    4.47 |  3.25    2.62
              0.333    2.27 | 1.333   10.78 | 2.333    4.47 |  3.33    2.62
              0.417    2.52 | 1.417   50.21 | 2.417    3.95 |  3.42    2.48
              0.500    2.52 | 1.500   50.21 | 2.500    3.95 |  3.50    2.48
              0.583    2.88 | 1.583   13.37 | 2.583    3.56 |  3.58    2.35
              0.667    2.88 | 1.667   13.37 | 2.667    3.56 |  3.67    2.35
              0.750    3.38 | 1.750    8.29 | 2.750    3.25 |  3.75    2.23
              0.833    3.38 | 1.833    8.29 | 2.833    3.25 |  3.83    2.23
              0.917    4.17 | 1.917    6.30 | 2.917    3.01 |  3.92    2.14
              1.000    4.18 | 2.000    6.29 | 3.000    3.01 |  4.00    2.14

     Max.Eff.Inten.(mm/hr)=      50.21         2.97
               over (min)        5.00        35.00
     Storage Coeff.  (min)=      1.62 (ii)   30.41 (ii)
     Unit Hyd. Tpeak (min)=      5.00        35.00
     Unit Hyd. peak  (cms)=      0.32         0.04
                                                      *TOTALS*
     PEAK FLOW       (cms)=      0.01         0.00          0.012 (iii)
     TIME TO PEAK    (hrs)=      1.50         2.17           1.50
     RUNOFF VOLUME    (mm)=     24.00         3.51          16.46
     TOTAL RAINFALL   (mm)=     25.00        25.00          25.00
     RUNOFF COEFFICIENT   =      0.96         0.14           0.66

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

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

```
            CN*  =  73.0    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  (  0011)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0003):     0.35   0.004     1.50     3.29
     + ID2= 2 (  0009):     0.13   0.012     1.50    16.46
       ================================================
       ID = 3 (  0011):     0.48   0.016     1.50     6.86

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0013)|   Area    (ha)=   0.13
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.08         0.05
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      29.44        40.00
     Mannings n             =     0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    2.07 | 1.083    5.70 | 2.083    5.19 |  3.08    2.80
              0.167    2.07 | 1.167    5.70 | 2.167    5.19 |  3.17    2.80
              0.250    2.27 | 1.250   10.78 | 2.250    4.47 |  3.25    2.62
              0.333    2.27 | 1.333   10.78 | 2.333    4.47 |  3.33    2.62
              0.417    2.52 | 1.417   50.21 | 2.417    3.95 |  3.42    2.48
              0.500    2.52 | 1.500   50.21 | 2.500    3.95 |  3.50    2.48
              0.583    2.88 | 1.583   13.37 | 2.583    3.56 |  3.58    2.35
              0.667    2.88 | 1.667   13.37 | 2.667    3.56 |  3.67    2.35
              0.750    3.38 | 1.750    8.29 | 2.750    3.25 |  3.75    2.23
              0.833    3.38 | 1.833    8.29 | 2.833    3.25 |  3.83    2.23
              0.917    4.17 | 1.917    6.30 | 2.917    3.01 |  3.92    2.14
              1.000    4.18 | 2.000    6.29 | 3.000    3.01 |  4.00    2.14

     Max.Eff.Inten.(mm/hr)=      50.21         2.97
```

```
               over (min)        5.00        35.00
     Storage Coeff.  (min)=      1.62 (ii)   30.41 (ii)
     Unit Hyd. Tpeak (min)=      5.00        35.00
     Unit Hyd. peak  (cms)=      0.32         0.04
                                                      *TOTALS*
     PEAK FLOW       (cms)=      0.01         0.00        0.012 (iii)
     TIME TO PEAK    (hrs)=      1.50         2.17         1.50
     RUNOFF VOLUME    (mm)=     24.00         3.51        16.46
     TOTAL RAINFALL   (mm)=     25.00        25.00        25.00
     RUNOFF COEFFICIENT   =      0.96         0.14         0.66

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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 (  0054)|   Area    (ha)=   0.11
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      0.07         0.04
     Dep. Storage     (mm)=      1.00         5.00
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     27.08        40.00
     Mannings n             =   0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.083    2.07 | 1.083    5.70 | 2.083    5.19 |  3.08    2.80
     0.167    2.07 | 1.167    5.70 | 2.167    5.19 |  3.17    2.80
     0.250    2.27 | 1.250   10.78 | 2.250    4.47 |  3.25    2.62
     0.333    2.27 | 1.333   10.78 | 2.333    4.47 |  3.33    2.62
     0.417    2.52 | 1.417   50.21 | 2.417    3.95 |  3.42    2.48
     0.500    2.52 | 1.500   50.21 | 2.500    3.95 |  3.50    2.48
     0.583    2.88 | 1.583   13.37 | 2.583    3.56 |  3.58    2.35
     0.667    2.88 | 1.667   13.37 | 2.667    3.56 |  3.67    2.35
     0.750    3.38 | 1.750    8.29 | 2.750    3.25 |  3.75    2.23
     0.833    3.38 | 1.833    8.29 | 2.833    3.25 |  3.83    2.23
     0.917    4.17 | 1.917    6.30 | 2.917    3.01 |  3.92    2.14
     1.000    4.18 | 2.000    6.29 | 3.000    3.01 |  4.00    2.14
```

```
     Max.Eff.Inten.(mm/hr)=      50.21         2.97
               over (min)         5.00        35.00
     Storage Coeff.  (min)=       1.54 (ii)   30.33 (ii)
     Unit Hyd. Tpeak (min)=       5.00        35.00
     Unit Hyd. peak  (cms)=       0.33         0.04
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.010 (iii)
     TIME TO PEAK    (hrs)=       1.50         2.17           1.50
     RUNOFF VOLUME    (mm)=      24.00         3.51          16.44
     TOTAL RAINFALL   (mm)=      25.00        25.00          25.00
     RUNOFF COEFFICIENT   =       0.96         0.14           0.66

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0004)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0011):     0.48   0.016     1.50     6.86
      + ID2= 2 (  0013):     0.13   0.012     1.50    16.46
        ================================================
        ID = 3 (  0004):     0.61   0.028     1.50     8.90

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

--------------------
| ADD HYD  (  0004)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0004):     0.61   0.028     1.50     8.90
      + ID2= 2 (  0054):     0.11   0.010     1.50    16.44
        ================================================
        ID = 1 (  0004):     0.72   0.037     1.50    10.05

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0050)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
```

	(cms)	(ha.m.)		(cms)	(ha.m.)
	0.0000	0.0000		0.2390	0.0097
	0.0390	0.0052		0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0004)	0.720	0.037	1.50	10.05
OUTFLOW: ID= 1 (0050)	0.720	0.015	1.58	10.02

PEAK FLOW REDUCTION [Qout/Qin](%)= 40.94
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0021

CALIB
STANDHYD (0006)
ID= 1 DT= 5.0 min

Area (ha)= 0.07
Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	22.21	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)=		50.21	2.97
	over (min)	5.00	35.00
Storage Coeff. (min)=		1.36 (ii)	30.16 (ii)
Unit Hyd. Tpeak (min)=		5.00	35.00
Unit Hyd. peak (cms)=		0.33	0.04

			TOTALS
PEAK FLOW (cms)=	0.01	0.00	0.008 (iii)
TIME TO PEAK (hrs)=	1.50	2.17	1.50
RUNOFF VOLUME (mm)=	24.00	3.51	19.78
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.14	0.79

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0008)| Area (ha)= 0.40
ID= 1 DT= 5.0 min | Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.39	0.00
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	51.38	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.07	1.083	5.70	2.083	5.19	3.08	2.80
0.167	2.07	1.167	5.70	2.167	5.19	3.17	2.80
0.250	2.27	1.250	10.78	2.250	4.47	3.25	2.62
0.333	2.27	1.333	10.78	2.333	4.47	3.33	2.62
0.417	2.52	1.417	50.21	2.417	3.95	3.42	2.48
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.583	2.88	1.583	13.37	2.583	3.56	3.58	2.35
0.667	2.88	1.667	13.37	2.667	3.56	3.67	2.35
0.750	3.38	1.750	8.29	2.750	3.25	3.75	2.23
0.833	3.38	1.833	8.29	2.833	3.25	3.83	2.23
0.917	4.17	1.917	6.30	2.917	3.01	3.92	2.14
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)=		50.21	4.69
	over (min)	5.00	5.00
Storage Coeff. (min)=		2.26 (ii)	3.74 (ii)

```
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.30         0.25
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.05         0.00          0.054 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.50           1.50
     RUNOFF VOLUME    (mm)=      24.00         3.51          23.79
     TOTAL RAINFALL   (mm)=      25.00        25.00          25.00
     RUNOFF COEFFICIENT   =       0.96         0.14           0.95

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0048)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0006):     0.07   0.008     1.50    19.78
      + ID2= 2 (  0008):     0.40   0.054     1.50    23.79
        ================================================
        ID = 3 (  0048):     0.47   0.062     1.50    23.16

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0030)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.1120      0.0061
                          0.0210     0.0010   |   0.1220      0.0071
                          0.0530     0.0020   |   0.1320      0.0081
                          0.0730     0.0030   |   0.1400      0.0091
                          0.0880     0.0041   |   0.1520      0.0105
                          0.1000     0.0051   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0048)      0.470      0.062      1.50      23.16
   OUTFLOW: ID= 1 (  0030)      0.470      0.047      1.50      23.15

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 75.06
                  TIME SHIFT OF PEAK FLOW         (min)=  0.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0021
```

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

--------------------
| ADD HYD  (  0046)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0030):     0.47   0.047     1.50    23.15
     + ID2= 2 (  0050):     0.72   0.015     1.58    10.02
       ================================================
       ID = 3 (  0046):     1.19   0.060     1.50    15.20

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0014)|   Area    (ha)=   0.14
|ID= 1 DT= 5.0 min |   Total Imp(%)=  71.00   Dir. Conn.(%)=  71.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.10         0.04
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      30.88        40.00
     Mannings n             =     0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    2.07 | 1.083    5.70 | 2.083    5.19 |  3.08    2.80
              0.167    2.07 | 1.167    5.70 | 2.167    5.19 |  3.17    2.80
              0.250    2.27 | 1.250   10.78 | 2.250    4.47 |  3.25    2.62
              0.333    2.27 | 1.333   10.78 | 2.333    4.47 |  3.33    2.62
              0.417    2.52 | 1.417   50.21 | 2.417    3.95 |  3.42    2.48
              0.500    2.52 | 1.500   50.21 | 2.500    3.95 |  3.50    2.48
              0.583    2.88 | 1.583   13.37 | 2.583    3.56 |  3.58    2.35
              0.667    2.88 | 1.667   13.37 | 2.667    3.56 |  3.67    2.35
              0.750    3.38 | 1.750    8.29 | 2.750    3.25 |  3.75    2.23
              0.833    3.38 | 1.833    8.29 | 2.833    3.25 |  3.83    2.23
              0.917    4.17 | 1.917    6.30 | 2.917    3.01 |  3.92    2.14
              1.000    4.18 | 2.000    6.29 | 3.000    3.01 |  4.00    2.14

     Max.Eff.Inten.(mm/hr)=      50.21         2.97
               over (min)        5.00        35.00
     Storage Coeff.  (min)=      1.66 (ii)   30.46 (ii)
     Unit Hyd. Tpeak (min)=      5.00        35.00
     Unit Hyd. peak  (cms)=      0.32         0.04
```

```
                                                                  *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.014 (iii)
     TIME TO PEAK    (hrs)=       1.50         2.17           1.50
     RUNOFF VOLUME    (mm)=      24.00         3.51          17.91
     TOTAL RAINFALL   (mm)=      25.00        25.00          25.00
     RUNOFF COEFFICIENT   =       0.96         0.14           0.72

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0051)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0014):     0.14   0.014     1.50    17.91
      + ID2= 2 (  0046):     1.19   0.060     1.50    15.20
        ================================================
        ID = 3 (  0051):     1.33   0.074     1.50    15.49

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

       V    V   I    SSSSS  U   U    A    L              (v 6.1.2003)
       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-New\VO2\voin.dat
```

Output filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\37e0787e-4b13-49f3-9649-c09e619488a2\
Summary filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\37e0787e-4b13-49f3-9649-c09e619488a2\

DATE: 12/14/2021 TIME: 09:53:04

USER:

COMMENTS: _____

****
** SIMULATION : 25-yr 24hr **
****

| CHICAGO STORM |
| Ptotal= 82.47 mm |

IDF curve parameters: A=1680.000
B= 5.600
C= 0.851
used in: INTENSITY = A / (t + B)^C

Duration of storm = 24.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.53	6.17	1.95	12.17	1.73	18.17	0.78
0.33	0.54	6.33	2.14	12.33	1.67	18.33	0.77
0.50	0.55	6.50	2.36	12.50	1.61	18.50	0.76
0.67	0.56	6.67	2.65	12.67	1.56	18.67	0.75
0.83	0.57	6.83	3.02	12.83	1.51	18.83	0.74
1.00	0.58	7.00	3.51	13.00	1.46	19.00	0.73
1.17	0.60	7.17	4.23	13.17	1.42	19.17	0.72
1.33	0.61	7.33	5.35	13.33	1.38	19.33	0.71
1.50	0.62	7.50	7.33	13.50	1.34	19.50	0.70
1.67	0.64	7.67	11.88	13.67	1.31	19.67	0.69
1.83	0.65	7.83	32.57	13.83	1.27	19.83	0.68
2.00	0.67	8.00	162.17	14.00	1.24	20.00	0.67
2.17	0.69	8.17	44.31	14.17	1.21	20.17	0.67
2.33	0.70	8.33	21.32	14.33	1.18	20.33	0.66

2.50	0.72	8.50	13.85	14.50	1.16	20.50	0.65
2.67	0.74	8.67	10.24	14.67	1.13	20.67	0.64
2.83	0.76	8.83	8.13	14.83	1.11	20.83	0.64
3.00	0.79	9.00	6.75	15.00	1.08	21.00	0.63
3.17	0.81	9.17	5.78	15.17	1.06	21.17	0.62
3.33	0.84	9.33	5.06	15.33	1.04	21.33	0.61
3.50	0.86	9.50	4.51	15.50	1.02	21.50	0.61
3.67	0.89	9.67	4.07	15.67	1.00	21.67	0.60
3.83	0.92	9.83	3.71	15.83	0.98	21.83	0.60
4.00	0.96	10.00	3.42	16.00	0.96	22.00	0.59
4.17	1.00	10.17	3.16	16.17	0.95	22.17	0.58
4.33	1.04	10.33	2.95	16.33	0.93	22.33	0.58
4.50	1.08	10.50	2.76	16.50	0.91	22.50	0.57
4.67	1.13	10.67	2.60	16.67	0.90	22.67	0.57
4.83	1.18	10.83	2.46	16.83	0.88	22.83	0.56
5.00	1.24	11.00	2.33	17.00	0.87	23.00	0.56
5.17	1.31	11.17	2.22	17.17	0.85	23.17	0.55
5.33	1.38	11.33	2.12	17.33	0.84	23.33	0.54
5.50	1.47	11.50	2.02	17.50	0.83	23.50	0.54
5.67	1.56	11.67	1.94	17.67	0.81	23.67	0.53
5.83	1.67	11.83	1.86	17.83	0.80	23.83	0.53
6.00	1.80	12.00	1.79	18.00	0.79	24.00	0.52

CALIB			
NASHYD (0003)	Area (ha)=	0.35	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.08	

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	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72

1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54

5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.056 (i)
TIME TO PEAK (hrs)= 8.000
RUNOFF VOLUME (mm)= 32.855
TOTAL RAINFALL (mm)= 82.474
RUNOFF COEFFICIENT = 0.398

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

CALIB STANDHYD (0009) ID= 1 DT= 5.0 min	Area (ha)= 0.13 Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73

1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55

5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.01 (ii)	5.63 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.34	0.15	
			TOTALS
PEAK FLOW (cms)=	0.04	0.01	0.043 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	81.47	35.02	64.73
TOTAL RAINFALL (mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT =	0.99	0.42	0.78

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0011)					
1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0003):	0.35	0.056	8.00	32.86
	+ ID2= 2 (0009):	0.13	0.043	8.00	64.73
	ID = 3 (0011):	0.48	0.099	8.00	41.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB STANDHYD (0013)				
ID= 1 DT= 5.0 min	Area (ha)=	0.13		
	Total Imp(%)=	64.00	Dir. Conn.(%)=	64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62

3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.01 (ii)	5.63 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.34	0.15	
			TOTALS
PEAK FLOW (cms)=	0.04	0.01	0.043 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	81.47	35.02	64.73
TOTAL RAINFALL (mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT =	0.99	0.42	0.78

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0054)	Area (ha)= 0.11
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.04
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	27.08	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67

2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74
over (min)	5.00	10.00

```
     Storage Coeff.  (min)=       0.96 (ii)    5.58 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.16
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.01          0.036 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.08           8.00
     RUNOFF VOLUME    (mm)=      81.47        35.02          64.73
     TOTAL RAINFALL   (mm)=      82.47        82.47          82.47
     RUNOFF COEFFICIENT   =       0.99         0.42           0.78

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0004)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0011):     0.48   0.099     8.00    41.49
      + ID2= 2 (  0013):     0.13   0.043     8.00    64.73
        ================================================
        ID = 3 (  0004):     0.61   0.141     8.00    46.44

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

--------------------
| ADD HYD  (  0004)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0004):     0.61   0.141     8.00    46.44
      + ID2= 2 (  0054):     0.11   0.036     8.00    64.73
        ================================================
        ID = 1 (  0004):     0.72   0.178     8.00    49.24

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0050)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000     0.0000   |   0.2390      0.0097
                           0.0390     0.0052   |   0.0000      0.0000
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0004)	0.720	0.178	8.00	49.24
OUTFLOW: ID= 1 (0050)	0.720	0.124	8.08	49.20

PEAK FLOW REDUCTION [Qout/Qin](%)= 69.88
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0077

CALIB STANDHYD (0006) ID= 1 DT= 5.0 min	Area (ha)= 0.07 Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	22.21	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78
0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68

1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52

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              6.000    1.80 |12.000    1.79 |18.000    0.79 | 24.00    0.52

     Max.Eff.Inten.(mm/hr)=     162.17        62.74
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.85 (ii)    4.19 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.24
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.00          0.029 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.00           8.00
     RUNOFF VOLUME    (mm)=      81.47        35.02          72.18
     TOTAL RAINFALL   (mm)=      82.47        82.47          82.47
     RUNOFF COEFFICIENT   =       0.99         0.42           0.88

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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 (  0008)|   Area    (ha)=   0.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.39         0.00
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      51.38        40.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    0.53 | 6.083    1.95 |12.083    1.73 | 18.08    0.78
              0.167    0.53 | 6.167    1.95 |12.167    1.73 | 18.17    0.78
              0.250    0.54 | 6.250    2.14 |12.250    1.67 | 18.25    0.77
              0.333    0.54 | 6.333    2.14 |12.333    1.67 | 18.33    0.77
              0.417    0.55 | 6.417    2.36 |12.417    1.61 | 18.42    0.76
              0.500    0.55 | 6.500    2.36 |12.500    1.61 | 18.50    0.76
              0.583    0.56 | 6.583    2.65 |12.583    1.56 | 18.58    0.75
              0.667    0.56 | 6.667    2.65 |12.667    1.56 | 18.67    0.75
              0.750    0.57 | 6.750    3.02 |12.750    1.51 | 18.75    0.74
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0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58
4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56

5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

			TOTALS
Max.Eff.Inten.(mm/hr)=	162.17	62.74	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.41 (ii)	2.34 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.33	0.30	
PEAK FLOW (cms)=	0.18	0.00	0.177 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	81.47	35.02	81.01
TOTAL RAINFALL (mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT =	0.99	0.42	0.98

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0048)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0006):	0.07	0.029	8.00	72.18	
+ ID2= 2 (0008):	0.40	0.177	8.00	81.01	
ID = 3 (0048):	0.47	0.207	8.00	79.62	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0030)|	
IN= 2---> OUT= 1	OVERFLOW IS OFF

DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1120	0.0061
	0.0210	0.0010	0.1220	0.0071
	0.0530	0.0020	0.1320	0.0081
	0.0730	0.0030	0.1400	0.0091
	0.0880	0.0041	0.1520	0.0105
	0.1000	0.0051	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0048)	0.470	0.207	8.00	79.62
OUTFLOW: ID= 1 (0030)	0.470	0.121	8.08	79.61

PEAK FLOW REDUCTION [Qout/Qin](%)= 58.61
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0079

ADD HYD (0046)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0030):	0.47	0.121	8.08	79.61
	+ ID2= 2 (0050):	0.72	0.124	8.08	49.20
	ID = 3 (0046):	1.19	0.245	8.08	61.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB STANDHYD (0014)	Area (ha)= 0.14	
ID= 1 DT= 5.0 min	Total Imp(%)= 71.00	Dir. Conn.(%)= 71.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.10	0.04
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	30.88	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.53	6.083	1.95	12.083	1.73	18.08	0.78

0.167	0.53	6.167	1.95	12.167	1.73	18.17	0.78
0.250	0.54	6.250	2.14	12.250	1.67	18.25	0.77
0.333	0.54	6.333	2.14	12.333	1.67	18.33	0.77
0.417	0.55	6.417	2.36	12.417	1.61	18.42	0.76
0.500	0.55	6.500	2.36	12.500	1.61	18.50	0.76
0.583	0.56	6.583	2.65	12.583	1.56	18.58	0.75
0.667	0.56	6.667	2.65	12.667	1.56	18.67	0.75
0.750	0.57	6.750	3.02	12.750	1.51	18.75	0.74
0.833	0.57	6.833	3.02	12.833	1.51	18.83	0.74
0.917	0.58	6.917	3.51	12.917	1.46	18.92	0.73
1.000	0.58	7.000	3.51	13.000	1.46	19.00	0.73
1.083	0.60	7.083	4.23	13.083	1.42	19.08	0.72
1.167	0.60	7.167	4.23	13.167	1.42	19.17	0.72
1.250	0.61	7.250	5.35	13.250	1.38	19.25	0.71
1.333	0.61	7.333	5.35	13.333	1.38	19.33	0.71
1.417	0.62	7.417	7.33	13.417	1.34	19.42	0.70
1.500	0.62	7.500	7.34	13.500	1.34	19.50	0.70
1.583	0.64	7.583	11.88	13.583	1.31	19.58	0.69
1.667	0.64	7.667	11.88	13.667	1.31	19.67	0.69
1.750	0.65	7.750	32.57	13.750	1.27	19.75	0.68
1.833	0.65	7.833	32.58	13.833	1.27	19.83	0.68
1.917	0.67	7.917	162.17	13.917	1.24	19.92	0.67
2.000	0.67	8.000	162.16	14.000	1.24	20.00	0.67
2.083	0.69	8.083	44.31	14.083	1.21	20.08	0.67
2.167	0.69	8.167	44.31	14.167	1.21	20.17	0.67
2.250	0.70	8.250	21.32	14.250	1.18	20.25	0.66
2.333	0.70	8.333	21.32	14.333	1.18	20.33	0.66
2.417	0.72	8.417	13.85	14.417	1.16	20.42	0.65
2.500	0.72	8.500	13.85	14.500	1.16	20.50	0.65
2.583	0.74	8.583	10.24	14.583	1.13	20.58	0.64
2.667	0.74	8.667	10.24	14.667	1.13	20.67	0.64
2.750	0.76	8.750	8.13	14.750	1.11	20.75	0.64
2.833	0.76	8.833	8.13	14.833	1.11	20.83	0.64
2.917	0.79	8.917	6.75	14.917	1.08	20.92	0.63
3.000	0.79	9.000	6.75	15.000	1.08	21.00	0.63
3.083	0.81	9.083	5.78	15.083	1.06	21.08	0.62
3.167	0.81	9.167	5.78	15.167	1.06	21.17	0.62
3.250	0.84	9.250	5.06	15.250	1.04	21.25	0.61
3.333	0.84	9.333	5.06	15.333	1.04	21.33	0.61
3.417	0.86	9.417	4.51	15.417	1.02	21.42	0.61
3.500	0.86	9.500	4.51	15.500	1.02	21.50	0.61
3.583	0.89	9.583	4.07	15.583	1.00	21.58	0.60
3.667	0.89	9.667	4.07	15.667	1.00	21.67	0.60
3.750	0.92	9.750	3.71	15.750	0.98	21.75	0.60
3.833	0.92	9.833	3.71	15.833	0.98	21.83	0.60
3.917	0.96	9.917	3.42	15.917	0.96	21.92	0.59
4.000	0.96	10.000	3.42	16.000	0.96	22.00	0.59
4.083	1.00	10.083	3.16	16.083	0.95	22.08	0.58
4.167	1.00	10.167	3.16	16.167	0.95	22.17	0.58
4.250	1.04	10.250	2.95	16.250	0.93	22.25	0.58

4.333	1.04	10.333	2.95	16.333	0.93	22.33	0.58
4.417	1.08	10.417	2.76	16.417	0.91	22.42	0.57
4.500	1.08	10.500	2.76	16.500	0.91	22.50	0.57
4.583	1.13	10.583	2.60	16.583	0.90	22.58	0.57
4.667	1.13	10.667	2.60	16.667	0.90	22.67	0.57
4.750	1.18	10.750	2.46	16.750	0.88	22.75	0.56
4.833	1.18	10.833	2.46	16.833	0.88	22.83	0.56
4.917	1.24	10.917	2.33	16.917	0.87	22.92	0.56
5.000	1.24	11.000	2.33	17.000	0.87	23.00	0.56
5.083	1.31	11.083	2.22	17.083	0.85	23.08	0.55
5.167	1.31	11.167	2.22	17.167	0.85	23.17	0.55
5.250	1.38	11.250	2.12	17.250	0.84	23.25	0.54
5.333	1.38	11.333	2.12	17.333	0.84	23.33	0.54
5.417	1.47	11.417	2.02	17.417	0.83	23.42	0.54
5.500	1.47	11.500	2.02	17.500	0.83	23.50	0.54
5.583	1.56	11.583	1.94	17.583	0.81	23.58	0.53
5.667	1.56	11.667	1.94	17.667	0.81	23.67	0.53
5.750	1.67	11.750	1.86	17.750	0.80	23.75	0.53
5.833	1.67	11.833	1.86	17.833	0.80	23.83	0.53
5.917	1.80	11.917	1.79	17.917	0.79	23.92	0.52
6.000	1.80	12.000	1.79	18.000	0.79	24.00	0.52

Max.Eff.Inten.(mm/hr)=	162.17	62.74	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.04 (ii)	5.11 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.34	0.16	
			TOTALS
PEAK FLOW (cms)=	0.05	0.01	0.051 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	81.47	35.02	67.99
TOTAL RAINFALL (mm)=	82.47	82.47	82.47
RUNOFF COEFFICIENT =	0.99	0.42	0.82

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0051)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0014):	0.14	0.051	8.00	67.99
+ ID2= 2 (0046):	1.19	0.245	8.08	61.21

```
        ==================================================
        ID = 3 (  0051):     1.33   0.265     8.00    61.94

     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 6.1.2003)
       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-New\VO2\voin.dat

  Output  filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\
d19d2f44-edef-4993-94d7-4ee9dafa550f\
  Summary filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\
d19d2f44-edef-4993-94d7-4ee9dafa550f\


DATE: 12/14/2021                          TIME: 09:53:06

USER:



COMMENTS: _____________________________________________________________


------------------------------------------------------------------------------
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  **********************************************
  ** SIMULATION : 2-yr 24hr                    **
  **********************************************
```

CHICAGO STORM	Ptotal= 48.69 mm

IDF curve parameters: A= 725.000
B= 4.800
C= 0.808
used in: INTENSITY = A / (t + B)^C

Duration of storm = 24.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.40	6.17	1.35	12.17	1.21	18.17	0.57
0.33	0.41	6.33	1.47	12.33	1.17	18.33	0.57
0.50	0.41	6.50	1.61	12.50	1.13	18.50	0.56
0.67	0.42	6.67	1.79	12.67	1.10	18.67	0.55
0.83	0.43	6.83	2.02	12.83	1.06	18.83	0.55
1.00	0.44	7.00	2.32	13.00	1.03	19.00	0.54
1.17	0.45	7.17	2.74	13.17	1.01	19.17	0.53
1.33	0.46	7.33	3.39	13.33	0.98	19.33	0.53
1.50	0.47	7.50	4.51	13.50	0.96	19.50	0.52
1.67	0.48	7.67	6.95	13.67	0.93	19.67	0.51
1.83	0.49	7.83	17.30	13.83	0.91	19.83	0.51
2.00	0.50	8.00	82.18	14.00	0.89	20.00	0.50
2.17	0.51	8.17	23.06	14.17	0.87	20.17	0.50
2.33	0.52	8.33	11.78	14.33	0.85	20.33	0.49
2.50	0.54	8.50	7.99	14.50	0.83	20.50	0.48
2.67	0.55	8.67	6.09	14.67	0.81	20.67	0.48
2.83	0.56	8.83	4.95	14.83	0.80	20.83	0.47
3.00	0.58	9.00	4.19	15.00	0.78	21.00	0.47
3.17	0.60	9.17	3.64	15.17	0.77	21.17	0.46
3.33	0.61	9.33	3.23	15.33	0.75	21.33	0.46
3.50	0.63	9.50	2.91	15.50	0.74	21.50	0.46
3.67	0.65	9.67	2.65	15.67	0.73	21.67	0.45
3.83	0.67	9.83	2.44	15.83	0.71	21.83	0.45
4.00	0.70	10.00	2.26	16.00	0.70	22.00	0.44
4.17	0.72	10.17	2.11	16.17	0.69	22.17	0.44
4.33	0.75	10.33	1.98	16.33	0.68	22.33	0.43
4.50	0.78	10.50	1.86	16.50	0.67	22.50	0.43
4.67	0.81	10.67	1.76	16.67	0.66	22.67	0.43
4.83	0.85	10.83	1.67	16.83	0.64	22.83	0.42
5.00	0.89	11.00	1.59	17.00	0.64	23.00	0.42
5.17	0.93	11.17	1.52	17.17	0.63	23.17	0.41
5.33	0.98	11.33	1.46	17.33	0.62	23.33	0.41
5.50	1.04	11.50	1.40	17.50	0.61	23.50	0.41
5.67	1.10	11.67	1.34	17.67	0.60	23.67	0.40
5.83	1.17	11.83	1.29	17.83	0.59	23.83	0.40
6.00	1.26	12.00	1.25	18.00	0.58	24.00	0.40

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| CALIB             |
| NASHYD   (  0003)|   Area    (ha)=   0.35   Curve Number   (CN)= 73.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.08

         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	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47

3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.017 (i)
TIME TO PEAK (hrs)= 8.000
RUNOFF VOLUME (mm)= 13.012
TOTAL RAINFALL (mm)= 48.688
RUNOFF COEFFICIENT = 0.267

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

CALIB

| STANDHYD (0009)| Area (ha)= 0.13
|ID= 1 DT= 5.0 min | Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47

2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)=	82.18	15.21	
over (min)	5.00	20.00	
Storage Coeff. (min)=	1.33 (ii)	16.32 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.33	0.06	
			TOTALS
PEAK FLOW (cms)=	0.02	0.00	0.019 (iii)
TIME TO PEAK (hrs)=	8.00	8.25	8.00
RUNOFF VOLUME (mm)=	47.69	13.87	35.48
TOTAL RAINFALL (mm)=	48.69	48.69	48.69
RUNOFF COEFFICIENT =	0.98	0.28	0.73

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0011)					
1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0003):		0.35	0.017	8.00	13.01
+ ID2= 2 (0009):		0.13	0.019	8.00	35.48
ID = 3 (0011):		0.48	0.036	8.00	19.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB STANDHYD (0013)	Area (ha)= 0.13		
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00	Dir. Conn.(%)= 64.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55

0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42

5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)=	82.18	15.21	
over (min)	5.00	20.00	
Storage Coeff. (min)=	1.33 (ii)	16.32 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.33	0.06	
			TOTALS
PEAK FLOW (cms)=	0.02	0.00	0.019 (iii)
TIME TO PEAK (hrs)=	8.00	8.25	8.00
RUNOFF VOLUME (mm)=	47.69	13.87	35.48
TOTAL RAINFALL (mm)=	48.69	48.69	48.69
RUNOFF COEFFICIENT =	0.98	0.28	0.73

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0054)
ID= 1 DT= 5.0 min

Area (ha)= 0.11
Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.04
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	27.08	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	' TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	' hrs	mm/hr	hrs	mm/hr
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44

4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)=	82.18	15.21	
over (min)	5.00	20.00	
Storage Coeff. (min)=	1.26 (ii)	16.25 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.33	0.06	
			TOTALS
PEAK FLOW (cms)=	0.02	0.00	0.016 (iii)
TIME TO PEAK (hrs)=	8.00	8.25	8.00
RUNOFF VOLUME (mm)=	47.69	13.87	35.48
TOTAL RAINFALL (mm)=	48.69	48.69	48.69
RUNOFF COEFFICIENT =	0.98	0.28	0.73

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0004)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.

```
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0011):     0.48   0.036     8.00    19.10
      + ID2= 2 (  0013):     0.13   0.019     8.00    35.48
        ================================================
        ID = 3 (  0004):     0.61   0.056     8.00    22.59

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0004)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0004):     0.61   0.056     8.00    22.59
      + ID2= 2 (  0054):     0.11   0.016     8.00    35.48
        ================================================
        ID = 1 (  0004):     0.72   0.072     8.00    24.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR(  0050)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000     0.0000   |   0.2390      0.0097
                           0.0390     0.0052   |   0.0000      0.0000

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0004)      0.720      0.072      8.00      24.56
   OUTFLOW: ID= 1 (  0050)      0.720      0.029      8.08      24.53

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 40.07
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0039

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--------------------
| CALIB            |
| STANDHYD (  0006)|   Area    (ha)=   0.07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.06         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      22.21        40.00
     Mannings n           =      0.013        0.250
```

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45

3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)=	82.18	18.96	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.12 (ii)	5.51 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.34	0.16	
			TOTALS
PEAK FLOW (cms)=	0.01	0.00	0.014 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	47.69	13.87	38.85
TOTAL RAINFALL (mm)=	48.69	48.69	48.69
RUNOFF COEFFICIENT =	0.98	0.28	0.80

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (  0008)|   Area    (ha)=   0.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
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                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.39         0.00
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      51.38        40.00
     Mannings n             =     0.013        0.250

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50
2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48

2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)=	82.18	18.96	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.85 (ii)	3.07 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.32	0.27	
			TOTALS
PEAK FLOW (cms)=	0.09	0.00	0.089 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	47.69	13.87	47.35

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     TOTAL RAINFALL   (mm)=      48.69        48.69          48.69
     RUNOFF COEFFICIENT   =       0.98         0.28           0.97

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0048)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0006):     0.07   0.014     8.00    38.85
      + ID2= 2 (  0008):     0.40   0.089     8.00    47.35
        ====================================================
        ID = 3 (  0048):     0.47   0.103     8.00    46.01

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| RESERVOIR(  0030)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.1120      0.0061
                          0.0210     0.0010   |   0.1220      0.0071
                          0.0530     0.0020   |   0.1320      0.0081
                          0.0730     0.0030   |   0.1400      0.0091
                          0.0880     0.0041   |   0.1520      0.0105
                          0.1000     0.0051   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0048)      0.470      0.103      8.00      46.01
   OUTFLOW: ID= 1 (  0030)      0.470      0.072      8.00      46.00

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 69.75
                  TIME SHIFT OF PEAK FLOW         (min)=  0.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0035

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| ADD HYD  (  0046)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
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		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0030):		0.47	0.072	8.00	46.00
+ ID2= 2 (0050):		0.72	0.029	8.08	24.53
ID = 3 (0046):		1.19	0.100	8.08	33.01

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB STANDHYD (0014) ID= 1 DT= 5.0 min	Area (ha)= 0.14 Total Imp(%)= 71.00 Dir. Conn.(%)= 71.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.10	0.04
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	30.88	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.40	6.083	1.35	12.083	1.21	18.08	0.57
0.167	0.40	6.167	1.35	12.167	1.21	18.17	0.57
0.250	0.41	6.250	1.47	12.250	1.17	18.25	0.57
0.333	0.41	6.333	1.47	12.333	1.17	18.33	0.57
0.417	0.41	6.417	1.61	12.417	1.13	18.42	0.56
0.500	0.41	6.500	1.61	12.500	1.13	18.50	0.56
0.583	0.42	6.583	1.79	12.583	1.10	18.58	0.55
0.667	0.42	6.667	1.79	12.667	1.10	18.67	0.55
0.750	0.43	6.750	2.02	12.750	1.06	18.75	0.55
0.833	0.43	6.833	2.02	12.833	1.06	18.83	0.55
0.917	0.44	6.917	2.32	12.917	1.03	18.92	0.54
1.000	0.44	7.000	2.32	13.000	1.03	19.00	0.54
1.083	0.45	7.083	2.74	13.083	1.01	19.08	0.53
1.167	0.45	7.167	2.74	13.167	1.01	19.17	0.53
1.250	0.46	7.250	3.39	13.250	0.98	19.25	0.53
1.333	0.46	7.333	3.39	13.333	0.98	19.33	0.53
1.417	0.47	7.417	4.51	13.417	0.96	19.42	0.52
1.500	0.47	7.500	4.51	13.500	0.96	19.50	0.52
1.583	0.48	7.583	6.95	13.583	0.93	19.58	0.51
1.667	0.48	7.667	6.95	13.667	0.93	19.67	0.51
1.750	0.49	7.750	17.30	13.750	0.91	19.75	0.51
1.833	0.49	7.833	17.31	13.833	0.91	19.83	0.51
1.917	0.50	7.917	82.18	13.917	0.89	19.92	0.50
2.000	0.50	8.000	82.18	14.000	0.89	20.00	0.50

2.083	0.51	8.083	23.06	14.083	0.87	20.08	0.50
2.167	0.51	8.167	23.06	14.167	0.87	20.17	0.50
2.250	0.52	8.250	11.78	14.250	0.85	20.25	0.49
2.333	0.52	8.333	11.78	14.333	0.85	20.33	0.49
2.417	0.54	8.417	7.99	14.417	0.83	20.42	0.48
2.500	0.54	8.500	7.99	14.500	0.83	20.50	0.48
2.583	0.55	8.583	6.09	14.583	0.81	20.58	0.48
2.667	0.55	8.667	6.09	14.667	0.81	20.67	0.48
2.750	0.56	8.750	4.95	14.750	0.80	20.75	0.47
2.833	0.56	8.833	4.95	14.833	0.80	20.83	0.47
2.917	0.58	8.917	4.19	14.917	0.78	20.92	0.47
3.000	0.58	9.000	4.19	15.000	0.78	21.00	0.47
3.083	0.60	9.083	3.64	15.083	0.77	21.08	0.46
3.167	0.60	9.167	3.64	15.167	0.77	21.17	0.46
3.250	0.61	9.250	3.23	15.250	0.75	21.25	0.46
3.333	0.61	9.333	3.23	15.333	0.75	21.33	0.46
3.417	0.63	9.417	2.91	15.417	0.74	21.42	0.46
3.500	0.63	9.500	2.91	15.500	0.74	21.50	0.46
3.583	0.65	9.583	2.65	15.583	0.73	21.58	0.45
3.667	0.65	9.667	2.65	15.667	0.73	21.67	0.45
3.750	0.67	9.750	2.44	15.750	0.71	21.75	0.45
3.833	0.67	9.833	2.44	15.833	0.71	21.83	0.45
3.917	0.70	9.917	2.26	15.917	0.70	21.92	0.44
4.000	0.70	10.000	2.26	16.000	0.70	22.00	0.44
4.083	0.72	10.083	2.11	16.083	0.69	22.08	0.44
4.167	0.72	10.167	2.11	16.167	0.69	22.17	0.44
4.250	0.75	10.250	1.98	16.250	0.68	22.25	0.43
4.333	0.75	10.333	1.98	16.333	0.68	22.33	0.43
4.417	0.78	10.417	1.86	16.417	0.67	22.42	0.43
4.500	0.78	10.500	1.86	16.500	0.67	22.50	0.43
4.583	0.81	10.583	1.76	16.583	0.66	22.58	0.43
4.667	0.81	10.667	1.76	16.667	0.66	22.67	0.43
4.750	0.85	10.750	1.67	16.750	0.64	22.75	0.42
4.833	0.85	10.833	1.67	16.833	0.64	22.83	0.42
4.917	0.89	10.917	1.59	16.917	0.64	22.92	0.42
5.000	0.89	11.000	1.59	17.000	0.64	23.00	0.42
5.083	0.93	11.083	1.52	17.083	0.63	23.08	0.41
5.167	0.93	11.167	1.52	17.167	0.63	23.17	0.41
5.250	0.98	11.250	1.46	17.250	0.62	23.25	0.41
5.333	0.98	11.333	1.46	17.333	0.62	23.33	0.41
5.417	1.04	11.417	1.40	17.417	0.61	23.42	0.41
5.500	1.04	11.500	1.40	17.500	0.61	23.50	0.41
5.583	1.10	11.583	1.34	17.583	0.60	23.58	0.40
5.667	1.10	11.667	1.34	17.667	0.60	23.67	0.40
5.750	1.17	11.750	1.29	17.750	0.59	23.75	0.40
5.833	1.17	11.833	1.29	17.833	0.59	23.83	0.40
5.917	1.26	11.917	1.25	17.917	0.58	23.92	0.40
6.000	1.26	12.000	1.25	18.000	0.58	24.00	0.40

Max.Eff.Inten.(mm/hr)= 82.18 15.21

```
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       1.37 (ii)   16.36 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.33         0.06
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.02         0.00          0.024 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.25           8.00
     RUNOFF VOLUME    (mm)=      47.69        13.87          37.86
     TOTAL RAINFALL   (mm)=      48.69        48.69          48.69
     RUNOFF COEFFICIENT   =       0.98         0.28           0.78

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0051)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0014):     0.14   0.024     8.00    37.86
     + ID2= 2 (  0046):     1.19   0.100     8.08    33.01
       ================================================
       ID = 3 (  0051):     1.33   0.119     8.00    33.53

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

       V    V   I    SSSSS  U   U    A    L              (v 6.1.2003)
       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-New\VO2\voin.dat

Output filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\960d0bbc-ac6d-4129-8664-a993e6a37f5a\
Summary filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\960d0bbc-ac6d-4129-8664-a993e6a37f5a\

DATE: 12/14/2021 TIME: 09:53:04

USER:

COMMENTS: _____

** SIMULATION : 50-yr 24hr **

CHICAGO STORM
Ptotal= 89.46 mm

IDF curve parameters: A=1960.000
B= 5.800
C= 0.861
used in: INTENSITY = A / (t + B)^C

Duration of storm = 24.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.54	6.17	2.03	12.17	1.79	18.17	0.80
0.33	0.55	6.33	2.22	12.33	1.72	18.33	0.78
0.50	0.56	6.50	2.46	12.50	1.66	18.50	0.77
0.67	0.57	6.67	2.76	12.67	1.61	18.67	0.76
0.83	0.58	6.83	3.16	12.83	1.56	18.83	0.75
1.00	0.59	7.00	3.69	13.00	1.51	19.00	0.74
1.17	0.61	7.17	4.47	13.17	1.46	19.17	0.73
1.33	0.62	7.33	5.68	13.33	1.42	19.33	0.72
1.50	0.63	7.50	7.86	13.50	1.38	19.50	0.71
1.67	0.65	7.67	12.90	13.67	1.35	19.67	0.70

1.83	0.67	7.83	36.22	13.83	1.31	19.83	0.70
2.00	0.68	8.00	182.06	14.00	1.28	20.00	0.69
2.17	0.70	8.17	49.51	14.17	1.25	20.17	0.68
2.33	0.72	8.33	23.49	14.33	1.22	20.33	0.67
2.50	0.74	8.50	15.09	14.50	1.19	20.50	0.66
2.67	0.76	8.67	11.06	14.67	1.16	20.67	0.65
2.83	0.78	8.83	8.73	14.83	1.14	20.83	0.65
3.00	0.80	9.00	7.21	15.00	1.11	21.00	0.64
3.17	0.83	9.17	6.15	15.17	1.09	21.17	0.63
3.33	0.85	9.33	5.37	15.33	1.07	21.33	0.63
3.50	0.88	9.50	4.77	15.50	1.04	21.50	0.62
3.67	0.91	9.67	4.29	15.67	1.02	21.67	0.61
3.83	0.95	9.83	3.91	15.83	1.00	21.83	0.61
4.00	0.98	10.00	3.59	16.00	0.99	22.00	0.60
4.17	1.02	10.17	3.32	16.17	0.97	22.17	0.59
4.33	1.06	10.33	3.09	16.33	0.95	22.33	0.59
4.50	1.11	10.50	2.89	16.50	0.93	22.50	0.58
4.67	1.16	10.67	2.72	16.67	0.92	22.67	0.57
4.83	1.22	10.83	2.56	16.83	0.90	22.83	0.57
5.00	1.28	11.00	2.43	17.00	0.89	23.00	0.56
5.17	1.35	11.17	2.31	17.17	0.87	23.17	0.56
5.33	1.42	11.33	2.20	17.33	0.86	23.33	0.55
5.50	1.51	11.50	2.10	17.50	0.85	23.50	0.55
5.67	1.61	11.67	2.01	17.67	0.83	23.67	0.54
5.83	1.73	11.83	1.93	17.83	0.82	23.83	0.54
6.00	1.87	12.00	1.85	18.00	0.81	24.00	0.53

CALIB			
NASHYD (0003)	Area (ha)= 0.35	Curve Number (CN)= 73.0	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.08		

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	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75

0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56

5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.067 (i)
TIME TO PEAK (hrs)= 8.000
RUNOFF VOLUME (mm)= 37.516
TOTAL RAINFALL (mm)= 89.457
RUNOFF COEFFICIENT = 0.419

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

CALIB
STANDHYD (0009)
ID= 1 DT= 5.0 min

Area (ha)= 0.13
Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76

0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57

4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)=	182.06	75.28		
over (min)	5.00	10.00		
Storage Coeff. (min)=	0.97 (ii)	5.38 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.34	0.16		
			TOTALS	
PEAK FLOW (cms)=	0.04	0.01	0.049 (iii)	
TIME TO PEAK (hrs)=	8.00	8.08	8.00	
RUNOFF VOLUME (mm)=	88.46	39.98	70.99	
TOTAL RAINFALL (mm)=	89.46	89.46	89.46	
RUNOFF COEFFICIENT =	0.99	0.45	0.79	

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0011)					
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0003):		0.35	0.067	8.00	37.52
+ ID2= 2 (0009):		0.13	0.049	8.00	70.99
ID = 3 (0011):		0.48	0.115	8.00	46.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
STANDHYD (0013)	Area (ha)= 0.13
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65

2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)=	182.06	75.28	
over (min)	5.00	10.00	
Storage Coeff. (min)=	0.97 (ii)	5.38 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.34	0.16	
			TOTALS
PEAK FLOW (cms)=	0.04	0.01	0.049 (iii)
TIME TO PEAK (hrs)=	8.00	8.08	8.00
RUNOFF VOLUME (mm)=	88.46	39.98	70.99
TOTAL RAINFALL (mm)=	89.46	89.46	89.46

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     RUNOFF COEFFICIENT   =       0.99         0.45           0.79

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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 (  0054)|   Area    (ha)=   0.11
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.04
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      27.08        40.00
     Mannings n             =     0.013        0.250

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70

1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53

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               6.000    1.87 |12.000    1.85 |18.000    0.81 | 24.00    0.53

     Max.Eff.Inten.(mm/hr)=     182.06        75.28
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       0.92 (ii)    5.33 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.16
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.04         0.01          0.041 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.08           8.00
     RUNOFF VOLUME    (mm)=      88.46        39.98          70.99
     TOTAL RAINFALL   (mm)=      89.46        89.46          89.46
     RUNOFF COEFFICIENT   =       0.99         0.45           0.79

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0004)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0011):     0.48   0.115     8.00    46.58
      + ID2= 2 (  0013):     0.13   0.049     8.00    70.99
        ================================================
        ID = 3 (  0004):     0.61   0.164     8.00    51.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0004)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0004):     0.61   0.164     8.00    51.78
      + ID2= 2 (  0054):     0.11   0.041     8.00    70.99
        ================================================
        ID = 1 (  0004):     0.72   0.205     8.00    54.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| RESERVOIR(  0050)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
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DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2390	0.0097
	0.0390	0.0052	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0004)	0.720	0.205	8.00	54.72
OUTFLOW: ID= 1 (0050)	0.720	0.147	8.08	54.68

PEAK FLOW REDUCTION [Qout/Qin](%)= 71.62
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0084

CALIB STANDHYD (0006) ID= 1 DT= 5.0 min	Area (ha)= 0.07 Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	22.21	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71

1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54

5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

			TOTALS
Max.Eff.Inten.(mm/hr)=	182.06	75.28	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.82 (ii)	4.00 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.24	
PEAK FLOW (cms)=	0.03	0.00	0.033 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	88.46	39.98	78.76
TOTAL RAINFALL (mm)=	89.46	89.46	89.46
RUNOFF COEFFICIENT =	0.99	0.45	0.88

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0008)	Area (ha)= 0.40
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.39	0.00
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	51.38	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77

0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60
4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57

4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)=	182.06	75.28	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.35 (ii)	2.23 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.33	0.30	
			TOTALS
PEAK FLOW (cms)=	0.20	0.00	0.199 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	88.46	39.98	87.97
TOTAL RAINFALL (mm)=	89.46	89.46	89.46
RUNOFF COEFFICIENT =	0.99	0.45	0.98

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0048)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0006):	0.07	0.033	8.00	78.76
+ ID2= 2 (0008):	0.40	0.199	8.00	87.97
ID = 3 (0048):	0.47	0.232	8.00	86.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| RESERVOIR(  0030)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.1120      0.0061
                          0.0210     0.0010    |   0.1220      0.0071
                          0.0530     0.0020    |   0.1320      0.0081
                          0.0730     0.0030    |   0.1400      0.0091
                          0.0880     0.0041    |   0.1520      0.0105
                          0.1000     0.0051    |   0.0000      0.0000

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0048)      0.470      0.232      8.00      86.52
   OUTFLOW: ID= 1 (  0030)      0.470      0.132      8.08      86.51

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 56.93
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0091

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| ADD HYD  (  0046)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0030):     0.47   0.132     8.08    86.51
     + ID2= 2 (  0050):     0.72   0.147     8.08    54.68
       ================================================
       ID = 3 (  0046):     1.19   0.279     8.08    67.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| CALIB            |
| STANDHYD (  0014)|   Area    (ha)=   0.14
|ID= 1 DT= 5.0 min |   Total Imp(%)=  71.00   Dir. Conn.(%)=  71.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.10         0.04
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      30.88        40.00
     Mannings n           =      0.013        0.250

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	' TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.54	6.083	2.03	12.083	1.79	18.08	0.80
0.167	0.54	6.167	2.03	12.167	1.79	18.17	0.80
0.250	0.55	6.250	2.22	12.250	1.72	18.25	0.78
0.333	0.55	6.333	2.22	12.333	1.72	18.33	0.78
0.417	0.56	6.417	2.46	12.417	1.66	18.42	0.77
0.500	0.56	6.500	2.46	12.500	1.66	18.50	0.77
0.583	0.57	6.583	2.76	12.583	1.61	18.58	0.76
0.667	0.57	6.667	2.76	12.667	1.61	18.67	0.76
0.750	0.58	6.750	3.16	12.750	1.56	18.75	0.75
0.833	0.58	6.833	3.16	12.833	1.56	18.83	0.75
0.917	0.59	6.917	3.69	12.917	1.51	18.92	0.74
1.000	0.59	7.000	3.69	13.000	1.51	19.00	0.74
1.083	0.61	7.083	4.47	13.083	1.46	19.08	0.73
1.167	0.61	7.167	4.47	13.167	1.46	19.17	0.73
1.250	0.62	7.250	5.68	13.250	1.42	19.25	0.72
1.333	0.62	7.333	5.68	13.333	1.42	19.33	0.72
1.417	0.63	7.417	7.86	13.417	1.38	19.42	0.71
1.500	0.63	7.500	7.86	13.500	1.38	19.50	0.71
1.583	0.65	7.583	12.90	13.583	1.35	19.58	0.70
1.667	0.65	7.667	12.90	13.667	1.35	19.67	0.70
1.750	0.67	7.750	36.22	13.750	1.31	19.75	0.70
1.833	0.67	7.833	36.23	13.833	1.31	19.83	0.70
1.917	0.68	7.917	182.06	13.917	1.28	19.92	0.69
2.000	0.68	8.000	182.05	14.000	1.28	20.00	0.69
2.083	0.70	8.083	49.51	14.083	1.25	20.08	0.68
2.167	0.70	8.167	49.51	14.167	1.25	20.17	0.68
2.250	0.72	8.250	23.49	14.250	1.22	20.25	0.67
2.333	0.72	8.333	23.49	14.333	1.22	20.33	0.67
2.417	0.74	8.417	15.09	14.417	1.19	20.42	0.66
2.500	0.74	8.500	15.09	14.500	1.19	20.50	0.66
2.583	0.76	8.583	11.06	14.583	1.16	20.58	0.65
2.667	0.76	8.667	11.06	14.667	1.16	20.67	0.65
2.750	0.78	8.750	8.73	14.750	1.14	20.75	0.65
2.833	0.78	8.833	8.73	14.833	1.14	20.83	0.65
2.917	0.80	8.917	7.21	14.917	1.11	20.92	0.64
3.000	0.80	9.000	7.21	15.000	1.11	21.00	0.64
3.083	0.83	9.083	6.15	15.083	1.09	21.08	0.63
3.167	0.83	9.167	6.15	15.167	1.09	21.17	0.63
3.250	0.85	9.250	5.37	15.250	1.07	21.25	0.63
3.333	0.85	9.333	5.37	15.333	1.07	21.33	0.63
3.417	0.88	9.417	4.77	15.417	1.04	21.42	0.62
3.500	0.88	9.500	4.77	15.500	1.04	21.50	0.62
3.583	0.91	9.583	4.29	15.583	1.02	21.58	0.61
3.667	0.91	9.667	4.29	15.667	1.02	21.67	0.61
3.750	0.95	9.750	3.91	15.750	1.00	21.75	0.61
3.833	0.95	9.833	3.91	15.833	1.00	21.83	0.61
3.917	0.98	9.917	3.59	15.917	0.99	21.92	0.60

4.000	0.98	10.000	3.59	16.000	0.99	22.00	0.60
4.083	1.02	10.083	3.32	16.083	0.97	22.08	0.59
4.167	1.02	10.167	3.32	16.167	0.97	22.17	0.59
4.250	1.06	10.250	3.09	16.250	0.95	22.25	0.59
4.333	1.06	10.333	3.09	16.333	0.95	22.33	0.59
4.417	1.11	10.417	2.89	16.417	0.93	22.42	0.58
4.500	1.11	10.500	2.89	16.500	0.93	22.50	0.58
4.583	1.16	10.583	2.72	16.583	0.92	22.58	0.57
4.667	1.16	10.667	2.72	16.667	0.92	22.67	0.57
4.750	1.22	10.750	2.56	16.750	0.90	22.75	0.57
4.833	1.22	10.833	2.56	16.833	0.90	22.83	0.57
4.917	1.28	10.917	2.43	16.917	0.89	22.92	0.56
5.000	1.28	11.000	2.43	17.000	0.89	23.00	0.56
5.083	1.35	11.083	2.31	17.083	0.87	23.08	0.56
5.167	1.35	11.167	2.31	17.167	0.87	23.17	0.56
5.250	1.42	11.250	2.20	17.250	0.86	23.25	0.55
5.333	1.42	11.333	2.20	17.333	0.86	23.33	0.55
5.417	1.51	11.417	2.10	17.417	0.85	23.42	0.55
5.500	1.51	11.500	2.10	17.500	0.85	23.50	0.55
5.583	1.61	11.583	2.01	17.583	0.83	23.58	0.54
5.667	1.61	11.667	2.01	17.667	0.83	23.67	0.54
5.750	1.73	11.750	1.93	17.750	0.82	23.75	0.54
5.833	1.73	11.833	1.93	17.833	0.82	23.83	0.54
5.917	1.87	11.917	1.85	17.917	0.81	23.92	0.53
6.000	1.87	12.000	1.85	18.000	0.81	24.00	0.53

Max.Eff.Inten.(mm/hr)=	182.06	75.28	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.99 (ii)	4.88 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.22	
			TOTALS
PEAK FLOW (cms)=	0.05	0.01	0.060 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	88.46	39.98	74.39
TOTAL RAINFALL (mm)=	89.46	89.46	89.46
RUNOFF COEFFICIENT =	0.99	0.45	0.83

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0051)|

```
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0014):     0.14   0.060     8.00    74.39
      + ID2= 2 (  0046):     1.19   0.279     8.08    67.25
        ====================================================
        ID = 3 (  0051):     1.33   0.314     8.00    68.02

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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       V    V   I    SSSSS  U   U    A    L              (v 6.1.2003)
       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-New\VO2\voin.dat

  Output  filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\
d89de411-e61e-43ab-b347-9e0727469958\
  Summary filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\
d89de411-e61e-43ab-b347-9e0727469958\


DATE: 12/14/2021                          TIME: 09:53:06

USER:



COMMENTS: _____________________________________________________________

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  ***********************************************
  ** SIMULATION : 5-yr 24hr                     **
  ***********************************************

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| CHICAGO STORM    |    IDF curve parameters: A=1170.000
| Ptotal= 60.87 mm |                          B=   5.800
--------------------                          C=   0.843
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  = 24.00 hrs
                         Storm time step    = 10.00 min
                         Time to peak ratio =  0.33
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.41	6.17	1.50	12.17	1.32	18.17	0.60
0.33	0.42	6.33	1.64	12.33	1.28	18.33	0.59
0.50	0.43	6.50	1.81	12.50	1.24	18.50	0.59
0.67	0.44	6.67	2.02	12.67	1.20	18.67	0.58
0.83	0.44	6.83	2.30	12.83	1.16	18.83	0.57
1.00	0.45	7.00	2.68	13.00	1.13	19.00	0.56
1.17	0.46	7.17	3.21	13.17	1.09	19.17	0.56
1.33	0.47	7.33	4.05	13.33	1.06	19.33	0.55
1.50	0.48	7.50	5.53	13.50	1.03	19.50	0.54
1.67	0.50	7.67	8.89	13.67	1.01	19.67	0.54
1.83	0.51	7.83	23.90	13.83	0.98	19.83	0.53
2.00	0.52	8.00	114.21	14.00	0.96	20.00	0.52
2.17	0.53	8.17	32.36	14.17	0.93	20.17	0.52
2.33	0.55	8.33	15.80	14.33	0.91	20.33	0.51
2.50	0.56	8.50	10.34	14.50	0.89	20.50	0.50
2.67	0.58	8.67	7.68	14.67	0.87	20.67	0.50
2.83	0.59	8.83	6.11	14.83	0.85	20.83	0.49
3.00	0.61	9.00	5.09	15.00	0.84	21.00	0.49
3.17	0.63	9.17	4.37	15.17	0.82	21.17	0.48
3.33	0.65	9.33	3.83	15.33	0.80	21.33	0.48
3.50	0.67	9.50	3.42	15.50	0.79	21.50	0.47
3.67	0.69	9.67	3.09	15.67	0.77	21.67	0.47
3.83	0.71	9.83	2.82	15.83	0.76	21.83	0.46
4.00	0.74	10.00	2.60	16.00	0.74	22.00	0.46
4.17	0.77	10.17	2.41	16.17	0.73	22.17	0.45
4.33	0.80	10.33	2.25	16.33	0.72	22.33	0.45
4.50	0.83	10.50	2.11	16.50	0.71	22.50	0.44
4.67	0.87	10.67	1.99	16.67	0.69	22.67	0.44
4.83	0.91	10.83	1.88	16.83	0.68	22.83	0.44
5.00	0.96	11.00	1.78	17.00	0.67	23.00	0.43
5.17	1.01	11.17	1.70	17.17	0.66	23.17	0.43
5.33	1.06	11.33	1.62	17.33	0.65	23.33	0.42
5.50	1.13	11.50	1.55	17.50	0.64	23.50	0.42

5.67	1.20	11.67	1.49	17.67	0.63	23.67	0.42
5.83	1.28	11.83	1.43	17.83	0.62	23.83	0.41
6.00	1.38	12.00	1.37	18.00	0.61	24.00	0.41

CALIB			
NASHYD (0003)	Area (ha)=	0.35	Curve Number (CN)= 73.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.08	

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	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50

2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.030 (i)
TIME TO PEAK (hrs)= 8.000
RUNOFF VOLUME (mm)= 19.552
TOTAL RAINFALL (mm)= 60.873
RUNOFF COEFFICIENT = 0.321

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

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| CALIB            |
| STANDHYD (  0009)|   Area    (ha)=   0.13
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.08         0.05
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      29.44        40.00
     Mannings n           =      0.013        0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50

2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)=	114.21	26.93	
over (min)	5.00	15.00	
Storage Coeff. (min)=	1.16 (ii)	13.09 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.34	0.08	
			TOTALS
PEAK FLOW (cms)=	0.03	0.00	0.028 (iii)

```
     TIME TO PEAK    (hrs)=       8.00         8.17          8.00
     RUNOFF VOLUME    (mm)=      59.87        20.84         45.80
     TOTAL RAINFALL   (mm)=      60.87        60.87         60.87
     RUNOFF COEFFICIENT   =       0.98         0.34          0.75

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0011)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0003):     0.35   0.030     8.00    19.55
      + ID2= 2 (  0009):     0.13   0.028     8.00    45.80
        ================================================
        ID = 3 (  0011):     0.48   0.058     8.00    26.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| CALIB            |
| STANDHYD (  0013)|   Area    (ha)=   0.13
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.08         0.05
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      29.44        40.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    0.41 | 6.083    1.50 |12.083    1.32 | 18.08    0.60
              0.167    0.41 | 6.167    1.50 |12.167    1.32 | 18.17    0.60
              0.250    0.42 | 6.250    1.64 |12.250    1.28 | 18.25    0.59
              0.333    0.42 | 6.333    1.64 |12.333    1.28 | 18.33    0.59
              0.417    0.43 | 6.417    1.81 |12.417    1.24 | 18.42    0.59
              0.500    0.43 | 6.500    1.81 |12.500    1.24 | 18.50    0.59
```

0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44

4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)=	114.21	26.93	
over (min)	5.00	15.00	
Storage Coeff. (min)=	1.16 (ii)	13.09 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.34	0.08	
			TOTALS
PEAK FLOW (cms)=	0.03	0.00	0.028 (iii)
TIME TO PEAK (hrs)=	8.00	8.17	8.00
RUNOFF VOLUME (mm)=	59.87	20.84	45.80
TOTAL RAINFALL (mm)=	60.87	60.87	60.87
RUNOFF COEFFICIENT =	0.98	0.34	0.75

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0054)
ID= 1 DT= 5.0 min

Area (ha)= 0.11
Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.07	0.04
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	27.08	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47

3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)=	114.21	26.93	
over (min)	5.00	15.00	
Storage Coeff. (min)=	1.11 (ii)	13.03 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.34	0.08	
			TOTALS
PEAK FLOW (cms)=	0.02	0.00	0.023 (iii)
TIME TO PEAK (hrs)=	8.00	8.17	8.00
RUNOFF VOLUME (mm)=	59.87	20.84	45.80
TOTAL RAINFALL (mm)=	60.87	60.87	60.87
RUNOFF COEFFICIENT =	0.98	0.34	0.75

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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  (  0004)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0011):     0.48   0.058     8.00    26.66
      + ID2= 2 (  0013):     0.13   0.028     8.00    45.80
        ================================================
        ID = 3 (  0004):     0.61   0.085     8.00    30.74

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

--------------------
| ADD HYD  (  0004)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0004):     0.61   0.085     8.00    30.74
      + ID2= 2 (  0054):     0.11   0.023     8.00    45.80
        ================================================
        ID = 1 (  0004):     0.72   0.108     8.00    33.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0050)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2390      0.0097
                          0.0390     0.0052   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0004)      0.720      0.108      8.00      33.04
   OUTFLOW: ID= 1 (  0050)      0.720      0.055      8.08      33.00

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 50.82
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0057

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0006)|   Area    (ha)=   0.07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.06         0.01
     Dep. Storage     (mm)=       1.00         5.00
```

Average Slope	(%)=	1.00	2.00
Length	(m)=	22.21	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48

3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)=	114.21	33.64	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.98 (ii)	4.83 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.22	
			TOTALS
PEAK FLOW (cms)=	0.02	0.00	0.020 (iii)
TIME TO PEAK (hrs)=	8.00	8.00	8.00
RUNOFF VOLUME (mm)=	59.87	20.84	50.30
TOTAL RAINFALL (mm)=	60.87	60.87	60.87
RUNOFF COEFFICIENT =	0.98	0.34	0.83

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0008)	Area (ha)= 0.40
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.39	0.00
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	51.38	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.41	6.083	1.50	12.083	1.32	18.08	0.60
0.167	0.41	6.167	1.50	12.167	1.32	18.17	0.60
0.250	0.42	6.250	1.64	12.250	1.28	18.25	0.59
0.333	0.42	6.333	1.64	12.333	1.28	18.33	0.59
0.417	0.43	6.417	1.81	12.417	1.24	18.42	0.59
0.500	0.43	6.500	1.81	12.500	1.24	18.50	0.59
0.583	0.44	6.583	2.02	12.583	1.20	18.58	0.58
0.667	0.44	6.667	2.02	12.667	1.20	18.67	0.58
0.750	0.44	6.750	2.30	12.750	1.16	18.75	0.57
0.833	0.44	6.833	2.30	12.833	1.16	18.83	0.57
0.917	0.45	6.917	2.68	12.917	1.13	18.92	0.56
1.000	0.45	7.000	2.68	13.000	1.13	19.00	0.56
1.083	0.46	7.083	3.21	13.083	1.09	19.08	0.56
1.167	0.46	7.167	3.21	13.167	1.09	19.17	0.56
1.250	0.47	7.250	4.05	13.250	1.06	19.25	0.55
1.333	0.47	7.333	4.05	13.333	1.06	19.33	0.55
1.417	0.48	7.417	5.53	13.417	1.03	19.42	0.54
1.500	0.48	7.500	5.53	13.500	1.03	19.50	0.54
1.583	0.50	7.583	8.89	13.583	1.01	19.58	0.54
1.667	0.50	7.667	8.89	13.667	1.01	19.67	0.54
1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51

2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41
5.917	1.38	11.917	1.37	17.917	0.61	23.92	0.41
6.000	1.38	12.000	1.37	18.000	0.61	24.00	0.41

Max.Eff.Inten.(mm/hr)=	114.21	33.64
over (min)	5.00	5.00
Storage Coeff. (min)=	1.62 (ii)	2.69 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.32	0.29

```
                                                                  *TOTALS*
     PEAK FLOW       (cms)=       0.12         0.00          0.125 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.00           8.00
     RUNOFF VOLUME    (mm)=      59.87        20.84          59.48
     TOTAL RAINFALL   (mm)=      60.87        60.87          60.87
     RUNOFF COEFFICIENT   =       0.98         0.34           0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0048)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0006):     0.07   0.020     8.00    50.30
      + ID2= 2 (  0008):     0.40   0.125     8.00    59.48
        ================================================
        ID = 3 (  0048):     0.47   0.145     8.00    58.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0030)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.1120      0.0061
                          0.0210     0.0010   |   0.1220      0.0071
                          0.0530     0.0020   |   0.1320      0.0081
                          0.0730     0.0030   |   0.1400      0.0091
                          0.0880     0.0041   |   0.1520      0.0105
                          0.1000     0.0051   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0048)      0.470      0.145      8.00      58.04
   OUTFLOW: ID= 1 (  0030)      0.470      0.093      8.08      58.02

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 64.02
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0052

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--------------------
| ADD HYD  (  0046)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0030):     0.47   0.093     8.08    58.02
      + ID2= 2 (  0050):     0.72   0.055     8.08    33.00
        ================================================
        ID = 3 (  0046):     1.19   0.148     8.08    42.88

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0014)|   Area    (ha)=   0.14
|ID= 1 DT= 5.0 min |   Total Imp(%)=  71.00   Dir. Conn.(%)=  71.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.10         0.04
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      30.88        40.00
     Mannings n             =     0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.41 | 6.083    1.50 |12.083    1.32 | 18.08    0.60
 0.167    0.41 | 6.167    1.50 |12.167    1.32 | 18.17    0.60
 0.250    0.42 | 6.250    1.64 |12.250    1.28 | 18.25    0.59
 0.333    0.42 | 6.333    1.64 |12.333    1.28 | 18.33    0.59
 0.417    0.43 | 6.417    1.81 |12.417    1.24 | 18.42    0.59
 0.500    0.43 | 6.500    1.81 |12.500    1.24 | 18.50    0.59
 0.583    0.44 | 6.583    2.02 |12.583    1.20 | 18.58    0.58
 0.667    0.44 | 6.667    2.02 |12.667    1.20 | 18.67    0.58
 0.750    0.44 | 6.750    2.30 |12.750    1.16 | 18.75    0.57
 0.833    0.44 | 6.833    2.30 |12.833    1.16 | 18.83    0.57
 0.917    0.45 | 6.917    2.68 |12.917    1.13 | 18.92    0.56
 1.000    0.45 | 7.000    2.68 |13.000    1.13 | 19.00    0.56
 1.083    0.46 | 7.083    3.21 |13.083    1.09 | 19.08    0.56
 1.167    0.46 | 7.167    3.21 |13.167    1.09 | 19.17    0.56
 1.250    0.47 | 7.250    4.05 |13.250    1.06 | 19.25    0.55
 1.333    0.47 | 7.333    4.05 |13.333    1.06 | 19.33    0.55
 1.417    0.48 | 7.417    5.53 |13.417    1.03 | 19.42    0.54
 1.500    0.48 | 7.500    5.53 |13.500    1.03 | 19.50    0.54
 1.583    0.50 | 7.583    8.89 |13.583    1.01 | 19.58    0.54
 1.667    0.50 | 7.667    8.89 |13.667    1.01 | 19.67    0.54
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1.750	0.51	7.750	23.90	13.750	0.98	19.75	0.53
1.833	0.51	7.833	23.91	13.833	0.98	19.83	0.53
1.917	0.52	7.917	114.21	13.917	0.96	19.92	0.52
2.000	0.52	8.000	114.21	14.000	0.96	20.00	0.52
2.083	0.53	8.083	32.36	14.083	0.93	20.08	0.52
2.167	0.53	8.167	32.35	14.167	0.93	20.17	0.52
2.250	0.55	8.250	15.80	14.250	0.91	20.25	0.51
2.333	0.55	8.333	15.80	14.333	0.91	20.33	0.51
2.417	0.56	8.417	10.34	14.417	0.89	20.42	0.50
2.500	0.56	8.500	10.34	14.500	0.89	20.50	0.50
2.583	0.58	8.583	7.68	14.583	0.87	20.58	0.50
2.667	0.58	8.667	7.68	14.667	0.87	20.67	0.50
2.750	0.59	8.750	6.11	14.750	0.85	20.75	0.49
2.833	0.59	8.833	6.11	14.833	0.85	20.83	0.49
2.917	0.61	8.917	5.09	14.917	0.84	20.92	0.49
3.000	0.61	9.000	5.09	15.000	0.84	21.00	0.49
3.083	0.63	9.083	4.37	15.083	0.82	21.08	0.48
3.167	0.63	9.167	4.37	15.167	0.82	21.17	0.48
3.250	0.65	9.250	3.83	15.250	0.80	21.25	0.48
3.333	0.65	9.333	3.83	15.333	0.80	21.33	0.48
3.417	0.67	9.417	3.42	15.417	0.79	21.42	0.47
3.500	0.67	9.500	3.42	15.500	0.79	21.50	0.47
3.583	0.69	9.583	3.09	15.583	0.77	21.58	0.47
3.667	0.69	9.667	3.09	15.667	0.77	21.67	0.47
3.750	0.71	9.750	2.82	15.750	0.76	21.75	0.46
3.833	0.71	9.833	2.82	15.833	0.76	21.83	0.46
3.917	0.74	9.917	2.60	15.917	0.74	21.92	0.46
4.000	0.74	10.000	2.60	16.000	0.74	22.00	0.46
4.083	0.77	10.083	2.41	16.083	0.73	22.08	0.45
4.167	0.77	10.167	2.41	16.167	0.73	22.17	0.45
4.250	0.80	10.250	2.25	16.250	0.72	22.25	0.45
4.333	0.80	10.333	2.25	16.333	0.72	22.33	0.45
4.417	0.83	10.417	2.11	16.417	0.71	22.42	0.44
4.500	0.83	10.500	2.11	16.500	0.71	22.50	0.44
4.583	0.87	10.583	1.99	16.583	0.69	22.58	0.44
4.667	0.87	10.667	1.99	16.667	0.69	22.67	0.44
4.750	0.91	10.750	1.88	16.750	0.68	22.75	0.44
4.833	0.91	10.833	1.88	16.833	0.68	22.83	0.44
4.917	0.96	10.917	1.78	16.917	0.67	22.92	0.43
5.000	0.96	11.000	1.78	17.000	0.67	23.00	0.43
5.083	1.01	11.083	1.70	17.083	0.66	23.08	0.43
5.167	1.01	11.167	1.70	17.167	0.66	23.17	0.43
5.250	1.06	11.250	1.62	17.250	0.65	23.25	0.42
5.333	1.06	11.333	1.62	17.333	0.65	23.33	0.42
5.417	1.13	11.417	1.55	17.417	0.64	23.42	0.42
5.500	1.13	11.500	1.55	17.500	0.64	23.50	0.42
5.583	1.20	11.583	1.49	17.583	0.63	23.58	0.42
5.667	1.20	11.667	1.49	17.667	0.63	23.67	0.42
5.750	1.28	11.750	1.43	17.750	0.62	23.75	0.41
5.833	1.28	11.833	1.43	17.833	0.62	23.83	0.41

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               5.917    1.38 |11.917    1.37 |17.917    0.61 | 23.92    0.41
               6.000    1.38 |12.000    1.37 |18.000    0.61 | 24.00    0.41

     Max.Eff.Inten.(mm/hr)=     114.21        33.64
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.20 (ii)    5.87 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.33         0.15
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.00          0.035 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.08           8.00
     RUNOFF VOLUME    (mm)=      59.87        20.84          48.54
     TOTAL RAINFALL   (mm)=      60.87        60.87          60.87
     RUNOFF COEFFICIENT   =       0.98         0.34           0.80

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0051)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0014):     0.14   0.035     8.00    48.54
     + ID2= 2 (  0046):     1.19   0.148     8.08    42.88
       ================================================
       ID = 3 (  0051):     1.33   0.160     8.00    43.49

     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 6.1.2003)
       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-New\VO2\voin.dat

Output filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\43015b56-3c10-413d-9541-9270893d3778\
Summary filename:
C:\Users\jannaormond\AppData\Local\Civica\VH5\ce73c30e-2dd6-48d1-929f-7789757e4ffe\43015b56-3c10-413d-9541-9270893d3778\

DATE: 12/14/2021 TIME: 09:53:04

USER:

COMMENTS: _____

****
** SIMULATION : Hazel **
****

READ STORM	Filename: C:\Users\jannaormond\AppData\Local\Temp\7a326ecd-b610-4358-a602-a321bec6bdab\e59007f2
Ptotal=212.00 mm	Comments: Hazel

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
1.00	6.00	4.00	13.00	7.00	23.00	10.00	53.00
2.00	4.00	5.00	17.00	8.00	13.00	11.00	38.00
3.00	6.00	6.00	13.00	9.00	13.00	12.00	13.00

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--------------------
| CALIB            |
| NASHYD   (  0003)|   Area    (ha)=   0.35   Curve Number   (CN)= 73.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.08

         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	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 0.171

PEAK FLOW (cms)= 0.041 (i)
TIME TO PEAK (hrs)= 10.000
RUNOFF VOLUME (mm)= 133.601
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.630

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

CALIB	
STANDHYD (0009)	Area (ha)= 0.13
ID= 1 DT= 5.0 min	Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	29.44	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00

1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	45.24		
over (min)	5.00	15.00		
Storage Coeff. (min)=	1.58 (ii)	11.27 (ii)		
Unit Hyd. Tpeak (min)=	5.00	15.00		
Unit Hyd. peak (cms)=	0.33	0.09		
			TOTALS	
PEAK FLOW (cms)=	0.01	0.01	0.018 (iii)	
TIME TO PEAK (hrs)=	9.42	10.00	10.00	
RUNOFF VOLUME (mm)=	211.00	142.38	186.25	
TOTAL RAINFALL (mm)=	212.00	212.00	212.00	
RUNOFF COEFFICIENT =	1.00	0.67	0.88	

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0011)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0003):		0.35	0.041	10.00	133.60
+ ID2= 2 (0009):		0.13	0.018	10.00	186.25
ID = 3 (0011):		0.48	0.059	10.00	147.86

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0013)|   Area    (ha)=   0.13
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.08         0.05
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      29.44        40.00
     Mannings n             =     0.013        0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00

```
              2.750    6.00 | 5.750   13.00 | 8.750   13.00 | 11.75   13.00
              2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
              2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
              3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

     Max.Eff.Inten.(mm/hr)=      53.00        45.24
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       1.58 (ii)   11.27 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.01          0.018 (iii)
     TIME TO PEAK    (hrs)=       9.42        10.00          10.00
     RUNOFF VOLUME    (mm)=     211.00       142.38         186.25
     TOTAL RAINFALL   (mm)=     212.00       212.00         212.00
     RUNOFF COEFFICIENT   =       1.00         0.67           0.88

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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 (  0054)|   Area    (ha)=   0.11
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.04
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      27.08        40.00
     Mannings n             =     0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
              0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
              0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
              0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
              0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
              0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
```

0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	45.24	
over (min)	5.00	15.00	
Storage Coeff. (min)=	1.50 (ii)	11.20 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.33	0.09	
			TOTALS
PEAK FLOW (cms)=	0.01	0.00	0.015 (iii)
TIME TO PEAK (hrs)=	9.42	10.00	10.00
RUNOFF VOLUME (mm)=	211.00	142.38	186.25
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	1.00	0.67	0.88

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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  (  0004)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0011):     0.48   0.059    10.00   147.86
     + ID2= 2 (  0013):     0.13   0.018    10.00   186.25
       ================================================
       ID = 3 (  0004):     0.61   0.077    10.00   156.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ADD HYD  (  0004)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0004):     0.61   0.077    10.00   156.04
     + ID2= 2 (  0054):     0.11   0.015    10.00   186.25
       ================================================
       ID = 1 (  0004):     0.72   0.092    10.00   160.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR(  0050)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2390      0.0097
                          0.0390     0.0052   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0004)      0.720      0.092     10.00     160.66
   OUTFLOW: ID= 1 (  0050)      0.720      0.092     10.00     160.62

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 99.63
                  TIME SHIFT OF PEAK FLOW         (min)=  0.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0064

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--------------------
| CALIB            |
| STANDHYD (  0006)|   Area    (ha)=   0.07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
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Surface Area	(ha)=	0.06	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	22.21	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	45.24

over (min)	5.00	15.00		
Storage Coeff. (min)=	1.34 (ii)	11.03 (ii)		
Unit Hyd. Tpeak (min)=	5.00	15.00		
Unit Hyd. peak (cms)=	0.33	0.09		
			TOTALS	
PEAK FLOW (cms)=	0.01	0.00	0.011 (iii)	
TIME TO PEAK (hrs)=	9.33	10.00	10.00	
RUNOFF VOLUME (mm)=	211.00	142.38	197.18	
TOTAL RAINFALL (mm)=	212.00	212.00	212.00	
RUNOFF COEFFICIENT =	1.00	0.67	0.93	

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0008)
ID= 1 DT= 5.0 min

Area (ha)= 0.40
Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.39	0.00
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	51.38	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00

1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	45.24	
over (min)	5.00	5.00	
Storage Coeff. (min)=	2.21 (ii)	3.66 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.30	0.25	
			TOTALS
PEAK FLOW (cms)=	0.06	0.00	0.058 (iii)
TIME TO PEAK (hrs)=	9.58	10.00	10.00
RUNOFF VOLUME (mm)=	211.00	142.38	210.31
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	1.00	0.67	0.99

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.0 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 (0048)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.

```
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0006):     0.07   0.011    10.00   197.18
      + ID2= 2 (  0008):     0.40   0.058    10.00   210.31
        ================================================
        ID = 3 (  0048):     0.47   0.069    10.00   208.24

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0030)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000     0.0000   |   0.1120      0.0061
                           0.0210     0.0010   |   0.1220      0.0071
                           0.0530     0.0020   |   0.1320      0.0081
                           0.0730     0.0030   |   0.1400      0.0091
                           0.0880     0.0041   |   0.1520      0.0105
                           0.1000     0.0051   |   0.0000      0.0000

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0048)      0.470      0.069     10.00     208.24
   OUTFLOW: ID= 1 (  0030)      0.470      0.069     10.00     208.23

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 99.87
                  TIME SHIFT OF PEAK FLOW         (min)=  0.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0028

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--------------------
| ADD HYD  (  0046)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0030):     0.47   0.069    10.00   208.23
      + ID2= 2 (  0050):     0.72   0.092    10.00   160.62
        ================================================
        ID = 3 (  0046):     1.19   0.161    10.00   179.43

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0014)|   Area    (ha)=   0.14
|ID= 1 DT= 5.0 min |   Total Imp(%)=  71.00   Dir. Conn.(%)=  71.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.10         0.04
     Dep. Storage     (mm)=       1.00         5.00
```

Average Slope	(%)=	1.00	2.00
Length	(m)=	30.88	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=		53.00	45.24
over (min)		5.00	15.00
Storage Coeff. (min)=		1.63 (ii)	11.32 (ii)

```
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.32         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.01          0.020 (iii)
     TIME TO PEAK    (hrs)=       9.42        10.00          10.00
     RUNOFF VOLUME    (mm)=     211.00       142.38         191.06
     TOTAL RAINFALL   (mm)=     212.00       212.00         212.00
     RUNOFF COEFFICIENT   =       1.00         0.67           0.90

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  73.0    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  (  0051)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0014):     0.14   0.020    10.00   191.06
      + ID2= 2 (  0046):     1.19   0.161    10.00   179.43
        ================================================
        ID = 3 (  0051):     1.33   0.181    10.00   180.67

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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URBANTECH®

STORM SEWER DESIGN SHEET

5 Year Storm

Eaglewood

Town of Oakville

PROJECT DETAILS

Project No: 21-272
Date: 14-Dec-21
Designed by: E.L.
Checked by: S.H.

DESIGN CRITERIA

Min. Diameter =	300	mm	Rainfall Intensity =	A / (Tc+B)^c
Mannings 'n'=	0.013			
Starting Tc =	10	min	A =	1170
			B =	5.8
Factor of Safety =	5	%	c =	0.843

NOMINAL PIPE SIZE USED

STREET	FROM MH	TO MH	AREA (ha)	RUNOFF COEFFICIENT "R"	'AR'	ACCUM. 'AR'	RAINFALL INTENSITY (mm/hr)	FLOW (m^3/s)	CONSTANT FLOW (m^3/s)	ACCUM. CONSTANT FLOW (m^3/s)	TOTAL FLOW (m^3/s)	LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m^3/s)	FULL FLOW VELOCITY (m/s)	INITIAL Tc (min)	TIME OF CONCENTRATION (min)	ACC. TIME OF CONCENTRATION (min)	PERCENT FULL (%)
BRONTE RD	EX MH31	EX MH37	0.48	0.65	0.31	0.31	114.2	0.099			0.099	100.1	0.65	375	0.141	1.28	10.00	1.30	11.30	70%
BRONTE RD	EX MH37	27	0.47	0.65	0.31	0.62	106.8	0.183			0.183	54.1	0.65	450	0.230	1.45	11.30	0.62	11.93	80%
EXT		22	0.35	0.25	0.09	0.09														
STREET D	22	23	0.07	0.65	0.05	0.05	114.2	0.014			0.014	57.2	1.00	300	0.097	1.37	10.00	0.70	10.70	15%
STREET A		23	0.10	0.65	0.07	0.07														
STREET A	23	24	0.13	0.65	0.08	0.13	110.1	0.040			0.040	51.0	0.30	1500	3.872	2.19	10.70	0.39	11.08	1%
STREET A	24	25	0.14	0.65	0.09	0.22	108.0	0.066			0.066	45.6	0.50	450	0.202	1.27	11.08	0.60	11.68	33%
Eaglewood	PLUG1	25	0.00	0.00	0.00	0.00	114.2	0.000	0.093	0.093	0.093	20.1	0.50	375	0.124	1.12	10.00	0.30	10.30	75%
STREET A	25	OGS1		0.65		0.22	104.9	0.064		0.093	0.157	3.0	0.50	450	0.202	1.27	11.68	0.04	11.72	78%
STREET A	OGS1	26		0.65		0.22	104.7	0.064		0.093	0.157	20.3	0.50	450	0.202	1.27	11.72	0.27	11.99	78%
BRONTE RD	26	EX MH41	0.24	0.65	0.16	0.38	103.3	0.108		0.093	0.201	45.6	0.65	450	0.230	1.45	11.99	0.53	12.52	88%
BRONTE RD	EX MH41	EX MH47	0.22	0.65	0.14	0.52	100.8	0.146		0.093	0.239	86.0	0.35	600	0.363	1.28	12.52	1.12	13.63	66%
BRONTE RD	EX MH47	EX MH49	0.18	0.75	0.14	0.66	95.9	0.175		0.093	0.268	48.0	0.40	600	0.388	1.37	13.63	0.58	14.21	69%
BRONTE RD	EX MH49	EX CBMH51	0.11	0.75	0.08	0.74	93.6	0.192		0.093	0.285	11.2	0.45	600	0.412	1.46	14.21	0.13	14.34	69%
BRONTE RD	EX CBMH51	EX CBMH53	0.12	0.75	0.09	0.83	93.1	0.214		0.093	0.307	42.0	0.55	600	0.455	1.61	14.34	0.43	14.78	67%
BRONTE RD	EX CBMH53	EX CBMH55	0.20	0.75	0.15	0.98	91.4	0.248		0.093	0.341	45.0	0.50	675	0.594	1.66	14.78	0.45	15.23	57%
BRONTE RD	EX CBMH55	EX CBMH57	0.21	0.75	0.16	1.14	89.8	0.283		0.093	0.376	45.0	0.50	675	0.594	1.66	15.23	0.45	15.68	63%
BRONTE RD	EX CBMH59	EX CBMH57	0.11	0.75	0.08	0.08	114.2	0.026			0.026	50.0	0.50	300	0.068	0.97	10.00	0.86	10.86	38%
BRONTE RD	EX CBMH57	EX OGS1	0.44	0.75	0.33	1.55	88.2	0.379		0.093	0.472	3.1	0.35	750	0.659	1.49	15.68	0.03	15.72	72%
BRONTE RD	EX OGS1	EX HW				1.55	88.0	0.378		0.093	0.471	14.1	0.35	750	0.659	1.49	15.72	0.16	15.87	72%

PCSWMM Report

100-Year Capacity

Model Enns Valery Bronte Road Capacity - 100-year.inp

Urbantech Consulting

November 24, 2021

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Summary 1: Subcatchment statistics

Name	Enns Valery Bronte Road Capacity - 100-year
Max. width (m)	49
Min. width (m)	11
Max. area (ha)	0.49
Min. area (ha)	0.11
Total area (ha)	3.04
Max. length of overland flow (m)	100
Min. length of overland flow (m)	100
Max. slope (%)	0.5
Min. slope (%)	0.5
Max. imperviousness (%)	64
Min. imperviousness (%)	64
Max. imp. roughness	0.013
Min. imp. roughness	0.013
Max. perv. roughness	0.25
Min. perv. roughness	0.25
Max. imp. depression storage (mm)	1
Min. imp. depression storage (mm)	1
Max. perv. depression storage (mm)	5
Min. perv. depression storage (mm)	5

Summary 2: Node statistics

Name	Enns Valery Bronte Road Capacity - 100-year
Max. ground elev. (m)	131.249
Min. ground elev. (m)	129.168
Max. invert elev. (m)	130.839
Min. invert elev. (m)	125.7
Max. depth (m)	4.042
Min. depth (m)	0.41

Summary 3: Conduit statistics

Name	Enns Valery Bronte Road Capacity - 100-year
Max. roughness	0.01
Min. roughness	0.01
Max. entry loss coef.	0
Min. entry loss coef.	0
Max. exit loss coef.	0
Min. exit loss coef.	0
Max. avg. loss coef.	0
Min. avg. loss coef.	0
Max. length (m)	400
Min. length (m)	3
Total length (m)	1537.896
Max. slope (m/m)	0.0065
Min. slope (m/m)	0.0004

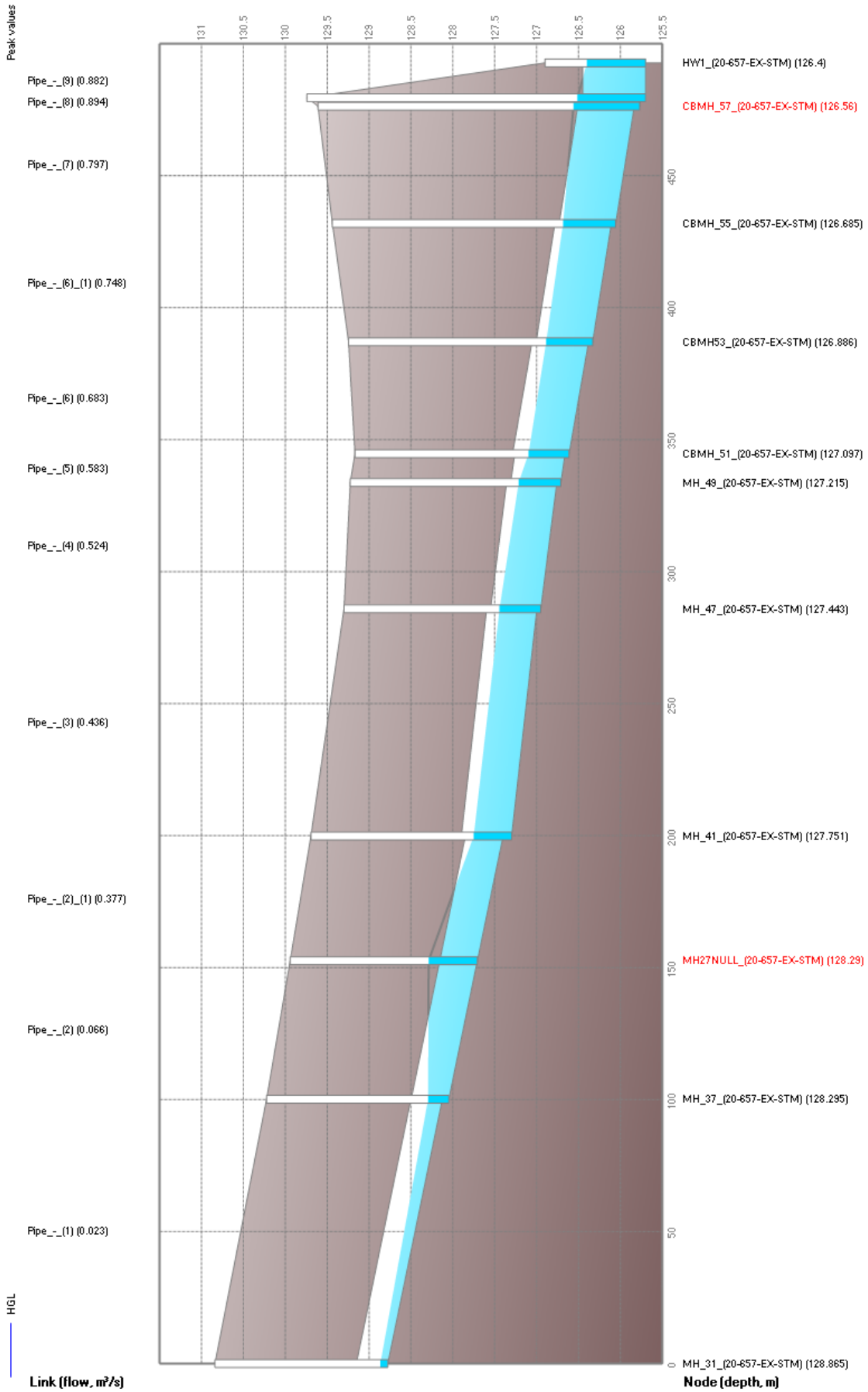


Figure 1: Enns 100-Year HGL

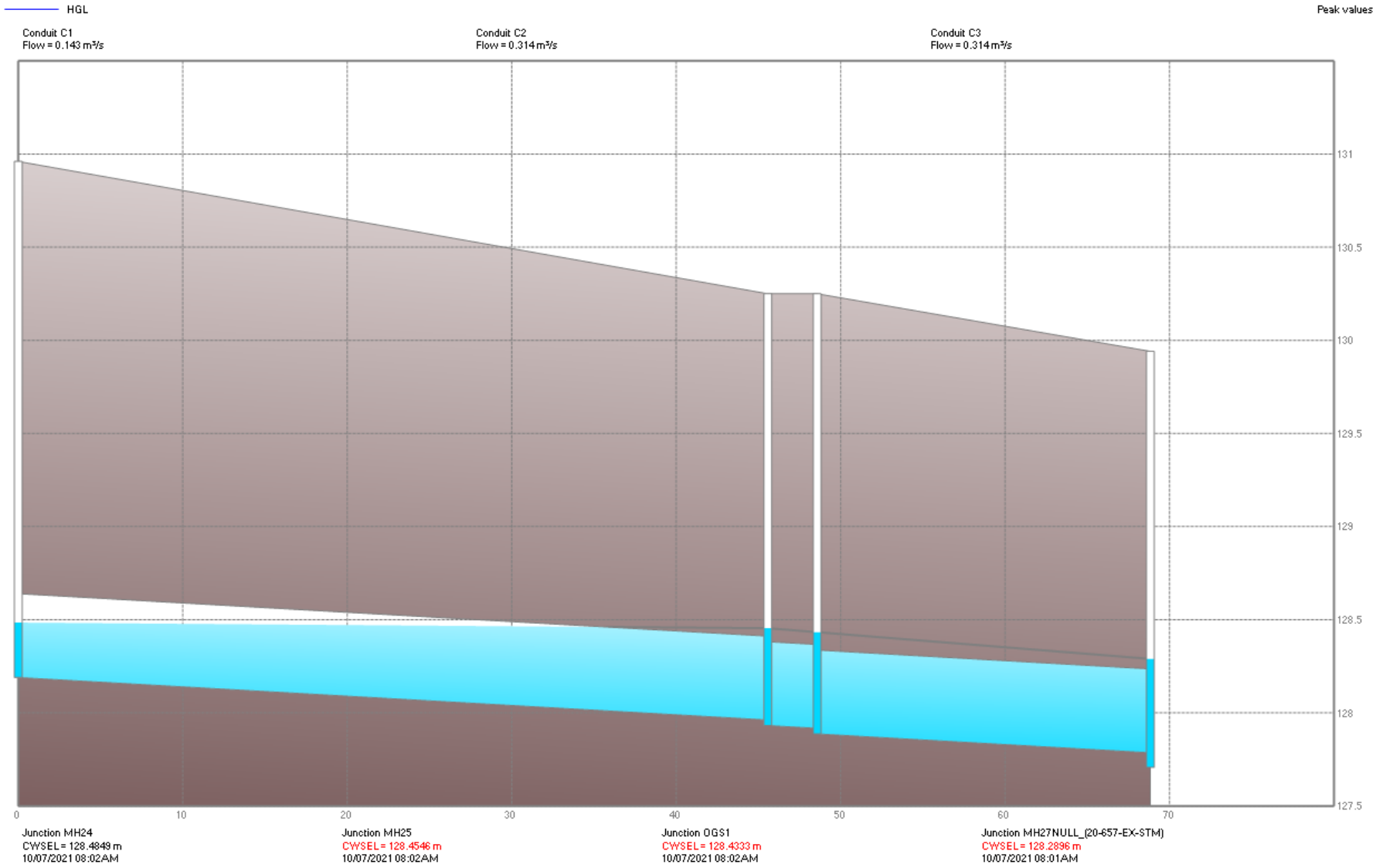


Figure 2: Street A 100-Year HGL

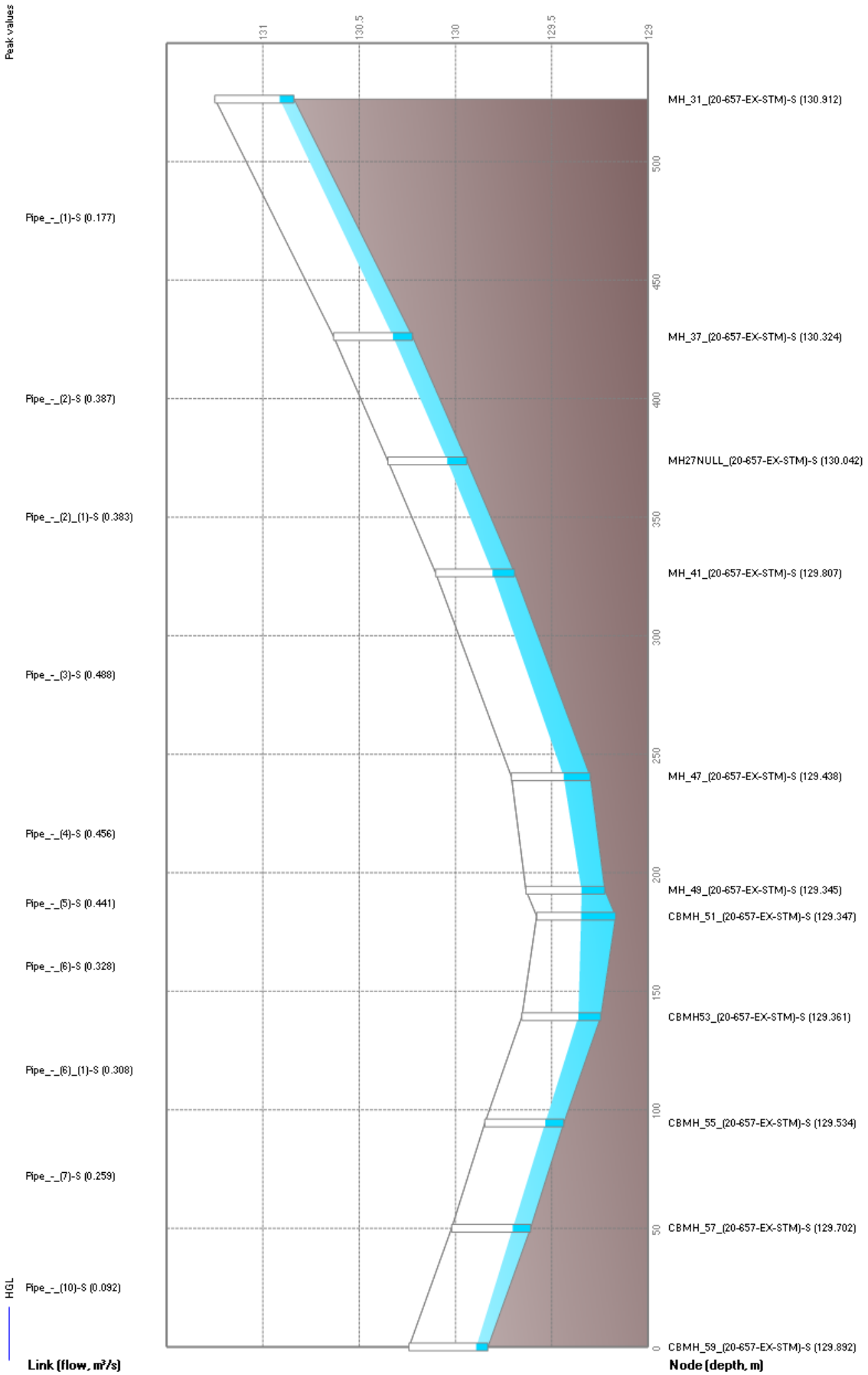


Figure 3: Bronte Road Major System Flows

Table 1: Conduits

Name	Inlet Node	Outlet Node	Length (m)	Roughness	Inlet Elev. (m)	Outlet Elev. (m)	Geom1 (m)	Max. |Flow| (m^3/s)	Max. Unit Flow ($m^3/s/ha$)
C1	MH24	MH25	45.571	0.01	128.19	127.962	0.45	0.143	0
C2	MH25	OGS1	3	0.01	127.932	127.917	0.45	0.314	0
C3	OGS1	MH27NULL_(20-657-EX-STM)	20.255	0.01	127.887	127.786	0.45	0.314	0
C4	CBMH_51_(20-657-EX-STM)-S	OF1	400	0.01	129.168	129	0.4	0.513	0.169
Pipe_-_(1)	MH_31_(20-657-EX-STM)	MH_37_(20-657-EX-STM)	100.132	0.01	128.776	128.125	0.375	0.023	0.048
Pipe_-_(1)-S	MH_31_(20-657-EX-STM)-S	MH_37_(20-657-EX-STM)-S	100.132	0.01	130.839	130.223	0	0.177	0.369
Pipe_-_(10)	CBMH_59_(20-657-EX-STM)	CBMH_57_(20-657-EX-STM)	50.039	0.01	127.66	127.41	0.3	0.017	0.065
Pipe_-_(10)-S	CBMH_59_(20-657-EX-STM)-S	CBMH_57_(20-657-EX-STM)-S	50.039	0.01	129.831	129.61	0	0.092	0.354
Pipe_-_(2)	MH_37_(20-657-EX-STM)	MH27NULL_(20-657-EX-STM)	52.453	0.01	128.048	127.707	0.45	0.066	0.069
Pipe_-_(2)_(1)	MH27NULL_(20-657-EX-STM)	MH_41_(20-657-EX-STM)	47.262	0.01	127.707	127.4	0.45	0.377	0.397
Pipe_-_(2)_(1)-S	MH27NULL_(20-657-EX-STM)-S	MH_41_(20-657-EX-STM)-S	47.262	0.01	129.941	129.693	0	0.383	0.403
Pipe_-_(2)-S	MH_37_(20-657-EX-STM)-S	MH27NULL_(20-657-EX-STM)-S	52.453	0.01	130.223	129.941	0	0.39	0.411
Pipe_-_(3)	MH_41_(20-657-EX-STM)	MH_47_(20-657-EX-STM)	86.03	0.01	127.298	126.997	0.6	0.436	0.311
Pipe_-_(3)-S	MH_41_(20-657-EX-STM)-S	MH_47_(20-657-EX-STM)-S	86.03	0.01	129.693	129.299	0	0.489	0.349
Pipe_-_(4)	MH_47_(20-657-EX-STM)	MH_49_(20-657-EX-STM)	47.851	0.01	126.95	126.759	0.6	0.524	0.33
Pipe_-_(4)-S	MH_47_(20-657-EX-STM)-S	MH_49_(20-657-EX-STM)-S	47.851	0.01	129.299	129.224	0	0.457	0.287
Pipe_-_(5)	MH_49_(20-657-EX-STM)	CBMH_51_(20-657-EX-STM)	10.938	0.01	126.71	126.661	0.6	0.584	0.338
Pipe_-_(5)-S	MH_49_(20-657-EX-STM)-S	CBMH_51_(20-657-EX-STM)-S	10.938	0.01	129.224	129.168	0	0.444	0.257
Pipe_-_(6)	CBMH_51_(20-657-EX-STM)	CBMH53_(20-657-EX-STM)	42.356	0.01	126.613	126.38	0.675	0.685	0.225
Pipe_-_(6)_(1)	CBMH53_(20-657-EX-STM)	CBMH_55_(20-657-EX-STM)	44.849	0.01	126.332	126.108	0.675	0.753	0.248
Pipe_-_(6)_(1)-S	CBMH_55_(20-657-EX-STM)-S	CBMH53_(20-657-EX-STM)-S	44.849	0.01	129.437	129.245	0	0.31	0.316
Pipe_-_(6)-S	CBMH53_(20-657-EX-STM)-S	CBMH_51_(20-657-EX-STM)-S	42.356	0.01	129.245	129.168	0	0.329	0.274
Pipe_-_(7)	CBMH_55_(20-657-EX-STM)	CBMH_57_(20-657-EX-STM)	44.423	0.01	126.057	125.835	0.675	0.822	0.27
Pipe_-_(7)-S	CBMH_57_(20-657-EX-STM)-S	CBMH_55_(20-657-EX-STM)-S	44.423	0.01	129.61	129.437	0	0.26	0.347
Pipe_-_(8)	CBMH_57_(20-657-EX-STM)	OGS_1_(20-657-EX-STM)	3.21	0.01	125.77	125.759	0.75	0.958	0.315
Pipe_-_(9)	OGS_1_(20-657-EX-STM)	HW1_(20-657-EX-STM)	13.194	0.01	125.7	125.654	0.75	0.971	0.319

Table 2A: Subcatchments

Name	Rain Gage	Outlet	Area (ha)	Width (m)	Flow Length (m)	Slope (%)	Imperv. (%)	N Imperv	N Perv	Curve Number	Groundwater	Precipitation (mm)
S1	Chicago_24h_100year	MH_31_(20-657-EX-STM)-S	0.48	48	100	0.5	64	0.013	0.25	73	NO	98.14
S10	Chicago_24h_100year	CBMH_51_(20-657-EX-STM)-S	0.11	11	100	0.5	64	0.013	0.25	73	NO	98.14
S2	Chicago_24h_100year	MH_37_(20-657-EX-STM)-S	0.47	47	100	0.5	64	0.013	0.25	73	NO	98.14
S3	Chicago_24h_100year	MH_41_(20-657-EX-STM)-S	0.45	45	100	0.5	64	0.013	0.25	73	NO	98.14
S4	Chicago_24h_100year	MH_47_(20-657-EX-STM)-S	0.19	19	100	0.5	64	0.013	0.25	73	NO	98.14
S5	Chicago_24h_100year	MH_49_(20-657-EX-STM)-S	0.14	14	100	0.5	64	0.013	0.25	73	NO	98.14
S6	Chicago_24h_100year	CBMH53_(20-657-EX-STM)-S	0.22	22	100	0.5	64	0.013	0.25	73	NO	98.14
S7	Chicago_24h_100year	CBMH_55_(20-657-EX-STM)-S	0.23	23	100	0.5	64	0.013	0.25	73	NO	98.14
S8	Chicago_24h_100year	CBMH_57_(20-657-EX-STM)-S	0.49	49	100	0.5	64	0.013	0.25	73	NO	98.14
S9	Chicago_24h_100year	CBMH_59_(20-657-EX-STM)-S	0.26	26	100	0.5	64	0.013	0.25	73	NO	98.14

Table 2B: Subcatchments

Name	Runon (mm)	Evaporation (mm)	Infiltration (mm)	Runoff Depth (mm)	Peak Runoff (m^3/s)	Runoff Coefficient
S1	0	0	5.59	92.53	0.21	0.943
S10	0	0	5.59	92.53	0.05	0.943
S2	0	0	5.59	92.53	0.2	0.943
S3	0	0	5.59	92.53	0.19	0.943
S4	0	0	5.59	92.53	0.08	0.943
S5	0	0	5.59	92.53	0.06	0.943
S6	0	0	5.59	92.53	0.09	0.943
S7	0	0	5.59	92.53	0.1	0.943
S8	0	0	5.59	92.53	0.21	0.943
S9	0	0	5.59	92.53	0.11	0.943

Table 3A: Junctions

Name	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Initial Depth (m)	Surcharge Depth (m)	Baseline (m^3/s)	Avg. Depth (m)	Max. Depth (m)	Max. HGL (m)	Max. Total Inflow (m^3/s)	Contributing Area (ha)	Contributing Imp. Area (ha)
CBMH_51_(20-657-EX-STM)	NO	126.613	129.168	2.555	0	0.41	0	0.32	0.49	127.1	0.684	3.04	1.946
CBMH_51_(20-657-EX-STM)-S	NO	129.168	129.578	0.41	0	0	0	0.04	0.18	129.35	0.807	3.04	1.946
CBMH_55_(20-657-EX-STM)	NO	126.057	129.437	3.38	0	0.41	0	0.38	0.64	126.7	0.79	3.04	1.946
CBMH_55_(20-657-EX-STM)-S	NO	129.437	129.847	0.41	0	0	0	0.01	0.1	129.53	0.358	0.98	0.627
CBMH_57_(20-657-EX-STM)	NO	125.77	129.61	3.84	0	0.41	0	0.66	0.85	126.62	0.87	3.04	1.946
CBMH_57_(20-657-EX-STM)-S	NO	129.61	130.02	0.41	0	0	0	0.01	0.09	129.7	0.302	0.75	0.48
CBMH_59_(20-657-EX-STM)	NO	127.66	129.831	2.171	0	0.41	0	0.02	0.09	127.75	0.018	0.26	0.166
CBMH_59_(20-657-EX-STM)-S	NO	129.831	130.241	0.41	0	0	0	0.01	0.06	129.89	0.111	0.26	0.166
CBMH53_(20-657-EX-STM)	NO	126.332	129.245	2.913	0	0.41	0	0.33	0.55	126.89	0.741	3.04	1.946
CBMH53_(20-657-EX-STM)-S	NO	129.245	129.655	0.41	0	0	0	0.01	0.12	129.36	0.403	1.2	0.768
MH_31_(20-657-EX-STM)	NO	128.776	130.839	2.063	0	0.41	0	0.02	0.09	128.87	0.023	0.48	0.307
MH_31_(20-657-EX-STM)-S	NO	130.839	131.249	0.41	0	0	0	0.01	0.07	130.91	0.206	0.48	0.307
MH_37_(20-657-EX-STM)	NO	128.048	130.223	2.175	0	0.41	0	0.08	0.25	128.3	0.069	0.95	0.608
MH_37_(20-657-EX-STM)-S	YES	130.223	130.633	0.41	0	0	0.067	0.05	0.1	130.32	0.445	0.95	0.608
MH_41_(20-657-EX-STM)	NO	127.298	129.693	2.395	0	0.41	0	0.38	0.45	127.75	0.436	1.4	0.896
MH_41_(20-657-EX-STM)-S	NO	129.693	130.103	0.41	0	0	0	0.05	0.11	129.81	0.567	1.4	0.896
MH_47_(20-657-EX-STM)	NO	126.95	129.299	2.349	0	0.41	0	0.37	0.49	127.44	0.524	1.59	1.018
MH_47_(20-657-EX-STM)-S	NO	129.299	129.709	0.41	0	0	0	0.06	0.14	129.44	0.563	1.59	1.018
MH_49_(20-657-EX-STM)	NO	126.71	129.224	2.514	0	0.41	0	0.36	0.5	127.21	0.584	1.73	1.107
MH_49_(20-657-EX-STM)-S	NO	129.224	129.634	0.41	0	0	0	0.04	0.12	129.35	0.501	1.73	1.107
MH24	YES	128.19	130.96	2.77	0	0	0.141	0.24	0.29	128.48	0.141	0	0
MH25	YES	127.932	130.25	2.318	0	0	0.171	0.39	0.52	128.46	0.314	0	0
MH27NULL_(20-657-EX-STM)	NO	127.707	129.941	2.234	0	0.41	0	0.42	0.58	128.29	0.377	0.95	0.608
MH27NULL_(20-657-EX-STM)-S	NO	129.941	130.351	0.41	0	0	0	0.05	0.1	130.04	0.39	0.95	0.608
OGS_1_(20-657-EX-STM)	NO	125.7	129.742	4.042	0	0	0	0.73	1.06	126.76	0.958	3.04	1.946
OGS1	NO	127.887	130.25	2.363	0	0	0	0.42	0.55	128.44	0.314	0	0

Table 3B: Junctions

Name	Max. Unit Flow ($m^3/s/ha$)
CBMH_51_(20-657-EX-STM)	0.225
CBMH_51_(20-657-EX-STM)-S	0.265
CBMH_55_(20-657-EX-STM)	0.26
CBMH_55_(20-657-EX-STM)-S	0.365
CBMH_57_(20-657-EX-STM)	0.286
CBMH_57_(20-657-EX-STM)-S	0.403
CBMH_59_(20-657-EX-STM)	0.069
CBMH_59_(20-657-EX-STM)-S	0.427
CBMH53_(20-657-EX-STM)	0.244
CBMH53_(20-657-EX-STM)-S	0.336
MH_31_(20-657-EX-STM)	0.048
MH_31_(20-657-EX-STM)-S	0.429
MH_37_(20-657-EX-STM)	0.073
MH_37_(20-657-EX-STM)-S	0.468
MH_41_(20-657-EX-STM)	0.311
MH_41_(20-657-EX-STM)-S	0.405
MH_47_(20-657-EX-STM)	0.33
MH_47_(20-657-EX-STM)-S	0.354
MH_49_(20-657-EX-STM)	0.338
MH_49_(20-657-EX-STM)-S	0.29
MH24	0
MH25	0
MH27NULL_(20-657-EX-STM)	0.397
MH27NULL_(20-657-EX-STM)-S	0.411
OGS_1_(20-657-EX-STM)	0.315
OGS1	0

APPENDIX C
Bronte Road Storm Sewer Capacity Analysis

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Memorandum

To: Ronald MacKenzie, Halton Region **Date:** November 2021

Cc:

From: **Andrew Fata, M.Sc., P.Eng.**

Re: **Bronte Road Storm Sewer Capacity Analysis**

The following memo describes the dual-draiange analysis of the proposed major and minor systems on Bronte Road.

For the purpose of determining the available capacity in the Bronte Road storm sewer system, a PCSWMM dual drainage model was used to provide information on the depth and flow on the streets and in the minor system.

The Drainage and Stormwater Management Draft Detailed Design Report (March 2010) by McCormick Rankin Corporation indicated that the Bronte Road storm sewer was sized to the accommodate the 10-year event. In was indicated by Halton Region that another analysis for the Bronte Road storm sewer system had been completed by SNC Lavalin, however; this report and design sheets were not available from either SNC Lavalin or Halton Region so conclusions could not be reviewed.

The Rational Method sewer design sheet has been reproduced based on the information provided in the McCormick Rankin report as well as updated drainage areas based on available topography.

The sewer design was evaluated in the PCSWMM model. The minor system level of service was assessed based on nominal pipe capacity and free flow during the 10-year storm. PCSWMM includes several hydrology methods to simulate rainfall-runoff responses. Chicago design storms were created using the IDF data from the Town of Oakville. The 24-hour Chicago design storm distribution with 10 minute time steps was considered appropriate to use for the different storm events in accordance with the Town of Oakville standards and results in more conservative / higher peak flow rates and the starting time of concentration.

ROW Geometry

Bronte Road was were modelled using a representative cross section to reflect the appropriate geometry, cross-section and road roughness. Refer to the attached cross section. The overland flow system typically consists of streets with flows constrained by the curb along both sides of the street. The overland invert levels were set at the curb elevation level. If the flow into the minor system is restricted due to catchbasin inlet capacity, each major system node indicates the representative depth of flow for the major system, which is then conveyed to the next downstream road link.

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Subcatchments / Hydrology

While the Rational method was used to replicate the flows determined in McCormick Rankin report, the PCSWMM model included hydrologic modelling of the subcatchments. The modelling produced more conservative (higher) flows. To accurately quantify the runoff that enters the sewer system and overland flow routes along the Bronte Road, the McCormick Rankin subcatchments were delineated based available topography which increased the area along the west boulevard as shown on **Drawing STM-1**. The approximate impervious area for catchments was determined to be 65% based on the representative cross section.

Model Setup

The PCSWMM model directs the Bronte ROW subcatchments to discharge to the major system nodes, and then to the minor system via outlet rating curve links which represent catchbasin capture.

The outlet rating curves represent stormwater capture by modelling the capture of the existing side inlet catchbasins along Bronte Road and allowing stormwater to enter the minor system from the major system or vice versa. The rating curve for side inlet capture was determined in Hydraflow Express inlet capacity calculator and is based on the dimensions from OPSD 400.08 and Region of Peel standard Drawing 5-2-12-A, as Halton Region does not have a standard drawing for side inlet catchbasins at this time. The resulting capture curve is multiplied by the number of side inlet catchbasins connecting to the sewer along each given road link. A maximum inlet capacity of 50 L/s was used based on the “Modeling Catchbasins and Inlets in SWMM article published in 2018 in the Journal of Water Management Modeling”.The capture is also consistent with published capture curves in the City of Burlington, City of Toronto and City of Markham SWM guidelines.

The minor system is based on the design on as-built drawings provided by Halton Region and appropriate Manning’s roughness and loss parameters have been assigned.

Simulations / Results

The 10-year storm simulation demonstrates that there is a minimum of 264 L/s of pipe capacity within the system downstream of the subject lands, so there is adequate capacity for the Enns development to be connected directly to the Bronte Road infrastructure and release limited flows. The total flow calculated established by the McCormick Rankin report in the pipe at this location was 0.64 m^3/s, and 0.659 m^3/s as determined by Urbantech’s updated Rational Method design. The PCSWMM model produced a more conservative 10-year flow of 0.82 m^3/s, however; when incorporating hydrograph timing and the actual capture capacity of the side inlet catchbasins the peak total flow captured into the sewer is 0.386 m^3/s.
The table below outlines the results of the PCSWMM analysis.

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Name	MH to MH	Pipe Size	Max. |Flow| (m^3/s)	% Full	% Depth	Surface Depth (Based on 0.41 m)
Pipe_-_(1)	MH 31 to MH 37	0.375	0.017	9%	21%	-
ROW1	MH 31 to MH 37	-	0.109	1%	17%	0.0697
Pipe_-_(10)	MH59 to MH57	0.3	0.013	14%	26%	-
ROW10	MH59 to MH57	-	0.056	0%	16%	0.0656
Pipe_-_(2)	MH27 to MH41	0.45	0.043	14%	26%	-
Pipe_-_(2)_(1)	MH27 to MH41	0.45	0.043	14%	26%	-
ROW 2-1	MH27 to MH41	-	0.195	1%	2%	0.082
ROW2	MH37 to MH27	-	0.201	1%	19%	0.0779
Pipe_-_(3)	MH41 to MH47	0.6	0.075	16%	27%	-
ROW3	MH41 to MH47	-	0.26	1%	24%	0.0984
Pipe_-_(4)	MH47 to MH49	0.6	0.131	26%	35%	-
ROW4	MH47 to MH49	-	0.233	2%	24%	0.0984
Pipe_-_(5)	MH49 to MH51	0.6	0.159	3%	37%	-
ROW5	MH49 to MH51	-	0.229	1%	25%	0.1025
Pipe_-_(6)	MH51 to MH53	0.675	0.218	27%	35%	-
Pipe_-_(6)_(1)	MH53 to MH55	0.675	0.25	32%	48%	-
ROW 6-1	MH53 to MH55	-	0.188	1%	22%	0.0902
ROW6	MH51 to MH53	-	0.206	2%	25%	0.1025
Pipe_-_(7)	MH55 to MH57	0.675	0.286	37%	82%	-
ROW7	MH55 to MH57	-	0.159	1%	19%	0.0779
Pipe_-_(8)	MH57 to OGS_1	0.75	0.394	46%	99%	-

The detailed PC-SWMM results are included in the 10-year model reports (attached).

DRAFT

Regards,
Urbantech® Consulting

Andrew Fata, M.Sc., P.Eng.
Senior Associate, Water Resources

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Municipal Design Assistant

Attachments:

- 10-year PC-SWMM report
- Digital Model files (10-year simulation)

DRAFT

URBANTECH®

STORM SEWER DESIGN SHEET

10 Year Storm

Bronte Road

Town of Oakville

PROJECT DETAILS

Project No: 20-657
Date: 24-Nov-21
Designed by: E.L.
Checked by: S.H.

DESIGN CRITERIA

Min. Diameter =	300	mm	Rainfall Intensity =	A / (Tc+B)^c
Mannings 'n'=	0.013			
Starting Tc =	10	min	A =	1400
			B =	5.8
Factor of Safety =	5	%	c =	0.848

NOMINAL PIPE SIZE USED

STREET	FROM MH	TO MH	AREA (ha)	RUNOFF COEFFICIENT "R"	'AR'	ACCUM. 'AR'	RAINFALL INTENSITY (mm/hr)	FLOW (m^3/s)	CONSTANT FLOW (m^3/s)	ACCUM. CONSTANT FLOW (m^3/s)	TOTAL FLOW (m^3/s)	LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m^3/s)	FULL FLOW VELOCITY (m/s)	INITIAL Tc (min)	TIME OF CONCENTRATION (min)	ACC. TIME OF CONCENTRATION (min)	PERCENT FULL (%)
BRONTE RD	EX MH31	EX MH37	0.48	0.75	0.36	0.36	134.8	0.135			0.135	100.0	0.65	375	0.141	1.28	10.00	1.30	11.30	95%
BRONTE RD	EX MH37	EX MH41	0.47	0.75	0.35	0.71	126.0	0.249			0.249	100.0	0.65	450	0.230	1.45	11.30	1.15	12.46	109%
BRONTE RD	EX MH41	EX MH47	0.45	0.75	0.34	1.05	119.3	0.348			0.348	85.0	0.35	600	0.363	1.28	12.46	1.10	13.56	96%
BRONTE RD	EX MH47	EX MH49	0.19	0.75	0.14	1.19	113.5	0.376			0.376	48.0	0.40	600	0.388	1.37	13.56	0.58	14.14	97%
BRONTE RD	EX MH49	EX CBMH51	0.14	0.75	0.11	1.30	110.6	0.399			0.399	11.2	0.45	600	0.412	1.46	14.14	0.13	14.27	97%
BRONTE RD	EX CBMH51	EX CBMH53	0.11	0.75	0.08	1.38	110.1	0.422			0.422	42.0	0.55	600	0.455	1.61	14.27	0.43	14.70	93%
BRONTE RD	EX CBMH53	EX CBMH55	0.22	0.75	0.17	1.55	108.1	0.464			0.464	45.0	0.50	675	0.594	1.66	14.70	0.45	15.15	78%
BRONTE RD	EX CBMH55	EX CBMH57	0.23	0.75	0.17	1.72	106.1	0.506			0.506	45.0	0.50	675	0.594	1.66	15.15	0.45	15.61	85%
BRONTE RD	EX CBMH59	EX CBMH57	0.26	0.75	0.20	0.20	134.8	0.073			0.073	50.0	0.50	300	0.068	0.97	10.00	0.86	10.86	107%
BRONTE RD	EX CBMH57	EX OGS1	0.49	0.75	0.37	2.28	104.2	0.660			0.660	3.1	0.35	750	0.659	1.49	15.61	0.03	15.64	100%
BRONTE RD	EX OGS1	EX HW				2.28	104.0	0.659			0.659	14.1	0.35	750	0.659	1.49	15.64	0.16	15.80	100%

Inlet Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Oct 21 2021

Single Side Inlet Catchbasin

Curb Inlet

Location	=	On grade
Curb Length (m)	=	0.6100
Throat Height (mm)	=	87.0000
Grate Area (sqm)	=	-0-
Grate Width (m)	=	-0-
Grate Length (m)	=	-0-

Gutter

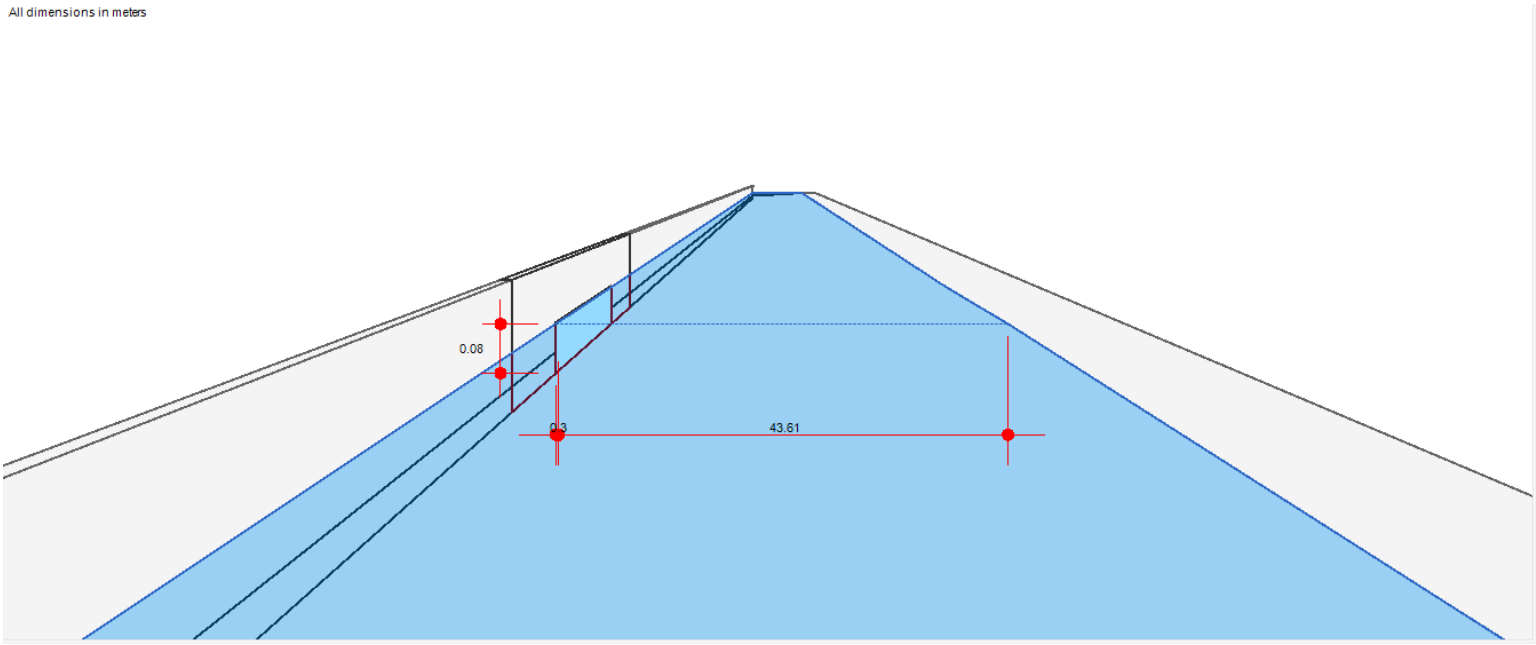
Slope, Sw (m/m)	=	0.135
Slope, Sx (m/m)	=	0.001
Local Depr (mm)	=	-0-
Gutter Width (m)	=	0.3000
Gutter Slope (%)	=	0.5000
Gutter n-value	=	0.013

Calculations

Compute by:		Q vs Depth
Max Depth (mm)	=	400

Highlighted

Q Total (cms)	=	0.5000
Q Capt (cms)	=	0.0144
Q Bypass (cms)	=	0.4856
Depth at Inlet (mm)	=	84.1096
Efficiency (%)	=	3
Gutter Spread (m)	=	43.9096
Gutter Vel (m/s)	=	0.5154
Bypass Spread (m)	=	43.4249
Bypass Depth (mm)	=	83.6249



PCSWMM Report

Model Enns Valery Bronte Road Capacity - 10-year - No Enns.inp

Urbantech Consulting

November 24, 2021

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Summary 1: Subcatchment statistics

Name	Enns Valery Bronte Road Capacity
Max. width (m)	49
Min. width (m)	11
Max. area (ha)	0.49
Min. area (ha)	0.11
Total area (ha)	3.04
Max. length of overland flow (m)	100
Min. length of overland flow (m)	100
Max. slope (%)	0.5
Min. slope (%)	0.5
Max. imperviousness (%)	64
Min. imperviousness (%)	64
Max. imp. roughness	0.013
Min. imp. roughness	0.013
Max. perv. roughness	0.25
Min. perv. roughness	0.25
Max. imp. depression storage (mm)	1
Min. imp. depression storage (mm)	1
Max. perv. depression storage (mm)	5
Min. perv. depression storage (mm)	5

Summary 2: Node statistics

Name	Enns Valery Bronte Road Capacity
Max. ground elev. (m)	132.355
Min. ground elev. (m)	129.14
Max. invert elev. (m)	130.839
Min. invert elev. (m)	0
Max. depth (m)	4.042
Min. depth (m)	0.41

Summary 3: Conduit statistics

Name	Enns Valery Bronte Road Capacity
Max. roughness	0.01
Min. roughness	0.01
Max. entry loss coef.	0
Min. entry loss coef.	0
Max. exit loss coef.	0
Min. exit loss coef.	0
Max. avg. loss coef.	0
Min. avg. loss coef.	0
Max. length (m)	400
Min. length (m)	3
Total length (m)	2531.779
Max. slope (m/m)	0.0065
Min. slope (m/m)	0.0004

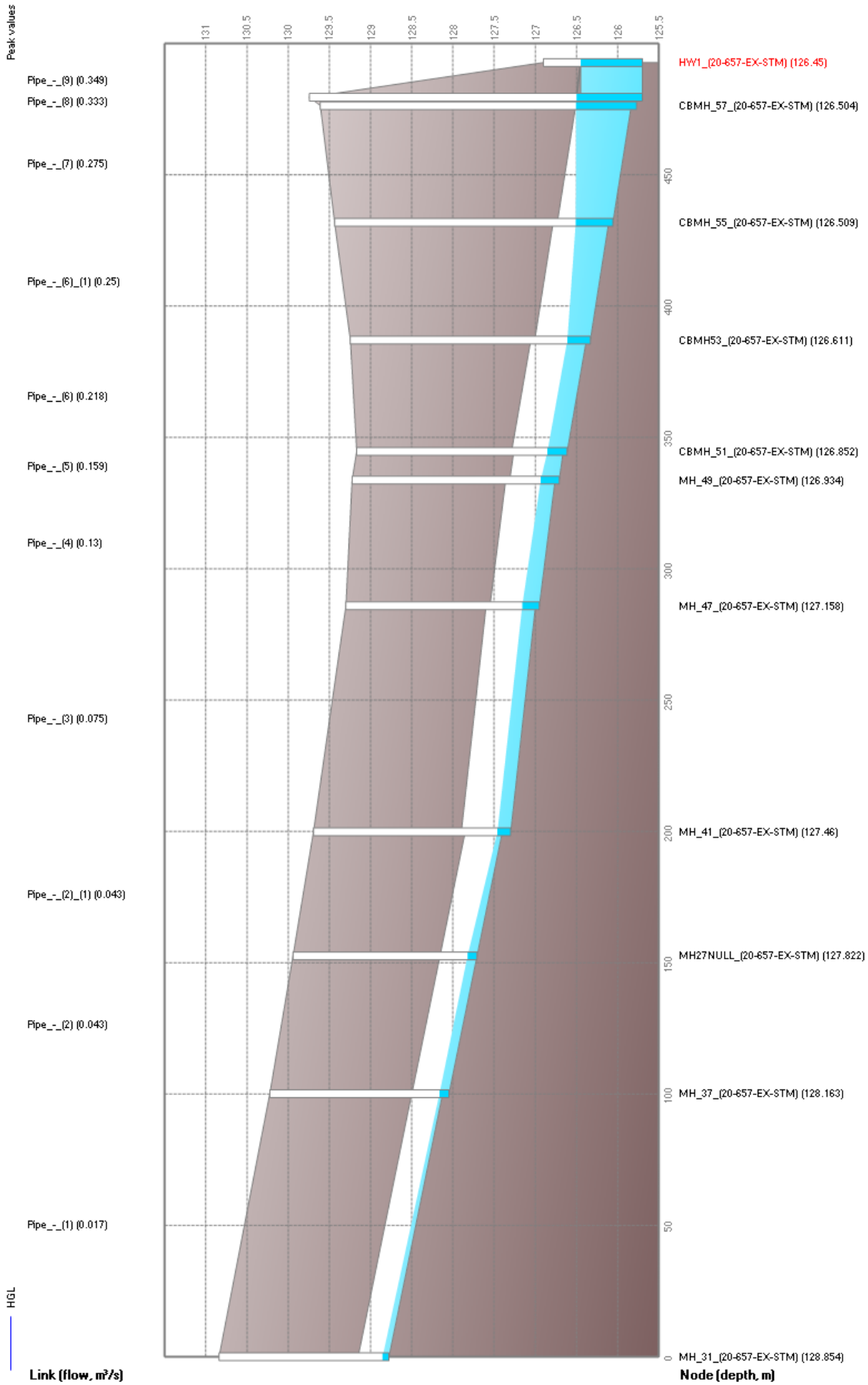


Figure 1: 10-Year Bronte Road Capacity

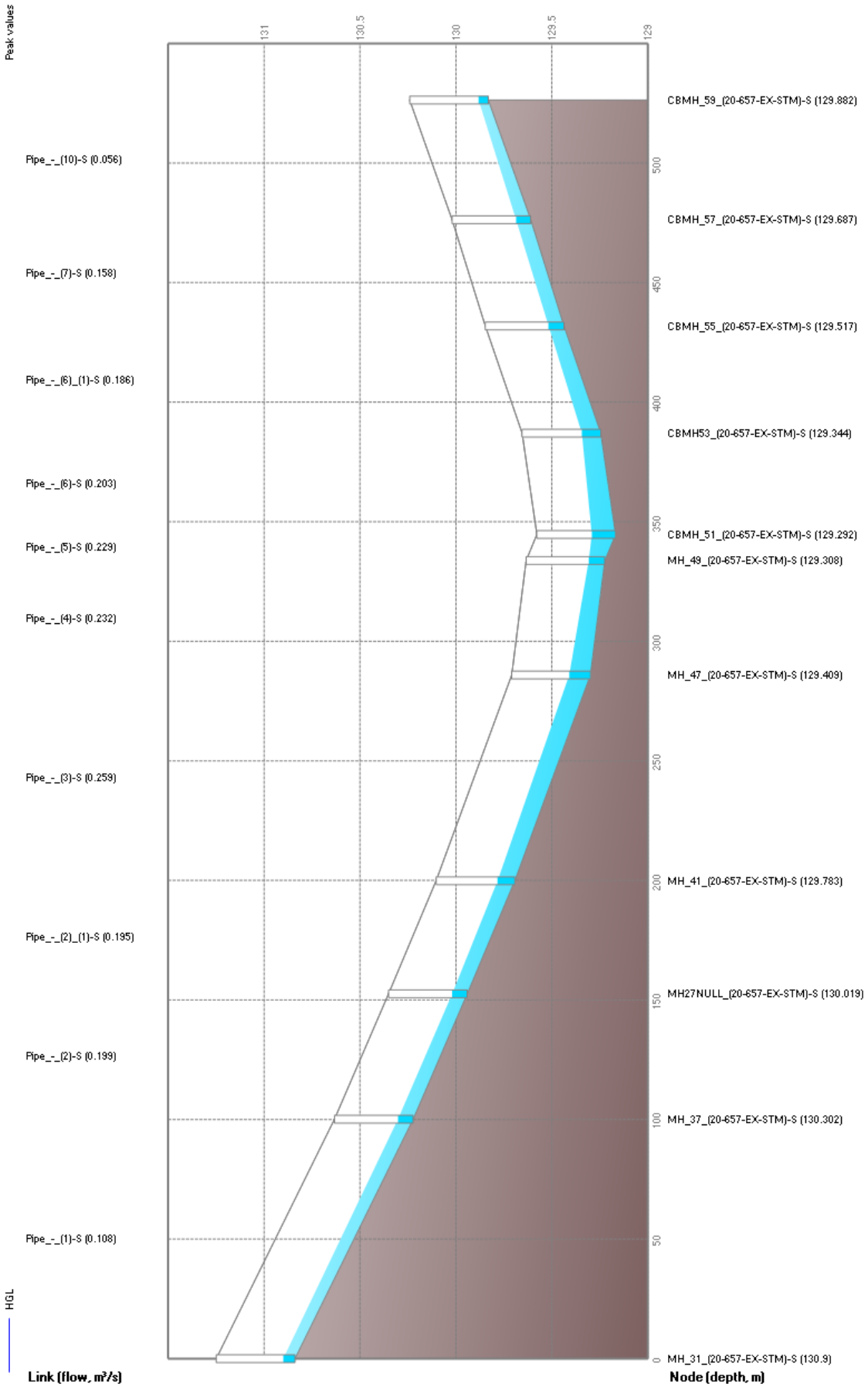


Figure 2: 10-Year Bronte Road Surface Flows

Table 1: Conduits

Name	Inlet Node	Outlet Node	Length (m)	Roughness	Inlet Elev. (m)	Outlet Elev. (m)	Geom1 (m)	Max. |Flow| (m^3/s)	Max. Unit Flow ($m^3/s/ha$)
C1	J3	J2	45.571	0.01	128.19	127.962	0.45	0	0
C2	J2	J1	3	0.01	127.932	127.917	0.45	0	0
C3	J1	MH27NULL_(20-657-EX-STM)	20.255	0.01	127.887	127.786	0.45	0	0
C4	CBMH_51_(20-657-EX-STM)-S	OF1	400	0.01	129.168	129	0.4	0.247	0.081
Pipe_-_(1)	MH_31_(20-657-EX-STM)	MH_37_(20-657-EX-STM)	100.132	0.01	128.776	128.125	0.375	0.017	0.035
Pipe_-_(1)-S	MH_31_(20-657-EX-STM)-S	MH_37_(20-657-EX-STM)-S	100.132	0.01	130.839	130.223	0	0.109	0.227
Pipe_-_(10)	CBMH_59_(20-657-EX-STM)	CBMH_57_(20-657-EX-STM)	50.039	0.01	127.66	127.41	0.3	0.013	0.05
Pipe_-_(10)-S	CBMH_59_(20-657-EX-STM)-S	CBMH_57_(20-657-EX-STM)-S	50.039	0.01	129.831	129.61	0	0.056	0.215
Pipe_-_(2)	MH_37_(20-657-EX-STM)	MH27NULL_(20-657-EX-STM)	52.453	0.01	128.048	127.707	0.45	0.043	0.045
Pipe_-_(2)_(1)	MH27NULL_(20-657-EX-STM)	MH_41_(20-657-EX-STM)	47.262	0.01	127.707	127.4	0.45	0.043	0.045
Pipe_-_(2)_(1)-S	MH27NULL_(20-657-EX-STM)-S	MH_41_(20-657-EX-STM)-S	47.262	0.01	129.941	129.693	0	0.195	0.205
Pipe_-_(2)-S	MH_37_(20-657-EX-STM)-S	MH27NULL_(20-657-EX-STM)-S	52.453	0.01	130.223	129.941	0	0.201	0.212
Pipe_-_(3)	MH_41_(20-657-EX-STM)	MH_47_(20-657-EX-STM)	86.03	0.01	127.298	126.997	0.6	0.075	0.054
Pipe_-_(3)-S	MH_41_(20-657-EX-STM)-S	MH_47_(20-657-EX-STM)-S	86.03	0.01	129.693	129.299	0	0.26	0.186
Pipe_-_(4)	MH_47_(20-657-EX-STM)	MH_49_(20-657-EX-STM)	47.851	0.01	126.95	126.759	0.6	0.131	0.082
Pipe_-_(4)-S	MH_47_(20-657-EX-STM)-S	MH_49_(20-657-EX-STM)-S	47.851	0.01	129.299	129.224	0	0.233	0.147
Pipe_-_(5)	MH_49_(20-657-EX-STM)	CBMH_51_(20-657-EX-STM)	10.938	0.01	126.71	126.661	0.6	0.159	0.092
Pipe_-_(5)-S	MH_49_(20-657-EX-STM)-S	CBMH_51_(20-657-EX-STM)-S	10.938	0.01	129.224	129.168	0	0.229	0.132
Pipe_-_(6)	CBMH_51_(20-657-EX-STM)	CBMH53_(20-657-EX-STM)	42.356	0.01	126.613	126.38	0.675	0.218	0.072
Pipe_-_(6)_(1)	CBMH53_(20-657-EX-STM)	CBMH_55_(20-657-EX-STM)	44.849	0.01	126.332	126.108	0.675	0.25	0.082
Pipe_-_(6)_(1)-S	CBMH_55_(20-657-EX-STM)-S	CBMH53_(20-657-EX-STM)-S	44.849	0.01	129.437	129.245	0	0.188	0.192
Pipe_-_(6)-S	CBMH53_(20-657-EX-STM)-S	CBMH_51_(20-657-EX-STM)-S	42.356	0.01	129.245	129.168	0	0.206	0.172
Pipe_-_(7)	CBMH_55_(20-657-EX-STM)	CBMH_57_(20-657-EX-STM)	44.423	0.01	126.057	125.835	0.675	0.286	0.094
Pipe_-_(7)-S	CBMH_57_(20-657-EX-STM)-S	CBMH_55_(20-657-EX-STM)-S	44.423	0.01	129.61	129.437	0	0.159	0.212
Pipe_-_(8)	CBMH_57_(20-657-EX-STM)	OGS_1_(20-657-EX-STM)	3.21	0.01	125.77	125.759	0.75	0.394	0.13
Pipe_-_(9)	OGS_1_(20-657-EX-STM)	HW1_(20-657-EX-STM)	13.194	0.01	125.7	125.654	0.75	0.386	0.127

Table 2A: Subcatchments

Name	Rain Gage	Outlet	Area (ha)	Width (m)	Flow Length (m)	Slope (%)	Imperv. (%)	N Imperv	N Perv	Curve Number	Groundwater	Precipitation (mm)
S1	Chicago_24h_10year	MH_31_(20-657-EX-STM)-S	0.48	48	100	0.5	64	0.013	0.25	73	NO	70.24
S10	Chicago_24h_10year	CBMH_51_(20-657-EX-STM)-S	0.11	11	100	0.5	64	0.013	0.25	73	NO	70.24
S2	Chicago_24h_10year	MH_37_(20-657-EX-STM)-S	0.47	47	100	0.5	64	0.013	0.25	73	NO	70.24
S3	Chicago_24h_10year	MH_41_(20-657-EX-STM)-S	0.45	45	100	0.5	64	0.013	0.25	73	NO	70.24
S4	Chicago_24h_10year	MH_47_(20-657-EX-STM)-S	0.19	19	100	0.5	64	0.013	0.25	73	NO	70.24
S5	Chicago_24h_10year	MH_49_(20-657-EX-STM)-S	0.14	14	100	0.5	64	0.013	0.25	73	NO	70.24
S6	Chicago_24h_10year	CBMH53_(20-657-EX-STM)-S	0.22	22	100	0.5	64	0.013	0.25	73	NO	70.24
S7	Chicago_24h_10year	CBMH_55_(20-657-EX-STM)-S	0.23	23	100	0.5	64	0.013	0.25	73	NO	70.24
S8	Chicago_24h_10year	CBMH_57_(20-657-EX-STM)-S	0.49	49	100	0.5	64	0.013	0.25	73	NO	70.24
S9	Chicago_24h_10year	CBMH_59_(20-657-EX-STM)-S	0.26	26	100	0.5	64	0.013	0.25	73	NO	70.24

Table 2B: Subcatchments

Name	Runon (mm)	Evaporation (mm)	Infiltration (mm)	Runoff Depth (mm)	Peak Runoff (m^3/s)	Runoff Coefficient
S1	0	0	5.8	64.4	0.13	0.917
S10	0	0	5.8	64.4	0.03	0.917
S2	0	0	5.8	64.4	0.13	0.917
S3	0	0	5.8	64.4	0.12	0.917
S4	0	0	5.8	64.4	0.05	0.917
S5	0	0	5.8	64.4	0.04	0.917
S6	0	0	5.8	64.4	0.06	0.917
S7	0	0	5.8	64.4	0.06	0.917
S8	0	0	5.8	64.4	0.13	0.917
S9	0	0	5.8	64.4	0.07	0.917

Table 3A: Junctions

Name	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Initial Depth (m)	Surcharge Depth (m)	Baseline (m^3/s)	Avg. Depth (m)	Max. Depth (m)	Max. HGL (m)	Max. Total Inflow (m^3/s)	Contributing Area (ha)	Contributing Imp. Area (ha)
CBMH_51_(20-657-EX-STM)	NO	126.613	129.168	2.555	0	0.41	0	0.06	0.24	126.85	0.218	3.04	1.946
CBMH_51_(20-657-EX-STM)-S	NO	129.168	129.578	0.41	0	0	0	0.02	0.12	129.29	0.451	3.04	1.946
CBMH_55_(20-657-EX-STM)	NO	126.057	129.437	3.38	0	0.41	0	0.1	0.45	126.51	0.273	3.04	1.946
CBMH_55_(20-657-EX-STM)-S	NO	129.437	129.847	0.41	0	0	0	0.01	0.08	129.52	0.221	0.98	0.627
CBMH_57_(20-657-EX-STM)	NO	125.77	129.61	3.84	0	0.41	0	0.21	0.73	126.5	0.319	3.04	1.946
CBMH_57_(20-657-EX-STM)-S	NO	129.61	130.02	0.41	0	0	0	0.01	0.08	129.69	0.189	0.75	0.48
CBMH_59_(20-657-EX-STM)	NO	127.66	129.831	2.171	0	0.41	0	0.02	0.08	127.74	0.013	0.26	0.166
CBMH_59_(20-657-EX-STM)-S	NO	129.831	130.241	0.41	0	0	0	0.01	0.05	129.88	0.07	0.26	0.166
CBMH53_(20-657-EX-STM)	NO	126.332	129.245	2.913	0	0.41	0	0.06	0.28	126.61	0.25	3.04	1.946
CBMH53_(20-657-EX-STM)-S	NO	129.245	129.655	0.41	0	0	0	0.01	0.1	129.34	0.245	1.2	0.768
J1	NO	127.887	130.25	2.363	0	0	0	0	0	127.89	0	0	0
J2	NO	127.932	130.25	2.318	0	0	0	0	0	127.93	0	0	0
J3	NO	128.19	130.96	2.77	0	0	0	0	0	128.19	0	0	0
MH_31_(20-657-EX-STM)	NO	128.776	130.839	2.063	0	0.41	0	0.03	0.08	128.85	0.018	0.48	0.307
MH_31_(20-657-EX-STM)-S	NO	130.839	131.249	0.41	0	0	0	0.01	0.06	130.9	0.13	0.48	0.307
MH_37_(20-657-EX-STM)	NO	128.048	130.223	2.175	0	0.41	0	0.04	0.12	128.16	0.043	0.95	0.608
MH_37_(20-657-EX-STM)-S	NO	130.223	130.633	0.41	0	0	0	0.01	0.08	130.3	0.236	0.95	0.608
MH_41_(20-657-EX-STM)	NO	127.298	129.693	2.395	0	0.41	0	0.05	0.16	127.46	0.075	1.4	0.896
MH_41_(20-657-EX-STM)-S	NO	129.693	130.103	0.41	0	0	0	0.02	0.09	129.78	0.307	1.4	0.896
MH_47_(20-657-EX-STM)	NO	126.95	129.299	2.349	0	0.41	0	0.06	0.21	127.16	0.131	1.59	1.018
MH_47_(20-657-EX-STM)-S	NO	129.299	129.709	0.41	0	0	0	0.02	0.11	129.41	0.303	1.59	1.018
MH_49_(20-657-EX-STM)	NO	126.71	129.224	2.514	0	0.41	0	0.06	0.22	126.93	0.159	1.73	1.107
MH_49_(20-657-EX-STM)-S	NO	129.224	129.634	0.41	0	0	0	0.01	0.08	129.31	0.258	1.73	1.107
MH27_(20-657-STM)	NO	127.6	129.14	1.54	0	0	0	0	0	127.6	0	0	0
MH27NULL_(20-657-EX-STM)	NO	127.707	129.941	2.234	0	0.41	0	0.04	0.12	127.82	0.043	0.95	0.608
MH27NULL_(20-657-EX-STM)-S	NO	129.941	130.351	0.41	0	0	0	0.01	0.08	130.02	0.201	0.95	0.608

Table 3A: Junctions (continued...)

Name	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Initial Depth (m)	Surcharge Depth (m)	Baseline (m^3/s)	Avg. Depth (m)	Max. Depth (m)	Max. HGL (m)	Max. Total Inflow (m^3/s)	Contributing Area (ha)	Contributing Imp. Area (ha)
OGS_1_(20-657-EX-STM)	NO	125.7	129.742	4.042	0	0	0	0.28	0.82	126.52	0.394	3.04	1.946

Table 3B: Junctions

Name	Max. Unit Flow ($m^3/s/ha$)
CBMH_51_(20-657-EX-STM)	0.072
CBMH_51_(20-657-EX-STM)-S	0.148
CBMH_55_(20-657-EX-STM)	0.09
CBMH_55_(20-657-EX-STM)-S	0.226
CBMH_57_(20-657-EX-STM)	0.105
CBMH_57_(20-657-EX-STM)-S	0.252
CBMH_59_(20-657-EX-STM)	0.05
CBMH_59_(20-657-EX-STM)-S	0.269
CBMH53_(20-657-EX-STM)	0.082
CBMH53_(20-657-EX-STM)-S	0.204
J1	0
J2	0
J3	0
MH_31_(20-657-EX-STM)	0.038
MH_31_(20-657-EX-STM)-S	0.271
MH_37_(20-657-EX-STM)	0.045
MH_37_(20-657-EX-STM)-S	0.248
MH_41_(20-657-EX-STM)	0.054
MH_41_(20-657-EX-STM)-S	0.219

Table 3B: Junctions (continued...)

Name	Max. Unit Flow ($m^3/s/ha$)
MH_47_(20-657-EX-STM)	0.082
MH_47_(20-657-EX-STM)-S	0.191
MH_49_(20-657-EX-STM)	0.092
MH_49_(20-657-EX-STM)-S	0.149
MH27_(20-657-STM)	0
MH27NULL_(20-657-EX-STM)	0.045
MH27NULL_(20-657-EX-STM)-S	0.212
OGS_1_(20-657-EX-STM)	0.13

Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.0050	0.0042	44.9854	85	44.9854	4.7854
0.0100	0.0055	48.5211	55	48.5211	8.3211
0.0150	0.0062	50.5968	41	50.5968	10.3968
0.0200	0.0066	52.1635	33	52.1635	11.9635
0.0250	0.0069	53.4589	28	53.4589	13.2589
0.0300	0.0072	54.5744	24	54.5744	14.3744
0.0350	0.0075	55.5681	21	55.5681	15.3681
0.0400	0.0077	56.4642	19	56.4642	16.2642
0.0450	0.0079	57.2902	17	57.2902	17.0902
0.0500	0.0080	58.0522	16	58.0522	17.8522
0.0550	0.0082	58.7654	15	58.7654	18.5654
0.0600	0.0084	59.4360	14	59.4360	19.2360
0.0650	0.0085	60.0730	13	60.0730	19.8730
0.0700	0.0087	60.6765	12	60.6765	20.4765
0.0750	0.0088	61.2496	12	61.2496	21.0496
0.0800	0.0089	61.8013	11	61.8013	21.6012
0.0850	0.0090	62.3316	11	62.3316	22.1316
0.0900	0.0092	62.8376	10	62.8376	22.6376
0.0950	0.0093	63.3283	10	63.3283	23.1283
0.1000	0.0094	63.8038	9	63.8038	23.6038
0.1050	0.0095	64.2610	9	64.2610	24.0610
0.1100	0.0096	64.7060	9	64.7060	24.5060
0.1150	0.0097	65.1388	8	65.1388	24.9388
0.1200	0.0098	65.5594	8	65.5594	25.3594
0.1250	0.0099	65.9679	8	65.9679	25.7679
0.1300	0.0100	66.3641	8	66.3641	26.1641
0.1350	0.0101	66.7542	7	66.7542	26.5542
0.1400	0.0102	67.1322	7	67.1322	26.9322
0.1450	0.0102	67.5041	7	67.5041	27.3041
0.1500	0.0103	67.8668	7	67.8668	27.6668
0.1550	0.0104	68.2203	7	68.2203	28.0203
0.1600	0.0105	68.5678	7	68.5678	28.3678
0.1650	0.0106	68.9092	6	68.9092	28.7092
0.1700	0.0107	69.2445	6	69.2445	29.0445
0.1750	0.0107	69.5706	6	69.5706	29.3706
0.1800	0.0108	69.8937	6	69.8937	29.6937
0.1850	0.0109	70.2107	6	70.2107	30.0107
0.1900	0.0110	70.5216	6	70.5216	30.3216
0.1950	0.0110	70.8264	6	70.8264	30.6264
0.2000	0.0111	71.1281	6	71.1281	30.9281
0.2050	0.0112	71.4238	5	71.4238	31.2238
0.2100	0.0113	71.7133	5	71.7133	31.5133
0.2150	0.0113	72.0029	5	72.0029	31.8029
0.2200	0.0114	72.2833	5	72.2833	32.0833
0.2250	0.0115	72.5637	5	72.5637	32.3637
0.2300	0.0115	72.8381	5	72.8381	32.6381
0.2350	0.0116	73.1093	5	73.1093	32.9093
0.2400	0.0117	73.3776	5	73.3776	33.1776
0.2450	0.0117	73.6397	5	73.6397	33.4397

Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.2500	0.0118	73.9018	5	73.9018	33.7018
0.2550	0.0118	74.1578	5	74.1578	33.9578
0.2600	0.0119	74.4108	5	74.4108	34.2108
0.2650	0.0120	74.6638	5	74.6638	34.4638
0.2700	0.0120	74.9107	4	74.9107	34.7107
0.2750	0.0121	75.1545	4	75.1545	34.9545
0.2800	0.0122	75.3984	4	75.3984	35.1984
0.2850	0.0122	75.6361	4	75.6361	35.4361
0.2900	0.0123	75.8739	4	75.8739	35.6739
0.2950	0.0123	76.1086	4	76.1086	35.9086
0.3000	0.0124	76.3402	4	76.3402	36.1402
0.3050	0.0124	76.5688	4	76.5688	36.3688
0.3100	0.0125	76.7974	4	76.7974	36.5974
0.3150	0.0126	77.0199	4	77.0199	36.8199
0.3200	0.0126	77.2424	4	77.2424	37.0424
0.3250	0.0127	77.4619	4	77.4619	37.2619
0.3300	0.0127	77.6813	4	77.6813	37.4813
0.3350	0.0128	77.8977	4	77.8977	37.6977
0.3400	0.0128	78.1111	4	78.1111	37.9111
0.3450	0.0129	78.3214	4	78.3214	38.1214
0.3500	0.0129	78.5317	4	78.5317	38.3317
0.3550	0.0130	78.7420	4	78.7420	38.5420
0.3600	0.0130	78.9462	4	78.9462	38.7462
0.3650	0.0131	79.1505	4	79.1505	38.9505
0.3700	0.0131	79.3547	4	79.3547	39.1547
0.3750	0.0132	79.5559	4	79.5559	39.3559
0.3800	0.0132	79.7540	3	79.7540	39.5540
0.3850	0.0133	79.9521	3	79.9521	39.7521
0.3900	0.0133	80.1472	3	80.1472	39.9472
0.3950	0.0134	80.3422	3	80.3422	40.1422
0.4000	0.0134	80.5343	3	80.5343	40.3343
0.4050	0.0135	80.7263	3	80.7263	40.5263
0.4100	0.0135	80.9153	3	80.9153	40.7153
0.4150	0.0136	81.1042	3	81.1042	40.9042
0.4200	0.0136	81.2932	3	81.2932	41.0932
0.4250	0.0137	81.4761	3	81.4761	41.2761
0.4300	0.0137	81.6620	3	81.6620	41.4620
0.4350	0.0138	81.8449	3	81.8449	41.6449
0.4400	0.0138	82.0247	3	82.0247	41.8247
0.4450	0.0139	82.2076	3	82.2076	42.0076
0.4500	0.0139	82.3844	3	82.3844	42.1844
0.4550	0.0140	82.5642	3	82.5642	42.3642
0.4600	0.0140	82.7380	3	82.7380	42.5380
0.4650	0.0140	82.9147	3	82.9147	42.7147
0.4700	0.0141	83.0885	3	83.0885	42.8885
0.4750	0.0141	83.2622	3	83.2622	43.0622
0.4800	0.0142	83.4329	3	83.4329	43.2329
0.4850	0.0142	83.6036	3	83.6036	43.4036
0.4900	0.0143	83.7743	3	83.7743	43.5743

Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.4950	0.0143	83.9419	3	83.9419	43.7419
0.5000	0.0144	84.1096	3	84.1096	43.9096
0.5050	0.0144	84.2772	3	84.2772	44.0772
0.5100	0.0144	84.4418	3	84.4418	44.2418
0.5150	0.0145	84.6064	3	84.6064	44.4064
0.5200	0.0145	84.7679	3	84.7679	44.5679
0.5250	0.0146	84.9295	3	84.9295	44.7295
0.5300	0.0146	85.0910	3	85.0910	44.8910
0.5350	0.0147	85.2526	3	85.2526	45.0526
0.5400	0.0147	85.4111	3	85.4111	45.2111
0.5450	0.0147	85.5695	3	85.5695	45.3696
0.5500	0.0148	85.7281	3	85.7281	45.5281
0.5550	0.0148	85.8835	3	85.8835	45.6835
0.5600	0.0149	86.0390	3	86.0390	45.8389
0.5650	0.0149	86.1944	3	86.1944	45.9944
0.5700	0.0149	86.3498	3	86.3498	46.1498
0.5750	0.0150	86.5022	3	86.5022	46.3022
0.5800	0.0150	86.6546	3	86.6546	46.4546
0.5850	0.0151	86.8070	3	86.8070	46.6070
0.5900	0.0151	86.9564	3	86.9564	46.7564
0.5950	0.0151	87.1057	3	87.1057	46.9057
0.6000	0.0152	87.2551	3	87.2551	47.0551
0.6050	0.0152	87.4045	3	87.4045	47.2044
0.6100	0.0153	87.5508	3	87.5508	47.3508
0.6150	0.0153	87.7001	2	87.7001	47.5001
0.6200	0.0153	87.8434	2	87.8434	47.6434
0.6250	0.0154	87.9897	2	87.9897	47.7897
0.6300	0.0154	88.1360	2	88.1360	47.9360
0.6350	0.0155	88.2792	2	88.2792	48.0792
0.6400	0.0155	88.4225	2	88.4225	48.2225
0.6450	0.0155	88.5627	2	88.5627	48.3627
0.6500	0.0156	88.7059	2	88.7059	48.5059
0.6550	0.0156	88.8462	2	88.8462	48.6462
0.6600	0.0156	88.9864	2	88.9864	48.7864
0.6650	0.0157	89.1266	2	89.1266	48.9266
0.6700	0.0157	89.2668	2	89.2668	49.0668
0.6750	0.0158	89.4039	2	89.4039	49.2039
0.6800	0.0158	89.5411	2	89.5411	49.3411
0.6850	0.0158	89.6783	2	89.6783	49.4783
0.6900	0.0159	89.8154	2	89.8154	49.6154
0.6950	0.0159	89.9526	2	89.9526	49.7526
0.7000	0.0159	90.0867	2	90.0867	49.8867
0.7050	0.0160	90.2208	2	90.2208	50.0208
0.7100	0.0160	90.3549	2	90.3549	50.1549
0.7150	0.0160	90.4890	2	90.4890	50.2890
0.7200	0.0161	90.6231	2	90.6231	50.4231
0.7250	0.0161	90.7542	2	90.7542	50.5542
0.7300	0.0162	90.8853	2	90.8853	50.6853
0.7350	0.0162	91.0163	2	91.0163	50.8163

Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.7400	0.0162	91.1474	2	91.1474	50.9474
0.7450	0.0163	91.2785	2	91.2785	51.0785
0.7500	0.0163	91.4065	2	91.4065	51.2065
0.7550	0.0163	91.5375	2	91.5375	51.3375
0.7600	0.0164	91.6656	2	91.6656	51.4656
0.7650	0.0164	91.7936	2	91.7936	51.5936
0.7700	0.0164	91.9216	2	91.9216	51.7216
0.7750	0.0165	92.0466	2	92.0466	51.8466
0.7800	0.0165	92.1746	2	92.1746	51.9746
0.7850	0.0165	92.2995	2	92.2995	52.0995
0.7900	0.0166	92.4245	2	92.4245	52.2245
0.7950	0.0166	92.5495	2	92.5495	52.3495
0.8000	0.0166	92.6744	2	92.6744	52.4744
0.8050	0.0167	92.7964	2	92.7964	52.5964
0.8100	0.0167	92.9213	2	92.9213	52.7213
0.8150	0.0167	93.0433	2	93.0433	52.8433
0.8200	0.0168	93.1652	2	93.1652	52.9652
0.8250	0.0168	93.2871	2	93.2871	53.0871
0.8300	0.0168	93.4090	2	93.4090	53.2090
0.8350	0.0169	93.5309	2	93.5309	53.3309
0.8400	0.0169	93.6498	2	93.6498	53.4498
0.8450	0.0169	93.7717	2	93.7717	53.5717
0.8500	0.0170	93.8906	2	93.8906	53.6906
0.8550	0.0170	94.0095	2	94.0095	53.8095
0.8600	0.0170	94.1283	2	94.1283	53.9283
0.8650	0.0171	94.2472	2	94.2472	54.0472
0.8700	0.0171	94.3661	2	94.3661	54.1661
0.8750	0.0171	94.4819	2	94.4819	54.2819
0.8800	0.0172	94.6008	2	94.6008	54.4008
0.8850	0.0172	94.7166	2	94.7166	54.5166
0.8900	0.0172	94.8324	2	94.8324	54.6324
0.8950	0.0173	94.9483	2	94.9483	54.7483
0.9000	0.0173	95.0641	2	95.0641	54.8641
0.9050	0.0173	95.1799	2	95.1799	54.9799
0.9100	0.0174	95.2927	2	95.2927	55.0927
0.9150	0.0174	95.4085	2	95.4085	55.2085
0.9200	0.0174	95.5213	2	95.5213	55.3213
0.9250	0.0175	95.6341	2	95.6341	55.4340
0.9300	0.0175	95.7499	2	95.7499	55.5499
0.9350	0.0175	95.8596	2	95.8596	55.6596
0.9400	0.0175	95.9724	2	95.9724	55.7724
0.9450	0.0176	96.0851	2	96.0851	55.8852
0.9500	0.0176	96.1979	2	96.1979	55.9979
0.9550	0.0176	96.3077	2	96.3077	56.1077
0.9600	0.0177	96.4174	2	96.4174	56.2174
0.9650	0.0177	96.5302	2	96.5302	56.3302
0.9700	0.0177	96.6399	2	96.6399	56.4399
0.9750	0.0178	96.7496	2	96.7496	56.5496
0.9800	0.0178	96.8593	2	96.8593	56.6593

Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.9850	0.0178	96.9691	2	96.9691	56.7691
0.9900	0.0179	97.0757	2	97.0757	56.8758
0.9950	0.0179	97.1855	2	97.1855	56.9855
1.0000	0.0179	97.2922	2	97.2922	57.0922
1.0050	0.0179	97.4019	2	97.4019	57.2019

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.2860	0.0008	0.1815	24.4968
0.2460	0.0045	4.1453	44.3454
0.2497	0.0088	7.7085	47.9085
0.2578	0.0134	9.8085	50.0085
0.2662	0.0181	11.3996	51.5996
0.2744	0.0228	12.7102	52.9102
0.2820	0.0275	13.8441	54.0441
0.2892	0.0323	14.8499	55.0499
0.2959	0.0371	15.7613	55.9613
0.3023	0.0420	16.5964	56.7964
0.3084	0.0468	17.3676	57.5676
0.3141	0.0516	18.0900	58.2900
0.3194	0.0565	18.7697	58.9697
0.3246	0.0613	19.4097	59.6097
0.3296	0.0662	20.0193	60.2193
0.3343	0.0711	20.6015	60.8015
0.3387	0.0760	21.1593	61.3593
0.3432	0.0808	21.6927	61.8927
0.3474	0.0857	22.2048	62.4048
0.3514	0.0906	22.7016	62.9016
0.3553	0.0955	23.1771	63.3771
0.3591	0.1004	23.6404	63.8404
0.3628	0.1053	24.0884	64.2884
0.3663	0.1102	24.5243	64.7243
0.3698	0.1151	24.9480	65.1480
0.3732	0.1200	25.3594	65.5594
0.3765	0.1249	25.7618	65.9618
0.3797	0.1298	26.1519	66.3519
0.3828	0.1348	26.5360	66.7360
0.3858	0.1397	26.9078	67.1078
0.3889	0.1446	27.2736	67.4736
0.3918	0.1495	27.6302	67.8302
0.3946	0.1544	27.9807	68.1807
0.3974	0.1593	28.3221	68.5221
0.4001	0.1643	28.6604	68.8604
0.4028	0.1692	28.9896	69.1896
0.4054	0.1741	29.3127	69.5127
0.4080	0.1790	29.6327	69.8327
0.4105	0.1840	29.9436	70.1436
0.4130	0.1889	30.2515	70.4515
0.4154	0.1938	30.5532	70.7532
0.4178	0.1987	30.8519	71.0519
0.4201	0.2037	31.1445	71.3445
0.4225	0.2086	31.4341	71.6341
0.4247	0.2135	31.7176	71.9176
0.4270	0.2185	31.9980	72.1980
0.4292	0.2234	32.2753	72.4754
0.4313	0.2283	32.5466	72.7466
0.4335	0.2333	32.8148	73.0148

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.4356	0.2382	33.0800	73.2800
0.4377	0.2432	33.3421	73.5421
0.4398	0.2481	33.6012	73.8012
0.4417	0.2530	33.8573	74.0573
0.4438	0.2580	34.1102	74.3102
0.4457	0.2629	34.3571	74.5571
0.4476	0.2678	34.6040	74.8040
0.4496	0.2728	34.8479	75.0479
0.4515	0.2777	35.0886	75.2886
0.4533	0.2827	35.3264	75.5264
0.4552	0.2876	35.5611	75.7611
0.4570	0.2926	35.7927	75.9927
0.4588	0.2975	36.0244	76.2244
0.4606	0.3024	36.2530	76.4530
0.4624	0.3074	36.4785	76.6785
0.4641	0.3123	36.7010	76.9010
0.4658	0.3173	36.9235	77.1235
0.4675	0.3222	37.1400	77.3400
0.4692	0.3272	37.3594	77.5594
0.4709	0.3321	37.5728	77.7728
0.4725	0.3371	37.7861	77.9861
0.4741	0.3420	37.9964	78.1964
0.4758	0.3470	38.2068	78.4068
0.4774	0.3519	38.4140	78.6140
0.4789	0.3569	38.6182	78.8182
0.4805	0.3618	38.8224	79.0225
0.4821	0.3668	39.0236	79.2236
0.4836	0.3717	39.2248	79.4248
0.4851	0.3767	39.4229	79.6229
0.4866	0.3816	39.6180	79.8180
0.4881	0.3866	39.8131	80.0131
0.4896	0.3915	40.0081	80.2081
0.4911	0.3965	40.2001	80.4001
0.4925	0.4014	40.3891	80.5891
0.4939	0.4064	40.5781	80.7781
0.4954	0.4113	40.7671	80.9671
0.4968	0.4163	40.9530	81.1530
0.4982	0.4212	41.1389	81.3389
0.4996	0.4262	41.3218	81.5218
0.5009	0.4311	41.5047	81.7047
0.5023	0.4361	41.6845	81.8845
0.5037	0.4410	41.8644	82.0644
0.5051	0.4460	42.0411	82.2411
0.5064	0.4510	42.2179	82.4179
0.5077	0.4559	42.3947	82.5947
0.5090	0.4609	42.5684	82.7684
0.5103	0.4658	42.7422	82.9422
0.5116	0.4708	42.9159	83.1159
0.5129	0.4757	43.0866	83.2866

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.5142	0.4807	43.2573	83.4573
0.5154	0.4856	43.4249	83.6249
0.5167	0.4906	43.5926	83.7926
0.5179	0.4956	43.7602	83.9602
0.5192	0.5005	43.9279	84.1279
0.5204	0.5055	44.0924	84.2924
0.5217	0.5104	44.2540	84.4540
0.5229	0.5154	44.4186	84.6186
0.5240	0.5203	44.5801	84.7801
0.5253	0.5253	44.7417	84.9417
0.5265	0.5303	44.9002	85.1002
0.5276	0.5352	45.0587	85.2587
0.5288	0.5402	45.2172	85.4172
0.5300	0.5451	45.3756	85.5757
0.5311	0.5501	45.5311	85.7311
0.5322	0.5551	45.6865	85.8865
0.5334	0.5600	45.8420	86.0420
0.5345	0.5650	45.9944	86.1944
0.5356	0.5699	46.1468	86.3468
0.5368	0.5749	46.2992	86.4992
0.5379	0.5799	46.4516	86.6516
0.5390	0.5848	46.6009	86.8009
0.5401	0.5898	46.7503	86.9503
0.5412	0.5947	46.8997	87.0996
0.5422	0.5997	47.0460	87.2460
0.5434	0.6047	47.1953	87.3953
0.5444	0.6096	47.3416	87.5416
0.5455	0.6146	47.4879	87.6879
0.5465	0.6196	47.6312	87.8312
0.5476	0.6245	47.7744	87.9744
0.5487	0.6295	47.9207	88.1207
0.5497	0.6344	48.0609	88.2609
0.5508	0.6394	48.2042	88.4042
0.5518	0.6444	48.3475	88.5475
0.5528	0.6493	48.4877	88.6877
0.5538	0.6543	48.6279	88.8279
0.5548	0.6592	48.7650	88.9650
0.5559	0.6642	48.9052	89.1052
0.5569	0.6692	49.0424	89.2424
0.5579	0.6741	49.1796	89.3796
0.5588	0.6791	49.3167	89.5167
0.5598	0.6841	49.4539	89.6539
0.5608	0.6890	49.5910	89.7910
0.5618	0.6940	49.7251	89.9251
0.5628	0.6990	49.8593	90.0593
0.5637	0.7039	49.9934	90.1934
0.5647	0.7089	50.1275	90.3275
0.5657	0.7139	50.2585	90.4585
0.5666	0.7188	50.3896	90.5896

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.5675	0.7238	50.5237	90.7237
0.5685	0.7287	50.6517	90.8517
0.5694	0.7337	50.7828	90.9828
0.5703	0.7387	50.9139	91.1139
0.5713	0.7436	51.0419	91.2419
0.5722	0.7486	51.1729	91.3730
0.5731	0.7536	51.3010	91.5010
0.5740	0.7585	51.4259	91.6259
0.5749	0.7635	51.5539	91.7539
0.5758	0.7685	51.6820	91.8820
0.5768	0.7734	51.8069	92.0069
0.5776	0.7784	51.9319	92.1319
0.5785	0.7834	52.0569	92.2569
0.5795	0.7883	52.1818	92.3818
0.5803	0.7933	52.3068	92.5068
0.5812	0.7983	52.4318	92.6318
0.5821	0.8032	52.5537	92.7537
0.5830	0.8082	52.6756	92.8756
0.5838	0.8132	52.7975	92.9975
0.5847	0.8181	52.9195	93.1195
0.5856	0.8231	53.0414	93.2414
0.5864	0.8281	53.1633	93.3633
0.5873	0.8330	53.2822	93.4822
0.5881	0.8380	53.4041	93.6041
0.5890	0.8430	53.5230	93.7230
0.5898	0.8479	53.6418	93.8418
0.5906	0.8529	53.7607	93.9607
0.5915	0.8579	53.8796	94.0796
0.5923	0.8628	53.9954	94.1954
0.5931	0.8678	54.1143	94.3143
0.5940	0.8728	54.2301	94.4301
0.5948	0.8777	54.3459	94.5459
0.5956	0.8827	54.4617	94.6617
0.5964	0.8877	54.5776	94.7776
0.5973	0.8926	54.6934	94.8934
0.5980	0.8976	54.8092	95.0092
0.5989	0.9026	54.9220	95.1220
0.5997	0.9075	55.0378	95.2378
0.6004	0.9125	55.1506	95.3506
0.6013	0.9175	55.2634	95.4634
0.6021	0.9225	55.3761	95.5761
0.6028	0.9274	55.4889	95.6889
0.6036	0.9324	55.6017	95.8017
0.6044	0.9374	55.7145	95.9145
0.6052	0.9423	55.8242	96.0242
0.6059	0.9473	55.9370	96.1370
0.6067	0.9523	56.0467	96.2467
0.6075	0.9572	56.1564	96.3564
0.6083	0.9622	56.2692	96.4692

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.6090	0.9672	56.3759	96.5759
0.6098	0.9721	56.4856	96.6856
0.6105	0.9771	56.5953	96.7953
0.6113	0.9821	56.7051	96.9051
0.6120	0.9871	56.8117	97.0118

Inlet Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Oct 21 2021

Double Side Inlet

Curb Inlet

Location	=	On grade
Curb Length (m)	=	1.2200
Throat Height (mm)	=	87.0000
Grate Area (sqm)	=	-0-
Grate Width (m)	=	-0-
Grate Length (m)	=	-0-

Gutter

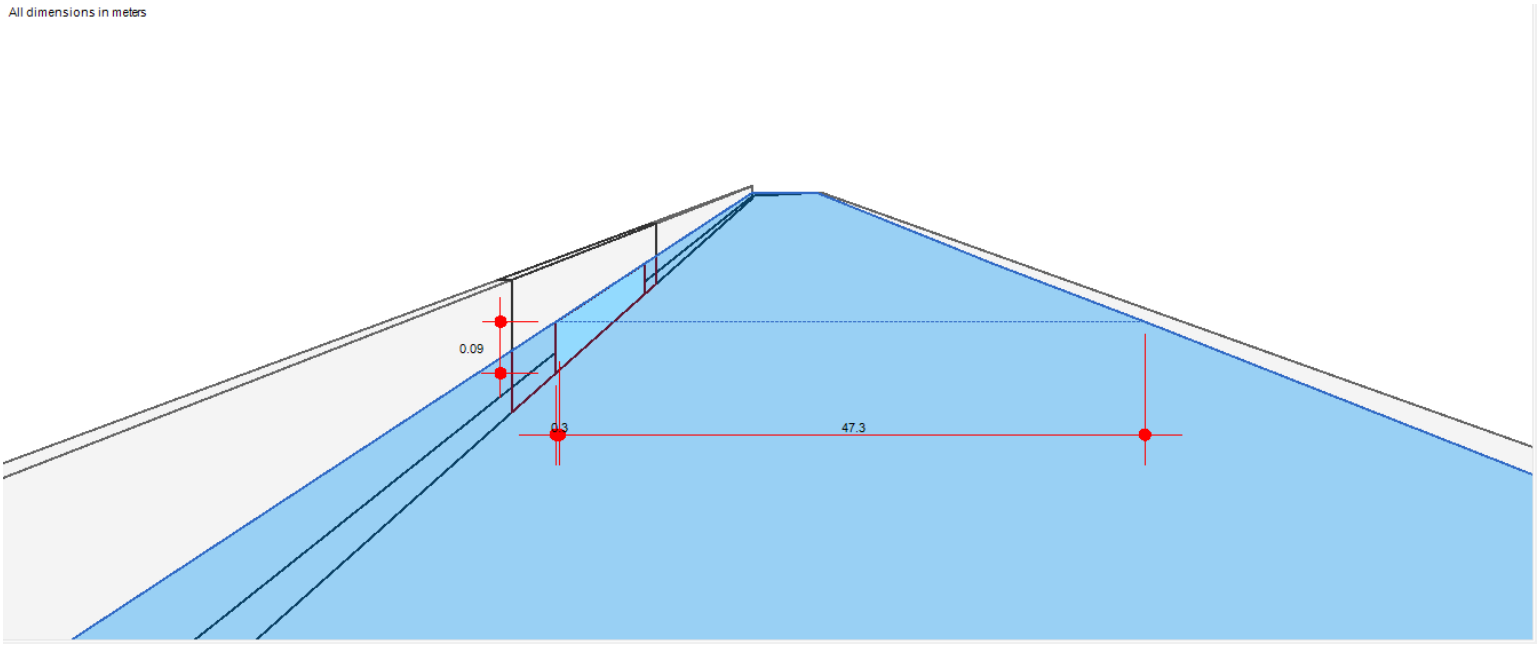
Slope, Sw (m/m)	=	0.135
Slope, Sx (m/m)	=	0.001
Local Depr (mm)	=	-0-
Gutter Width (m)	=	0.3000
Gutter Slope (%)	=	2.0000
Gutter n-value	=	0.016

Calculations

Compute by:		Q vs Depth
Max Depth (mm)	=	127

Highlighted

Q Total (cms)	=	1.0050
Q Capt (cms)	=	0.0303
Q Bypass (cms)	=	0.9747
Depth at Inlet (mm)	=	87.8007
Efficiency (%)	=	3
Gutter Spread (m)	=	47.6007
Gutter Vel (m/s)	=	0.8824
Bypass Spread (m)	=	47.0490
Bypass Depth (mm)	=	87.2490



Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.0050	0.0050	41.1785	100	41.1785	0.9785
0.0100	0.0086	46.0949	86	46.0949	5.8949
0.0150	0.0102	48.1249	68	48.1249	7.9249
0.0200	0.0112	49.5696	56	49.5696	9.3696
0.0250	0.0120	50.7309	48	50.7309	10.5309
0.0300	0.0126	51.7185	42	51.7185	11.5185
0.0350	0.0130	52.5841	37	52.5841	12.3841
0.0400	0.0135	53.3644	34	53.3644	13.1644
0.0450	0.0138	54.0776	31	54.0776	13.8776
0.0500	0.0142	54.7360	28	54.7360	14.5360
0.0550	0.0145	55.3486	26	55.3486	15.1486
0.0600	0.0148	55.9217	25	55.9217	15.7217
0.0650	0.0150	56.4642	23	56.4642	16.2642
0.0700	0.0153	56.9793	22	56.9793	16.7793
0.0750	0.0155	57.4700	21	57.4700	17.2700
0.0800	0.0157	57.9394	20	57.9394	17.7394
0.0850	0.0160	58.3875	19	58.3875	18.1875
0.0900	0.0162	58.8203	18	58.8203	18.6203
0.0950	0.0164	59.2348	17	59.2348	19.0348
0.1000	0.0166	59.6372	17	59.6372	19.4372
0.1050	0.0167	60.0243	16	60.0243	19.8243
0.1100	0.0169	60.3992	15	60.3992	20.1992
0.1150	0.0171	60.7649	15	60.7649	20.5649
0.1200	0.0172	61.1215	14	61.1215	20.9215
0.1250	0.0174	61.4660	14	61.4660	21.2660
0.1300	0.0176	61.8013	14	61.8013	21.6012
0.1350	0.0177	62.1304	13	62.1304	21.9304
0.1400	0.0179	62.4505	13	62.4505	22.2505
0.1450	0.0180	62.7614	12	62.7614	22.5614
0.1500	0.0182	63.0662	12	63.0662	22.8662
0.1550	0.0183	63.3649	12	63.3649	23.1649
0.1600	0.0184	63.6605	12	63.6605	23.4605
0.1650	0.0186	63.9470	11	63.9470	23.7470
0.1700	0.0187	64.2275	11	64.2275	24.0275
0.1750	0.0188	64.5018	11	64.5018	24.3018
0.1800	0.0189	64.7731	11	64.7731	24.5730
0.1850	0.0191	65.0413	10	65.0413	24.8413
0.1900	0.0192	65.3004	10	65.3004	25.1004
0.1950	0.0193	65.5594	10	65.5594	25.3594
0.2000	0.0194	65.8124	10	65.8124	25.6124
0.2050	0.0196	66.0593	10	66.0593	25.8593
0.2100	0.0197	66.3062	9	66.3062	26.1062
0.2150	0.0198	66.5470	9	66.5470	26.3470
0.2200	0.0199	66.7847	9	66.7847	26.5847
0.2250	0.0200	67.0164	9	67.0164	26.8164
0.2300	0.0201	67.2480	9	67.2480	27.0480
0.2350	0.0202	67.4766	9	67.4766	27.2766
0.2400	0.0203	67.6991	8	67.6991	27.4991
0.2450	0.0204	67.9216	8	67.9216	27.7216

Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.2500	0.0205	68.1411	8	68.1411	27.9411
0.2550	0.0206	68.3545	8	68.3545	28.1544
0.2600	0.0207	68.5678	8	68.5678	28.3678
0.2650	0.0208	68.7781	8	68.7781	28.5781
0.2700	0.0209	68.9884	8	68.9884	28.7884
0.2750	0.0210	69.1926	8	69.1926	28.9927
0.2800	0.0211	69.3969	8	69.3969	29.1969
0.2850	0.0212	69.5980	7	69.5980	29.3980
0.2900	0.0213	69.7962	7	69.7962	29.5962
0.2950	0.0214	69.9912	7	69.9912	29.7912
0.3000	0.0215	70.1863	7	70.1863	29.9863
0.3050	0.0216	70.3783	7	70.3783	30.1783
0.3100	0.0217	70.5673	7	70.5673	30.3673
0.3150	0.0218	70.7563	7	70.7563	30.5563
0.3200	0.0219	70.9422	7	70.9422	30.7422
0.3250	0.0219	71.1281	7	71.1281	30.9281
0.3300	0.0220	71.3110	7	71.3110	31.1110
0.3350	0.0221	71.4908	7	71.4908	31.2908
0.3400	0.0222	71.6707	7	71.6707	31.4707
0.3450	0.0223	71.8475	6	71.8475	31.6475
0.3500	0.0224	72.0243	6	72.0243	31.8242
0.3550	0.0225	72.1980	6	72.1980	31.9980
0.3600	0.0225	72.3717	6	72.3717	32.1717
0.3650	0.0226	72.5424	6	72.5424	32.3424
0.3700	0.0227	72.7131	6	72.7131	32.5131
0.3750	0.0228	72.8807	6	72.8807	32.6807
0.3800	0.0229	73.0453	6	73.0453	32.8453
0.3850	0.0230	73.2130	6	73.2130	33.0130
0.3900	0.0230	73.3776	6	73.3776	33.1776
0.3950	0.0231	73.5391	6	73.5391	33.3391
0.4000	0.0232	73.7006	6	73.7006	33.5006
0.4050	0.0233	73.8622	6	73.8622	33.6622
0.4100	0.0233	74.0207	6	74.0207	33.8207
0.4150	0.0234	74.1761	6	74.1761	33.9761
0.4200	0.0235	74.3346	6	74.3346	34.1346
0.4250	0.0236	74.4901	6	74.4901	34.2901
0.4300	0.0236	74.6425	5	74.6425	34.4425
0.4350	0.0237	74.7979	5	74.7979	34.5979
0.4400	0.0238	74.9473	5	74.9473	34.7473
0.4450	0.0239	75.0997	5	75.0997	34.8997
0.4500	0.0239	75.2490	5	75.2490	35.0490
0.4550	0.0240	75.3984	5	75.3984	35.1984
0.4600	0.0241	75.5447	5	75.5447	35.3447
0.4650	0.0242	75.6910	5	75.6910	35.4910
0.4700	0.0242	75.8373	5	75.8373	35.6373
0.4750	0.0243	75.9836	5	75.9836	35.7836
0.4800	0.0244	76.1269	5	76.1269	35.9268
0.4850	0.0244	76.2701	5	76.2701	36.0701
0.4900	0.0245	76.4103	5	76.4103	36.2103

Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.4950	0.0246	76.5505	5	76.5505	36.3505
0.5000	0.0246	76.6907	5	76.6907	36.4907
0.5050	0.0247	76.8309	5	76.8309	36.6309
0.5100	0.0248	76.9681	5	76.9681	36.7681
0.5150	0.0249	77.1053	5	77.1053	36.9053
0.5200	0.0249	77.2424	5	77.2424	37.0424
0.5250	0.0250	77.3796	5	77.3796	37.1796
0.5300	0.0251	77.5137	5	77.5137	37.3137
0.5350	0.0251	77.6478	5	77.6478	37.4478
0.5400	0.0252	77.7819	5	77.7819	37.5819
0.5450	0.0253	77.9130	5	77.9130	37.7130
0.5500	0.0253	78.0440	5	78.0440	37.8440
0.5550	0.0254	78.1751	5	78.1751	37.9751
0.5600	0.0255	78.3062	5	78.3062	38.1062
0.5650	0.0255	78.4372	5	78.4372	38.2372
0.5700	0.0256	78.5653	4	78.5653	38.3652
0.5750	0.0256	78.6933	4	78.6933	38.4933
0.5800	0.0257	78.8213	4	78.8213	38.6213
0.5850	0.0258	78.9462	4	78.9462	38.7462
0.5900	0.0258	79.0743	4	79.0743	38.8743
0.5950	0.0259	79.1992	4	79.1992	38.9992
0.6000	0.0260	79.3242	4	79.3242	39.1242
0.6050	0.0260	79.4461	4	79.4461	39.2461
0.6100	0.0261	79.5711	4	79.5711	39.3711
0.6150	0.0261	79.6930	4	79.6930	39.4930
0.6200	0.0262	79.8149	4	79.8149	39.6149
0.6250	0.0263	79.9368	4	79.9368	39.7368
0.6300	0.0263	80.0588	4	80.0588	39.8588
0.6350	0.0264	80.1776	4	80.1776	39.9776
0.6400	0.0264	80.2965	4	80.2965	40.0965
0.6450	0.0265	80.4154	4	80.4154	40.2154
0.6500	0.0266	80.5343	4	80.5343	40.3343
0.6550	0.0266	80.6531	4	80.6531	40.4531
0.6600	0.0267	80.7720	4	80.7720	40.5720
0.6650	0.0267	80.8878	4	80.8878	40.6878
0.6700	0.0268	81.0037	4	81.0037	40.8037
0.6750	0.0269	81.1195	4	81.1195	40.9195
0.6800	0.0269	81.2353	4	81.2353	41.0353
0.6850	0.0270	81.3481	4	81.3481	41.1481
0.6900	0.0270	81.4639	4	81.4639	41.2639
0.6950	0.0271	81.5767	4	81.5767	41.3767
0.7000	0.0272	81.6894	4	81.6894	41.4894
0.7050	0.0272	81.8022	4	81.8022	41.6022
0.7100	0.0273	81.9150	4	81.9150	41.7150
0.7150	0.0273	82.0247	4	82.0247	41.8247
0.7200	0.0274	82.1375	4	82.1375	41.9375
0.7250	0.0274	82.2472	4	82.2472	42.0472
0.7300	0.0275	82.3570	4	82.3570	42.1570
0.7350	0.0275	82.4667	4	82.4667	42.2667

Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.7400	0.0276	82.5764	4	82.5764	42.3764
0.7450	0.0277	82.6861	4	82.6861	42.4861
0.7500	0.0277	82.7928	4	82.7928	42.5928
0.7550	0.0278	82.9026	4	82.9026	42.7026
0.7600	0.0278	83.0092	4	83.0092	42.8092
0.7650	0.0279	83.1159	4	83.1159	42.9159
0.7700	0.0279	83.2226	4	83.2226	43.0226
0.7750	0.0280	83.3293	4	83.3293	43.1293
0.7800	0.0280	83.4329	4	83.4329	43.2329
0.7850	0.0281	83.5396	4	83.5396	43.3396
0.7900	0.0282	83.6432	4	83.6432	43.4432
0.7950	0.0282	83.7469	4	83.7469	43.5468
0.8000	0.0283	83.8505	4	83.8505	43.6505
0.8050	0.0283	83.9541	4	83.9541	43.7541
0.8100	0.0284	84.0578	4	84.0578	43.8577
0.8150	0.0284	84.1614	3	84.1614	43.9614
0.8200	0.0285	84.2620	3	84.2620	44.0620
0.8250	0.0285	84.3656	3	84.3656	44.1656
0.8300	0.0286	84.4662	3	84.4662	44.2662
0.8350	0.0286	84.5668	3	84.5668	44.3668
0.8400	0.0287	84.6673	3	84.6673	44.4673
0.8450	0.0287	84.7679	3	84.7679	44.5679
0.8500	0.0288	84.8685	3	84.8685	44.6685
0.8550	0.0288	84.9691	3	84.9691	44.7691
0.8600	0.0289	85.0666	3	85.0666	44.8666
0.8650	0.0289	85.1672	3	85.1672	44.9672
0.8700	0.0290	85.2648	3	85.2648	45.0648
0.8750	0.0290	85.3623	3	85.3623	45.1623
0.8800	0.0291	85.4598	3	85.4598	45.2598
0.8850	0.0291	85.5574	3	85.5574	45.3574
0.8900	0.0292	85.6549	3	85.6549	45.4549
0.8950	0.0292	85.7524	3	85.7524	45.5524
0.9000	0.0293	85.8469	3	85.8469	45.6469
0.9050	0.0293	85.9445	3	85.9445	45.7445
0.9100	0.0294	86.0390	3	86.0390	45.8389
0.9150	0.0294	86.1365	3	86.1365	45.9365
0.9200	0.0295	86.2310	3	86.2310	46.0310
0.9250	0.0295	86.3255	3	86.3255	46.1255
0.9300	0.0296	86.4199	3	86.4199	46.2199
0.9350	0.0296	86.5144	3	86.5144	46.3144
0.9400	0.0297	86.6089	3	86.6089	46.4089
0.9450	0.0297	86.7004	3	86.7004	46.5004
0.9500	0.0298	86.7949	3	86.7949	46.5948
0.9550	0.0298	86.8863	3	86.8863	46.6863
0.9600	0.0299	86.9808	3	86.9808	46.7808
0.9650	0.0299	87.0722	3	87.0722	46.8722
0.9700	0.0300	87.1637	3	87.1637	46.9637
0.9750	0.0300	87.2551	3	87.2551	47.0551
0.9800	0.0301	87.3465	3	87.3465	47.1465

Q		Inlet		Gutter	
Total	Captured	Depth	Efficiency	Depth	Spread
(cms)	(cms)	(mm)	(%)	(mm)	(m)
0.9850	0.0301	87.4380	3	87.4380	47.2380
0.9900	0.0302	87.5294	3	87.5294	47.3294
0.9950	0.0302	87.6209	3	87.6209	47.4209
1.0000	0.0303	87.7092	3	87.7092	47.5092
1.0050	0.0303	87.8007	3	87.8007	47.6007

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.7682	0.0000	0.0000	0.0000
0.4273	0.0014	0.1899	25.6428
0.4007	0.0048	0.3445	40.5445
0.4006	0.0088	5.2091	45.4091
0.4066	0.0130	7.2269	47.4269
0.4145	0.0174	8.6777	48.8777
0.4231	0.0220	9.8482	50.0482
0.4316	0.0265	10.8479	51.0479
0.4398	0.0312	11.7288	51.9288
0.4477	0.0358	12.5182	52.7182
0.4554	0.0405	13.2406	53.4406
0.4629	0.0452	13.9081	54.1081
0.4700	0.0500	14.5299	54.7299
0.4768	0.0547	15.1151	55.3151
0.4834	0.0595	15.6637	55.8638
0.4897	0.0643	16.1850	56.3850
0.4958	0.0690	16.6818	56.8818
0.5017	0.0738	17.1573	57.3573
0.5075	0.0786	17.6114	57.8114
0.5130	0.0834	18.0503	58.2503
0.5184	0.0883	18.4710	58.6710
0.5237	0.0931	18.8763	59.0763
0.5288	0.0979	19.2695	59.4695
0.5336	0.1028	19.6505	59.8505
0.5384	0.1076	20.0224	60.2224
0.5432	0.1124	20.3790	60.5790
0.5477	0.1173	20.7295	60.9295
0.5521	0.1221	21.0678	61.2679
0.5565	0.1270	21.4001	61.6001
0.5608	0.1318	21.7232	61.9232
0.5650	0.1367	22.0402	62.2402
0.5689	0.1416	22.3480	62.5480
0.5729	0.1464	22.6498	62.8498
0.5769	0.1513	22.9454	63.1454
0.5808	0.1562	23.2350	63.4350
0.5845	0.1611	23.5184	63.7184
0.5881	0.1659	23.7989	63.9989
0.5918	0.1708	24.0732	64.2732
0.5953	0.1757	24.3414	64.5414
0.5987	0.1806	24.6035	64.8035
0.6023	0.1854	24.8626	65.0626
0.6055	0.1903	25.1186	65.3186
0.6089	0.1952	25.3686	65.5686
0.6121	0.2001	25.6155	65.8155
0.6154	0.2050	25.8593	66.0593
0.6186	0.2099	26.1001	66.3001
0.6216	0.2148	26.3348	66.5348
0.6248	0.2197	26.5695	66.7695
0.6278	0.2246	26.7981	66.9981

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.6307	0.2295	27.0236	67.2236
0.6337	0.2344	27.2461	67.4461
0.6366	0.2393	27.4687	67.6687
0.6395	0.2442	27.6851	67.8851
0.6422	0.2491	27.8984	68.0984
0.6451	0.2540	28.1118	68.3118
0.6478	0.2589	28.3221	68.5221
0.6505	0.2638	28.5294	68.7294
0.6532	0.2687	28.7336	68.9336
0.6559	0.2736	28.9347	69.1347
0.6584	0.2785	29.1359	69.3359
0.6610	0.2834	29.3340	69.5340
0.6636	0.2883	29.5291	69.7291
0.6661	0.2932	29.7211	69.9211
0.6687	0.2981	29.9131	70.1131
0.6711	0.3031	30.1021	70.3021
0.6735	0.3080	30.2911	70.4911
0.6760	0.3129	30.4770	70.6770
0.6783	0.3178	30.6599	70.8599
0.6807	0.3227	30.8428	71.0428
0.6830	0.3276	31.0226	71.2226
0.6854	0.3325	31.2024	71.4025
0.6876	0.3375	31.3792	71.5792
0.6899	0.3424	31.5560	71.7560
0.6921	0.3473	31.7298	71.9298
0.6944	0.3522	31.9004	72.1004
0.6967	0.3571	32.0711	72.2711
0.6988	0.3621	32.2418	72.4418
0.7009	0.3670	32.4095	72.6095
0.7031	0.3719	32.5740	72.7741
0.7052	0.3768	32.7417	72.9417
0.7073	0.3817	32.9032	73.1032
0.7094	0.3867	33.0678	73.2678
0.7116	0.3916	33.2294	73.4294
0.7135	0.3965	33.3879	73.5879
0.7156	0.4014	33.5464	73.7464
0.7177	0.4064	33.7049	73.9049
0.7196	0.4113	33.8603	74.0603
0.7216	0.4162	34.0158	74.2158
0.7235	0.4211	34.1682	74.3682
0.7255	0.4261	34.3206	74.5206
0.7274	0.4310	34.4730	74.6730
0.7294	0.4359	34.6254	74.8254
0.7313	0.4408	34.7747	74.9747
0.7332	0.4458	34.9210	75.1210
0.7350	0.4507	35.0704	75.2704
0.7369	0.4556	35.2167	75.4167
0.7387	0.4606	35.3630	75.5630
0.7406	0.4655	35.5062	75.7062

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.7424	0.4704	35.6495	75.8495
0.7442	0.4754	35.7927	75.9927
0.7460	0.4803	35.9329	76.1329
0.7478	0.4852	36.0762	76.2762
0.7496	0.4901	36.2134	76.4134
0.7513	0.4951	36.3536	76.5536
0.7530	0.5000	36.4907	76.6907
0.7548	0.5049	36.6279	76.8279
0.7565	0.5099	36.7650	76.9651
0.7582	0.5148	36.9022	77.1022
0.7599	0.5197	37.0363	77.2363
0.7616	0.5247	37.1704	77.3704
0.7633	0.5296	37.3045	77.5046
0.7650	0.5346	37.4356	77.6356
0.7665	0.5395	37.5667	77.7667
0.7682	0.5444	37.6977	77.8977
0.7699	0.5494	37.8288	78.0288
0.7714	0.5543	37.9568	78.1568
0.7731	0.5592	38.0879	78.2879
0.7746	0.5642	38.2159	78.4159
0.7763	0.5691	38.3409	78.5409
0.7778	0.5740	38.4689	78.6689
0.7795	0.5790	38.5938	78.7939
0.7810	0.5839	38.7188	78.9188
0.7826	0.5889	38.8438	79.0438
0.7841	0.5938	38.9688	79.1688
0.7856	0.5987	39.0907	79.2907
0.7871	0.6037	39.2156	79.4156
0.7887	0.6086	39.3376	79.5376
0.7902	0.6136	39.4564	79.6564
0.7917	0.6185	39.5784	79.7784
0.7932	0.6234	39.7003	79.9003
0.7947	0.6284	39.8191	80.0191
0.7961	0.6333	39.9380	80.1380
0.7976	0.6383	40.0569	80.2569
0.7990	0.6432	40.1727	80.3727
0.8005	0.6481	40.2916	80.4916
0.8019	0.6531	40.4074	80.6074
0.8034	0.6580	40.5232	80.7232
0.8048	0.6630	40.6391	80.8391
0.8062	0.6679	40.7549	80.9549
0.8076	0.6728	40.8707	81.0707
0.8090	0.6778	40.9835	81.1835
0.8104	0.6827	41.0963	81.2963
0.8119	0.6877	41.2090	81.4090
0.8132	0.6926	41.3218	81.5218
0.8146	0.6976	41.4346	81.6346
0.8160	0.7025	41.5474	81.7474
0.8173	0.7075	41.6571	81.8571

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.8187	0.7124	41.7668	81.9668
0.8200	0.7173	41.8796	82.0796
0.8214	0.7223	41.9863	82.1863
0.8226	0.7272	42.0960	82.2960
0.8240	0.7322	42.2057	82.4057
0.8253	0.7371	42.3124	82.5124
0.8266	0.7421	42.4221	82.6221
0.8279	0.7470	42.5288	82.7288
0.8293	0.7520	42.6355	82.8355
0.8305	0.7569	42.7422	82.9422
0.8319	0.7619	42.8489	83.0489
0.8332	0.7668	42.9525	83.1525
0.8344	0.7717	43.0592	83.2592
0.8357	0.7767	43.1628	83.3628
0.8370	0.7816	43.2664	83.4664
0.8382	0.7866	43.3731	83.5731
0.8395	0.7915	43.4737	83.6737
0.8407	0.7965	43.5773	83.7773
0.8420	0.8014	43.6810	83.8810
0.8432	0.8064	43.7846	83.9846
0.8445	0.8113	43.8852	84.0852
0.8457	0.8163	43.9858	84.1858
0.8469	0.8212	44.0863	84.2863
0.8481	0.8262	44.1900	84.3900
0.8493	0.8311	44.2875	84.4875
0.8505	0.8361	44.3881	84.5881
0.8517	0.8410	44.4887	84.6887
0.8530	0.8460	44.5862	84.7862
0.8542	0.8509	44.6868	84.8868
0.8553	0.8559	44.7843	84.9843
0.8565	0.8608	44.8819	85.0819
0.8577	0.8658	44.9825	85.1825
0.8589	0.8707	45.0800	85.2800
0.8600	0.8757	45.1745	85.3745
0.8612	0.8806	45.2720	85.4720
0.8623	0.8856	45.3696	85.5695
0.8635	0.8905	45.4640	85.6640
0.8646	0.8955	45.5616	85.7616
0.8658	0.9004	45.6561	85.8561
0.8669	0.9054	45.7506	85.9506
0.8680	0.9103	45.8450	86.0450
0.8692	0.9153	45.9395	86.1395
0.8703	0.9202	46.0340	86.2340
0.8715	0.9252	46.1285	86.3285
0.8725	0.9301	46.2230	86.4230
0.8737	0.9351	46.3144	86.5144
0.8748	0.9400	46.4089	86.6089
0.8759	0.9450	46.5004	86.7004
0.8770	0.9499	46.5918	86.7918

Gutter	Bypass		
Velocity	Q	Spread	Depth
(m/s)	(cms)	(m)	(mm)
0.8781	0.9549	46.6863	86.8863
0.8792	0.9598	46.7777	86.9777
0.8802	0.9648	46.8692	87.0692
0.8814	0.9697	46.9606	87.1606
0.8824	0.9747	47.0490	87.2490

APPENDIX D
Wastewater Servicing

URBANTECH®

SANITARY SEWER DESIGN SHEET

Eaglewood

TOWN OF OAKVILLE

REGIONAL MUNICIPALITY OF HALTON

PROJECT DETAILS

Project No: 20-657
Date: 14-Dec-21
Designed by: E.L.
Checked by: S.H.

DESIGN CRITERIA

Min Diameter = 200 mm
Mannings 'n'= 0.013
Min. Velocity = 0.60 m/s
Max. Velocity = 3.00 m/s
Avg. Domestic Flow = 275.0 l/c/d
Infiltration = 0.286 l/s/ha
Max. Peaking Factor = 4.50
Min. Peaking Factor= 2.00

NOMINAL PIPE SIZE USED

STREET	FROM MH	TO MH	LENGTH (m)	RESIDENTIAL							COMMERCIAL/INDUSTRIAL/INSTITUTIONAL						FLOW CALCULATIONS							PIPE DATA					
				AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENSITY (P/ha)	DENSITY (P/Unit)	POP	ACCUM. RES. POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (P/ha)	FLOW RATE (l/s/ha)	EQUIV. POP.	ACCUM. EQUIV. POP.	INFILTRATION (l/s)	TOTAL ACCUM. POP.	PEAKING FACTOR	RES. FLOW (l/s)	COMM. FLOW (l/s)	ACCUM. COMM. FLOW (l/s)	TOTAL FLOW (l/s)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)
STREET B	1	2	17.8	0.19	0.19		55		11	11							0.1	11	4.50	0.2			0.2	1.00	200	32.8	1.04	0.27	1%
STREET B	2	3	57.4	0.33	0.52		55		19	30							0.1	30	4.50	0.4			0.6	1.00	200	32.8	1.04	0.37	2%
STREET B	3	4	32.0	0.19	0.71		55		11	41							0.2	41	4.50	0.6			0.8	0.50	200	23.2	0.74	0.33	3%
STREET B	4	11	47.0	0.31	1.02		55		18	59							0.3	59	4.50	0.8			1.1	0.50	200	23.2	0.74	0.38	5%
STREET B	1	5	20.6	0.13	0.13		55		8	8							0.0	8	4.50	0.1			0.2	1.00	200	32.8	1.04	0.27	0%
STREET B	5	6	37.1	0.17	0.30		55		10	18							0.1	18	4.50	0.3			0.3	1.00	200	32.8	1.04	0.27	1%
STREET B	6	7	18.1	0.20	0.50		55		11	29							0.1	29	4.50	0.4			0.6	1.00	200	32.8	1.04	0.32	2%
STREET B	7	8	27.6	0.18	0.68		55		10	39							0.2	39	4.50	0.6			0.8	1.00	200	32.8	1.04	0.41	2%
STREET B	8	9	48.2	0.33	1.01		55		19	58							0.3	58	4.50	0.8			1.1	0.50	200	23.2	0.74	0.38	5%
STREET B	9	10	11.8	0.07	1.08		55		4	62							0.3	62	4.50	0.9			1.2	0.50	200	23.2	0.74	0.38	5%
STREET B	10	11	68.5	0.25	1.33		135		34	96							0.4	96	4.50	1.4			1.8	0.50	200	23.2	0.74	0.44	8%
STREET A	11	12	36.9	0.26	2.61		95		25	180							0.7	180	4.50	2.6			3.3	0.50	200	23.2	0.74	0.52	14%
STREET A	12	13	13.7	0.11	2.72					180							0.8	180	4.50	2.6			3.4	0.50	200	23.2	0.74	0.52	14%
STREET A	13	17	54.4		2.72					180							0.8	180	4.50	2.6			3.4	0.50	200	23.2	0.74	0.52	14%
LANE B	14	15	47.2	0.16	0.16		135		22	22							0.0	22	4.50	0.3			0.4	1.00	200	32.8	1.04	0.27	1%
LANE C	15	16	114.9	0.52	0.68		135		71	93							0.2	93	4.50	1.3			1.5	0.50	200	23.2	0.74	0.42	7%
LANE C	16	17	12.7		0.68					93							0.2	93	4.50	1.3			1.5	0.50	200	23.2	0.74	0.42	7%
STREET A	17	23	35.7	0.06	3.46					273							1.0	273	4.50	3.9			4.9	0.50	200	23.2	0.74	0.57	21%
LANE B	15	19	35.8	0.13	0.29		135		18	40							0.1	40	4.50	0.6			0.7	1.00	200	32.8	1.04	0.37	2%
LANE D	18	19	29.4	0.09	0.09		135		13	13							0.0	13	4.50	0.2			0.2	1.00	200	32.8	1.04	0.27	1%
LANE A	19	21	91.2	0.21	0.59		135		29	82							0.2	82	4.50	1.2			1.3	0.50	200	23.2	0.74	0.40	6%
LANE D	18	20	90.5	0.45	0.45		135		61	61							0.1	61	4.50	0.9			1.0	1.00	200	32.8	1.04	0.44	3%
LANE D	20	21	29.4	0.06	0.51		135		9	70							0.1	70	4.50	1.0			1.1	0.50	200	23.2	0.74	0.38	5%
LANE A	21	22	33.7	0.07	1.17		135		10	162							0.3	162	4.50	2.3			2.7	0.50	200	23.2	0.74	0.49	11%
STREET A	22	23	51.9	0.12	1.29					162							0.4	162	4.50	2.3			2.7	0.50	200	23.2	0.74	0.49	12%
BRONTE RD	23	24	52.3		4.75					435							1.4	435	4.50	6.2			7.6	0.50	200	23.2	0.74	0.64	33%
Eaglewood	PLUG1	24	4.0	0.45	0.45	0	0	0	196	196	0.00	0.00	0	0.000	0	0	0.1	196	4.50	2.8	0.0	0.0	2.9	1.00	200	32.8	1.04	0.65	9%
BRONTE RD	24	25	52.3		5.20					631							1.5	631	4.50	9.0			10.5	0.50	200	23.2	0.74	0.71	45%
FUTURE		25		0.36	0.36		285		103	103							0.1	103	4.50	1.5			1.6						
BRONTE RD	25	26	30.8		5.56					734							1.6	734	4.50	10.5			12.1	0.50	200	23.2	0.74	0.73	52%
YELLOW ROSE CIR.	26	EX.PLUG1	9.6		5.56					734							1.6	734	4.50	10.5			12.1	0.32	200	18.6	0.59	0.62	65%
YELLOW ROSE CIR.	EX.PLUG1	EX.MH3A	14.6		5.56					734							1.6	734	4.50	10.5			12.1	0.32	200	18.6	0.59	0.62	65%

APPENDIX E
Water Servicing

HYDRANT INSPECTION & FLOW REPORT

SUGGESTED NFPA RATING	
BLUE	CLASS AA
1580 gpm @ 20 psi (138 kPa)	

ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

Prepared By: The Ontario Clean Water Agency
Prepared For: Urbantech Consulting
Residual Hyd Andrew Cruickshank
Flow Hyd(s) Kurt Kahler,Brandon Williams

Date: 16-Nov-21 Time: 8:22 AM

HYDRANT DESCRIPTION

Hydrant ID:	3210	Side of Street:	East	Make:	McAvity	Open Dir:	Left
Address:	Across from 1354 Bronte Road			Model:	Brigadier M-67	Latitude:	
Location:	Oakville, Ontario			Year:	2007	Longitude:	

GENERAL INSPECTION

OK - Good Condition *FR - Future Repair Required* *N/A - Not Applicable* *CF - Component Failure*

Upper Section	OK	FR	N/A	CF
Bonnet	☐	☐	☑	☐
Operating Nut	☐	☐	☑	☐
Gaskets / Bolts	☐	☐	☑	☐
O-Ring(s)	☐	☐	☑	☐

Mid Section	OK	FR	N/A	CF
Port Height	☐	☐	☑	☐
Caps / Nozzles	☐	☐	☑	☐
Chains	☐	☐	☑	☐
Traffic Flange	☐	☐	☑	☐

General	OK	FR	N/A	CF
Accessibility	☐	☐	☑	☐
Position / Height	☐	☐	☑	☐
Paint Cond	☐	☐	☑	☐
Drain Ports	☐	☐	☑	☐

Hydrostatic Leak Testing		
Hydrant Closed	Above Grade Leak	N/A
	Subsurface Leak	N/A
Hydrant Open	Above Grade Leak	N/A
	Subsurface Leak	N/A

Maintenance	
Lubricate Operating Nut	N/A
Lubricate & Clean Nozzle Threads	N/A
Lubricate & Clean Cap Threads	N/A
Water Removed (if non-draining)	N/A

Auxiliary / Secondary Valve	
Located / Accessible	N/A
Operated/Exercised	N/A
Number of Turns	N/A
Open Direction	

Comments:

Auxiliary Valve Location:

FLUSHING

*If hydrants are being flow tested, inspections and flushing are completed prior to testing

Hydrant Operated	Clear Flow Obtained	Cl2 Residual	Time Flushed	Flow	Total Flow	Dechlorinated
Yes - Easily Operated	Yes	N/A	5 minutes	1531 gal	7655 gal	Yes

Comments: **STATIC AFTER FLOW TEST WAS PERFORMED 49.12 PSI**

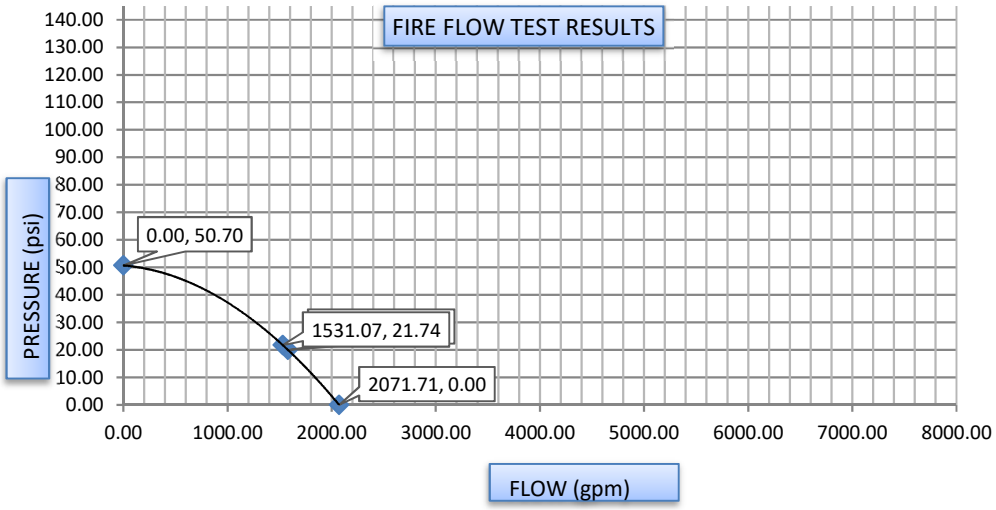
City of Toronto water department will drain the water in the hydrant if required

FLOW TESTING

*Flow testing results may be from previous year(s). Note date & time

Date: 16-Nov-21 Time: 8:21 AM

Flow Hydrant								Test Hydrant		
ID	Flow Device Used	Size	Coefficient	Time Flushed	Flow	Total Flow	Pitot	ID	Static	Residual
41289	Pollard Diffuser	2.5"	0.832	5.0 minutes	491 gal	2453 gal	10 psi	3210	50.70	21.74
41289	Pollard Diffuser	2.5"	0.832	5.0 minutes	347 gal	1734 gal	5 psi			
2781	Pollard Diffuser	2.5"	0.832	3.0 minutes	347 gal	1041 gal	5 psi			
2781	Pollard Diffuser	2.5"	0.832	3.0 minutes	347 gal	1041 gal	5 psi			



Calculated Results	
Calculated Flow @ 20 psi	1580 gpm
Calculated Flow @ 0 psi	2072 gpm
Pressure Drop	57.12%

Comments:

HOSE USED ON HYD 2781 TO AVOID DAMAGE TO SOD

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

ESTIMATE

ONTARIO CLEAN WATER AGENCY

DATE: OCTOBER 28, 2021

3392 Wonderland Road South,
Building 9, Unit 6, London, ON
N6L 1A8
Phone 226-374-4218
acruickshank@ocwa.com

TO Urbantech Consulting
2030 Bristol Circle, Suite 105
Oakville, ON
L6H 0H2

PROJECT / JOB INFO	PAYMENT TERMS	QUOTE VAILD
Fire Flow Testing 1354 Bronte Road, Oakville, ON	30 days	60 days
PROJECT MANAGER INFO AT SCS	**EMAIL ADDRESS**	**PHONE NUMBER**
Janna Ormond Municipal Design Assistant	Jannaormond@urbantech.com	2030 Bristol Circle, Suite 105, Oakville, ON L6H 0H2 jannaormond@urbantech.com • www.urbantech.com **TEL** 905-829-8818 Ext.1003 • **DIR** 905-829-6913

REF	DESCRIPTION	PRICE
Item 1	Flow Testing of 1 Hydrant or 2 Hydrants (max) to receive required pressure drop. • Flow testing completed according to AWWA & NFPA 291 requirements. • All flow tests to be completed with a minimum of 2 hydrants (flow & residual). Every effort will be made to ensure adequate pressure drops to ensure accurate testing. • Flow report provided for each hydrant indicating the date, time, operator, test hydrant information, test #, NFPA colour code, static pressure, residual pressure, pitot gauge reading(psi), flow in USGPM, available flow at test hydrant at 20psi & 0psi • Summary report of all flow tests compiled in a tabular form based on the test numbers with all details including date, time, hydrant location, available flow at 20PSI in USGPM and the flow rate colour code, pipe size, length, accuracy, explanation about any unexpected values etc • Provide a record of any deficiencies found • Pump out each hydrant after use • Three OCWA certified staff to be provided for flow test including mobilization/demobilization	$1850.00
Item 2	**I am not sure when the cut off to book fire flow testing is. Most municipalities are early to Mid-November**	
	SUBTOTAL	$1850.00
	HST (13%)	N/A
	TOTAL	$1850.00

OCWA shall indemnify and hold harmless the Contractor and against claims which may be suffered or incurred by the Contractor to the extent that such claim is solely attributed to OCWA's negligence or willful misconduct when performing the Services. No indemnification will be provided where such claim is due to an uncontrollable circumstance or to a condition of the infrastructure that existed prior to OCWA's commencement of the services. OCWA will not be held liable for any valve or appurtenance that may be affected adversely by the activities.

OCWA agrees to maintain professional liability insurance as well as errors and omissions insurance with a limit liability of no less than $2,000.000.

To accept this quotation, sign here and return: _____

1354 Bronte Road

TEST HYD PSI	Flow Hyd 1 Pitot	Flow Hyd 2 Pitot	RESULTS
50.7			
35.69	25		29.61%
29.82	10 and 05		41.18%
23.79		10	53.08%
21.74	10 and 05	5 and 5	57.12%
NFPA is 25% Drop			
AWWA is no less than 10 PSI drop			



Flow hydrant

HYD 41289

Residual Hyd

HYD 3210





Hose used to avoid damage to area sod

HYD 2781

Bronte Rd

Bronte Rd

Queen's Plate Parkette

Saw Whet Blvd.

Saw Whet Park

Saw Whet Blvd.

Saw Whet Blvd.

Merton Rd

Saw Whet Blvd.

Junk it!

Cats Castle Cat Hotel

Bell Ln

Littlefield Cres

Bronte Rd

Badger Cres

Layers

Google

Imagery ©2021 Maxar Technologies, USDA Farm Service Agency, Map data ©2021 Canada Terms Privacy Send feedback 50 m

APPENDIX F
Geotechnical Report

Report on

Geotechnical Investigation
Proposed Mid-Rise Building
1354 Bronte Road
Oakville, Ontario

Prepared For:

Eaglewood Communities Inc.

Project No. 21-347-100
Date: November 25, 2021

DS CONSULTANTS LTD.
6221 Highway 7, Unit 16
Vaughan, Ontario, L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

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1. INTRODUCTION

DS Consultants Ltd. (DS) was retained by Eaglewood Communities Inc. to undertake a geotechnical investigation for the proposed development located at 1354 Bronte Road, Oakville, Ontario.

It is understood that the proposed development will consist of a midrise (4-Storey) building with one level of basement with finished basement floor at elevation 127.5m.

The purpose of this geotechnical investigation was to determine the subsurface conditions at four (4) borehole locations and from the findings at the boreholes make geotechnical recommendations for the following:

1) Foundations
2) Floor slabs and permanent drainage
3) Excavations and groundwater control
4) Earth pressures
5) Earthquake considerations

This report is provided on the basis of the terms of reference presented above and, on the assumption, that the design will be in accordance with applicable codes and standards. If there are any changes in the design features relevant to the geotechnical analyses, or if any questions arise concerning the geotechnical aspects of the codes and standards, this office should be contacted to review the design. It may then be necessary to carry out additional borings and reporting before the recommendations can cater to the changed design.

The site investigation and recommendations follow generally accepted practice for geotechnical consultants in Ontario. The format and contents are guided by client specific needs and economics. Laboratory testing for most part follows ASTM or CSA Standards or modifications of these standards that have become standard practice.

This report has been prepared for Eaglewood Communities Inc., its architects, and designers. Use of this report by third party without DS consent is prohibited.

2. FIELD AND LABORATORY WORK

Four (4) boreholes (BH21-1 to BH21-4, see **Drawing 1** for borehole locations) were drilled at the subject site to depths ranging from 8.2 to 9.7m below the existing ground surface. Boreholes were drilled using solid stem continuous flight augers equipment by a drilling sub-contractor under the direction and supervision of DS personnel. Samples were retrieved at regular intervals

with a 50 mm O.D. split-barrel sampler driven with a hammer weighing 624 N and dropping 760 mm in accordance with the Standard Penetration Test (SPT) method. The samples were logged in the field and returned to the DS laboratory for detailed examination by the project engineer and for laboratory testing.

As well as visual examination in the laboratory, all soil samples from geotechnical boreholes were tested for moisture contents. Selected three (3) soil samples were subject to grain size analyses and results are presented on Drawing 7.

Water level observations were made during and upon completion of drilling. Monitoring wells of 50mm diameter were installed in boreholes BH21-1, BH21-2 and BH21-3 for the long-term groundwater levels measurements.

The surface elevations at the borehole locations were surveyed by DS, using differential GPS system.

3. SITE AND SUBSURFACE CONDITIONS

The borehole location plan is shown on **Drawing 1**. General notes on sample description are provided on **Drawing 1A**. The subsurface conditions at borehole locations are presented in the individual borehole logs presented on **Drawings 2 to 5**. A generalized sub-surface profile is presented on **Drawing 6**. The subsurface conditions in the boreholes are summarized in the following paragraphs.

3.1 Soil Conditions

Pavement Structure/Topsoil/Fill/Weathered/disturbed Soils: One borehole (BH21-1) was drilled on the paved area and encountered a pavement structure consisting of 130 mm of asphaltic concrete, overlying about 230 mm of the granular base/sub-base. A layer of topsoil, varying in thickness from 180 to 200 mm, was present at the surface of all the boreholes except BH21-1.

It should be noted that the thickness of the topsoil explored at the borehole locations may not be representative for the site and should not be relied on to calculate the amount of topsoil at the site. Shallow test pits should be carried out to explore the thickness of topsoil across the site.

Fill material and upper weathered/disturbed soils consisting of silty clay till, sandy silt to silty sand, sand and clayey silt to silty clay were encountered in all the boreholes, extending to depths varying from 1.1 to 1.5m. The fill material was found to have a soft to very stiff or very loose to compact state, with measured SPT 'N' values ranging from 2 to 19 blows per 300 mm penetration. Inclusions of topsoil, rootlets and organics were also found in fill material.

Silty Clay Till: Below the fill material, upper native soil consisting of silty clay till was encountered in boreholes, extending to depths of 3.1 to 4.6m below the existing grade. Silty clay till deposit was found to have a firm to hard consistency, with measured SPT 'N' values ranging from 7 to more than 30 blows per 300mm of penetration.

Grain size analysis of one (1) silty clay till sample (BH21-4/SS4) was conducted and the results are presented in Drawing 7, with the following fractions:

Clay:	18%
Silt:	53%
Sand:	26%
Gravel:	3%

Atterberg Limits test was conducted on the same silty clay till sample (BH21-4/SS4) and the results are presented on the respective borehole logs, with the following values:

Liquid Limit:	23%
Plastic Limit:	15%
Plasticity Index:	8

Sandy Silt to Silty Sand Till: Below the upper silty clay till deposits, sandy silt to silty sand till deposits were encountered in the boreholes, extending to the depths of 6.1 to 7.6 m and overlying sand and gravel deposits. Sandy silt to silty sand till was present in a very dense state, with measured SPT 'N' values of over 50 blows per 300 mm of penetration. Occasional seams/layers of sand and cobble/boulder were present within the till deposit.

Grain size analysis of two (2) sandy silt to silty sand till sample (BH21-1/SS6 and BH21-2/SS7) were conducted and the results are presented in Drawing 7, with the following fractions:

Clay:	6 to 11%
Silt:	19 to 39%
Sand:	31 to 58%
Gravel:	17 to 19%

Sand and Gravel Deposits: A water bearing sand and gravel deposit was encountered in all the boreholes below a depth of 6.1 to 7.6 m, below the sandy silt to silty sand till deposits and extended to the maximum explored depth of boreholes. Sand and Gravel was present in a wet condition. The measured SPT 'N' value in this deposit was 44 to over 50 blows per 300 mm of penetration, indicating its dense to very dense state.

3.2 Groundwater Conditions

During drilling, short-term (unstabilized) water was found in borehole BH21-4 at a depth of about 4.6 m below the existing grade. The groundwater levels measured in the monitoring wells installed in BH21-1, BH21-2 and BH21-3 on November 3, 2021 were found below the depths

ranging from 5.6 to 7.7 m below ground surface, corresponding to Elevations 122.6 to 122.7 m, as summarized in **Table 1**.

Table 1: Summary of Groundwater Level Measurements in Monitoring Wells

Borehole No.	Ground Surface Elev. (m)	Date of Observation	Depth of Groundwater (m)	Elevation of Groundwater (m)
BH21-1	130.3	November 3, 2021	7.7	122.6
BH21-2	129.8	November 3, 2021	7.1	122.6
BH21-3	128.3	November 3, 2021	5.6	122.7

It should be noted that the groundwater levels can vary and are subject to seasonal fluctuations in response to major weather events.

4. FOUNDATIONS

It is understood that the proposed development will consist of a midrise building with one level of basement with finished basement floor (P1 slab) at Elevation 127.5 m. Footings will be 1 to 2m below the P1 slab.

Based on the information from boreholes, the proposed building with one level of basement can be supported by conventional spread and strip footings founded on the undisturbed native soils.

Footings founded on undisturbed native soils can be designed for bearing capacity value of 300 to 400 kPa at SLS (Serviceability Limit States), and for a factored geotechnical resistance of 450 to 600 kPa at ULS (Ultimate Limit States). The bearing values and the corresponding founding elevations at the borehole locations are summarized on **Table 2**.

Table 2: Bearing Values and Founding Levels of Footings

BH No.	Founding Soils	Bearing Capacity at SLS (kPa)	Factored Geotechnical Resistance at ULS (kPa)	Minimum Depth below Existing Ground (m)	Founding Level at or Below Elevation (m)
BH21-1	Silty Clay Till	300	450	2.0	128.3
	Sandy Silt to Silty Sand Till	400	600	4.6	125.7
BH21-2	Silty Clay Till	300	450	2.0	127.8
	Sandy Silt to Silty Sand Till	400	600	4.6	125.2

BH21-3	Silty Clay Till	300 400	450 600	1.5 2.3	126.8 126.0
BH21-4	Silty Clay Till Sandy Silt to Silty Sand Till	300 400	450 600	1.8 4.6	127.5 124.7

Foundations designed to the specified bearing capacity at the Serviceability Limit States (SLS) are expected to settle less than 25 mm total and 19 mm differential.

All footings exposed to seasonal freezing conditions must have at least 1.2 m of soil cover for frost protection.

All footing bases must be inspected by this office prior to pouring concrete.

Where it is necessary to place footings at different levels, the upper footing must be founded below an imaginary 10 horizontal to 7 vertical line drawn up from the base of the lower footing. The lower footing must be installed first to help minimize the risk of undermining the upper footing.

It should be noted that the recommended bearing capacities have been calculated by DS Consultants Ltd. from the borehole information for the design stage only. The investigation and comments are necessarily on-going as new information of the underground conditions becomes available. For example, more specific information is available with respect to conditions between boreholes when foundation construction is underway. The interpretation between boreholes and the recommendations of this report must therefore be checked through field inspections provided by DS Consultants Ltd to validate the information for use during the construction stage.

5. FLOOR SLAB AND PERMANENT DRAINAGE

The basement floor can be supported on grade provided all existing fill/weathered disturbed material and surficially loose/softened soils are removed and the base thoroughly proof rolled. Any backfill required to raise the grade can consists of inorganic soil, placed in shallow lifts and compacted to 98 percent of Standard Proctor Maximum Dry Density (SPMDD).

A moisture barrier consisting of at least 200mm of 19mm clear crushed stone should be installed under the floor slab.

A perimeter and underfloor drainage system will be required around the exterior basement walls. Typical drainage and backfill recommendations are illustrated on **Drawings 8** for the open cut excavations.

6. EARTH PRESSURES

The lateral earth pressures acting on basement walls may be calculated from the following expression:

$$p = K(\gamma h + q)$$

where p = Lateral earth pressure in kPa acting at depth h

K = Earth pressure coefficient equal to 0.40 for vertical walls and horizontal backfill used for permanent construction. Water pressure must be considered, if continuous wall drains are not used.

γ = Unit weight of backfill, a value of 21 kN/m^3 may be assumed

h = Depth to point of interest in metres

q = Equivalent value of surcharge on the ground surface in kPa

The above expression assumes that the perimeter drainage system prevents the build-up of any hydrostatic pressure behind the wall.

7. EXCAVATION AND GROUNDWATER CONTROL

Excavations can be carried out with heavy hydraulic backhoe. Due to the low permeability of the glacial till deposits, it is expected that the water seepage through the till deposits can be controlled by conventional pumping methods for excavations above elevation 126.0 m. Groundwater table in the monitoring wells was recorded at depths ranging from 5.6 to 7.7m, corresponding to Elevations 122.6 to 122.7 m. Positive dewatering will be required prior to any excavation in sandy silt to silty sand till, sand and gravel below the groundwater table, otherwise it will result in an unstable base and flowing sides.

DS is currently completing a hydrogeological assessment at the subject site. More comments regarding the type and extent of groundwater control required during construction and permanent drainage will be addressed in our hydrogeological report.

It should be noted that the till is a non-sorted sediment and therefore may contain boulders. Provisions must be made in the excavation contract for the removal of possible boulders in the till or obstructions in the fill material.

All excavations must be carried out in accordance with the most recent Occupational Health and Safety Act (OHSA). In accordance with OHSA, the fill can be classified as Type 3 Soil above

groundwater table. The very stiff to hard silty clay till can be classified as Type 2 Soil above the groundwater table and Type 3 Soil below groundwater table. Firm clayey soils and sandy silt to silty sand till and cohesionless soils (sand and gravel) can be classified as Type 3 Soil above groundwater table and Type 4 Soil below the groundwater table.

The select inorganic fill and native soils free from topsoil and organics can be used as general construction backfill where it can be compacted with sheep's foot type compactors. Loose lifts of soil, which are to be compacted, should not exceed 200 mm.

Imported Granular 'B' fill is recommended in areas where free draining material is required, i.e. backfill behind foundation walls and in footing trenches. Imported granular fill, which can be compacted with handheld equipment, should be used in confined areas.

It should be noted that the excavated soils are subject to moisture content increase during wet weather which would make these materials too wet for adequate compaction. Stockpiles should therefore be compacted at the surface or be covered with tarpaulins to help minimize moisture uptake.

8. EARTHQUAKE CONSIDERATIONS

Based on the borehole information and according to Table 4.1.8.4.A of OBC 2012, the subject site for the proposed building with one level of basement can be classified as “Class C” for seismic site response.

9. GENERAL COMMENTS AND LIMITATIONS OF REPORT

DS Consultants Ltd. (DS) should be retained for a general review of the final design and specifications to verify that this report has been properly interpreted and implemented. If not accorded the privilege of making this review, DS will assume no responsibility for interpretation of the recommendations in the report.

This report is intended solely for the Client named. The material in it reflects our best judgment in light of the information available to DS at the time of preparation. Unless otherwise agreed in writing by DS, it shall not be used to express or imply warranty as to the fitness of the property for a particular purpose. No portion of this report may be used as a separate entity, it is written to be read in its entirety.

The conclusions and recommendations given in this report are based on information determined at the test hole locations. The information contained herein in no way reflects on the environment aspects of the project, unless otherwise stated. Subsurface and groundwater conditions between and beyond the test holes may differ from those encountered at the test hole

locations, and conditions may become apparent during construction, which could not be detected or anticipated at the time of the site investigation. The benchmark and elevations used in this report are primarily to establish relative elevation differences between the test hole locations and should not be used for other purposes, such as grading, excavating, planning, development, etc.

The design recommendations given in this report are applicable only to the project described in the text and then only if constructed substantially in accordance with the details stated in this report.

The comments made in this report on potential construction problems and possible methods are intended only for the guidance of the designer. The number of test holes may not be sufficient to determine all the factors that may affect construction methods and costs. For example, the thickness of surficial topsoil or fill layers may vary markedly and unpredictably. The contractors bidding on this project or undertaking the construction should, therefore, make their own interpretation of the factual information presented and draw their own conclusions as to how the subsurface conditions may affect their work. This work has been undertaken in accordance with normally accepted geotechnical engineering practices.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. DS accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. We accept no responsibility for any decisions made or actions taken as a result of this report unless we are specifically advised of and participate in such action, in which case our responsibility will be as agreed to at that time.

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

DS Consultants Ltd.

Simerjeet Singh Gill, M. Eng., P. Eng.

Shabbir Bandukwala, M. Eng., P.Eng.



Fanyu Zhu, Ph. D., P.Eng.



Drawings



Legend

- Monitoring Well Locations
- Borehole Locations

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www.dsconsultants.ca

Project: Geotechnical Investigation -1354 Bronte Road, Oakville, ON

Title: **Borehole Location Plan**

N

Client: Eaglewood Communities Inc.

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	FZ	SG	November, 2021
Rev: 0	Scale: As Shown	Project No.: 21-347-100	Drawing No.: 1

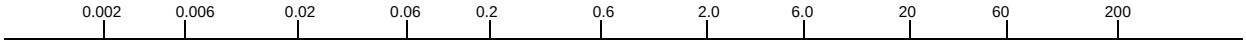
Image/Map Source: *Google Satellite Image*

Drawing 1A: Notes On Sample Descriptions

1. All sample descriptions included in this report generally follow the Unified Soil Classification. Laboratory grain size analyses provided by DSCL also follow the same system. Different classification systems may be used by others, such as the system by the International Society for Soil Mechanics and Foundation Engineering (ISSMFE). Please note that, with the exception of those samples where a grain size analysis and/or Atterberg Limits testing have been made, all samples are classified visually. Visual classification is not sufficiently accurate to provide exact grain sizing or precise differentiation between size classification systems.

ISSMFE SOIL CLASSIFICATION

CLAY	SILT			SAND			GRAVEL			COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE		



EQUIVALENT GRAIN DIAMETER IN MILLIMETRES

CLAY (PLASTIC) TO	FINE	MEDIUM	CRS.	FINE	COARSE
SILT (NONPLASTIC)	SAND			GRAVEL	

UNIFIED SOIL CLASSIFICATION

2. Fill: Where fill is designated on the borehole log it is defined as indicated by the sample recovered during the boring process. The reader is cautioned that fills are heterogeneous in nature and variable in density or degree of compaction. The borehole description may therefore not be applicable as a general description of site fill materials. All fills should be expected to contain obstruction such as wood, large concrete pieces or subsurface basements, floors, tanks, etc., none of these may have been encountered in the boreholes. Since boreholes cannot accurately define the contents of the fill, test pits are recommended to provide supplementary information. Despite the use of test pits, the heterogeneous nature of fill will leave some ambiguity as to the exact composition of the fill. Most fills contain pockets, seams, or layers of organically contaminated soil. This organic material can result in the generation of methane gas and/or significant ongoing and future settlements. Fill at this site may have been monitored for the presence of methane gas and, if so, the results are given on the borehole logs. The monitoring process does not indicate the volume of gas that can be potentially generated nor does it pinpoint the source of the gas. These readings are to advise of the presence of gas only, and a detailed study is recommended for sites where any explosive gas/methane is detected. Some fill material may be contaminated by toxic/hazardous waste that renders it unacceptable for deposition in any but designated land fill sites; unless specifically stated the fill on this site has not been tested for contaminants that may be considered toxic or hazardous. This testing and a potential hazard study can be undertaken if requested. In most residential/commercial areas undergoing reconstruction, buried oil tanks are common and are generally not detected in a conventional preliminary geotechnical site investigation.

3. Till: The term till on the borehole logs indicates that the material originates from a geological process associated with glaciation. Because of this geological process the till must be considered heterogeneous in composition and as such may contain pockets and/or seams of material such as sand, gravel, silt or clay. Till often contains cobbles (60 to 200 mm) or boulders (over 200 mm). Contractors may therefore encounter cobbles and boulders during excavation, even if they are not indicated by the borings. It should be appreciated that normal sampling equipment cannot differentiate the size or type of any obstruction. Because of the horizontal and vertical variability of till, the sample description may be applicable to a very limited zone; caution is therefore essential when dealing with sensitive excavations or dewatering programs in till materials.

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Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH21-1

PROJECT: Geotechnical Investigation- Proposed Mid- rise Building
CLIENT: Eaglewood Communities Inc.
PROJECT LOCATION: 1354 Bronte Road, Oakville, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4807982.335 E 600951.347

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Oct-08-2021

REF. NO.: 21-347-100
ENCL NO.: 2

(m) ELEV / DEPTH	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"
130.3				
130.0 / 0.0	**ASPHALT:** 130mm			
129.9 / 0.1	**GRANULAR BASE:** sand and gravel, 230mm	1	SS	5
129.2 / 0.4	**FILL:** sandy silt to silty sand, some clay, trace organics/topsoil, brown, moist, loose	2	SS	7
1.1	**SILTY CLAY TILL:** sandy, trace gravel, trace shale fragments, brown, moist, stiff to very stiff sand seams	3	SS	18
	greyish brown below 2.3m	4	SS	26
	grey below 3.1m	5	SS	21
125.7				
4.6	**SANDY SILT TO SILTY SAND TILL:** some clay, some gravel, occasional cobble, reddish brown, moist, very dense	6	SS	50/ 50mm
	greyish brown and wet below 6.1 m	7	SS	50/ 50mm
122.7				
7.6	**SAND AND GRAVEL:** trace silt, brown, wet, dense to very dense	8	SS	51
		9	SS	44
120.6				
9.7	**END OF BOREHOLE:**			

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water Level Readings:

Date:	Water Level(mbgl):
Nov. 03, 2021	7.73

GROUND WATER CONDITIONS: W. L. 122.6 m Nov 03, 2021

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)

SHEAR STRENGTH (kPa) (20 40 60 80 100)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%) (10 20 30)

POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)

METHANE AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
19	31	39	11

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 21-347-100-GEO COPY.GPJ DS.GDT 21-11-29

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH21-2

PROJECT: Geotechnical Investigation- Proposed Mid- rise Building
CLIENT: Eaglewood Communities Inc.
PROJECT LOCATION: 1354 Bronte Road, Oakville, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4808005.125 E 600921.387

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Oct-08-2021

REF. NO.: 21-347-100
ENCL NO.: 3

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS / 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION
129.8							
129.6 0.2	**TOPSOIL:** 180mm						
129.5 0.3	**FILL:** clayey silt, trace sand, trace rootlets, some organics, brown, moist, soft		1	SS	2		
128.7 1.1	**FILL:** sandy silt, trace organics/topsoil, some clay, brown, wet, very loose to compact		2	SS	19		129
	SILTY CLAY TILL: sandy, trace gravel, trace shale fragments, brown, moist, very stiff to hard trace cobble, sand seams below 1.5 m		3	SS	26		128
			4	SS	35		127
	grey below 3.1m		5	SS	38		126
125.2							
4.6	**SANDY SILT TO SILTY SAND TILL:** trace clay, some gravel, occasional cobble, greyish brown, moist, very dense		6	SS	50/ 50mm		125
			7	SS	50/ 130mm		124
						W. L. 122.6 m Nov 03, 2021	123
122.2							
7.6	**SAND AND GRAVEL:** trace silt, brown, wet, very dense		8	SS	56		122
121.6							
8.2	**END OF BOREHOLE:**						

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water Level Readings:

Date:	Water Level(mbgl):
Nov. 03, 2021	7.14

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

METHANE AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
17	58	19	6

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

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

DS SOIL LOG 21-347-100-GEO COPY.GPJ DS.GDT 21-11-29

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LOG OF BOREHOLE BH21-3

PROJECT: Geotechnical Investigation- Proposed Mid- rise Building
CLIENT: Eaglewood Communities Inc.
PROJECT LOCATION: 1354 Bronte Road, Oakville, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4808038.131 E 600946.877

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Oct-08-2021

REF. NO.: 21-347-100
ENCL NO.: 4

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION
128.3							
128.0 0.0	**TOPSOIL:** 180mm						
0.2	**FILL:** silty clay, trace rootlets/organics, trace sand, trace gravel, brown, very moist, soft		1	SS	3		
127.5 0.8	**FILL:** silty clay till, sandy, trace gravel, occasional cobble, brown, moist, very stiff, weathered/disturbed		2	SS	19		
127.2 1.1	**SILTY CLAY TILL:** sandy, trace gravel, trace shale fragments, occasional cobble, brown, moist, very stiff to hard		3	SS	27		
2	greyish brown		4	SS	47		
125.2 3.1	**SANDY SILT TO SILTY SAND TILL:** trace clay, trace gravel/ shale fragments, brown to reddish brown, wet, very dense		5	SS	63		
4							
5			6	SS	50/ 25mm		
122.2 6.1	**SAND AND GRAVEL:** trace silt, brown, wet, very dense		7	SS	55		
7							
120.1 8.2	**END OF BOREHOLE:**		8	SS	62		

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water Level Readings:

Date:	Water Level(mbgl):
Nov. 03, 2021	5.67

W. L. 122.7 m
Nov 03, 2021

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)
METHANE AND GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

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LOG OF BOREHOLE BH21-4

PROJECT: Geotechnical Investigation- Proposed Mid- rise Building
CLIENT: Eaglewood Communities Inc.
PROJECT LOCATION: 1354 Bronte Road, Oakville, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4808021.236 E 600972.34

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Oct-08-2021

REF. NO.: 21-347-100
ENCL NO.: 5

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS / 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION
129.3							
129.0 0.0	**TOPSOIL:** 200mm						129
0.2	**FILL:** sand, trace silt, trace rootlets, trace cobble, brown, moist, loose		1	SS	5		
128.5							
1 0.8	**FILL:** sandy silt, trace rootlets, trace clay, brown, wet, loose		2	SS	5		128
127.8							
1.5	**SILTY CLAY TILL:** sandy, trace gravel/ shale fragments, occasional cobble, brown, moist, very stiff		3	SS	20		
2	sand seams at 2.3m		4	SS	25		127
3			5	SS	28		126
4							125
124.7							
4.6	**SANDY SILT TO SILTY SAND TILL:** trace clay, trace gravel, greyish brown, wet, very dense		6	SS	50/ 75mm		
5 6 123.2							124
6.1	**SAND AND GRAVEL:** trace silt, brown, wet, very dense		7	SS	50/ 130mm		123
7							122
8 121.1			8	SS	50		
8.2	**END OF BOREHOLE:** Notes: 1) Water depth at 4.6 m during drilling.						

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

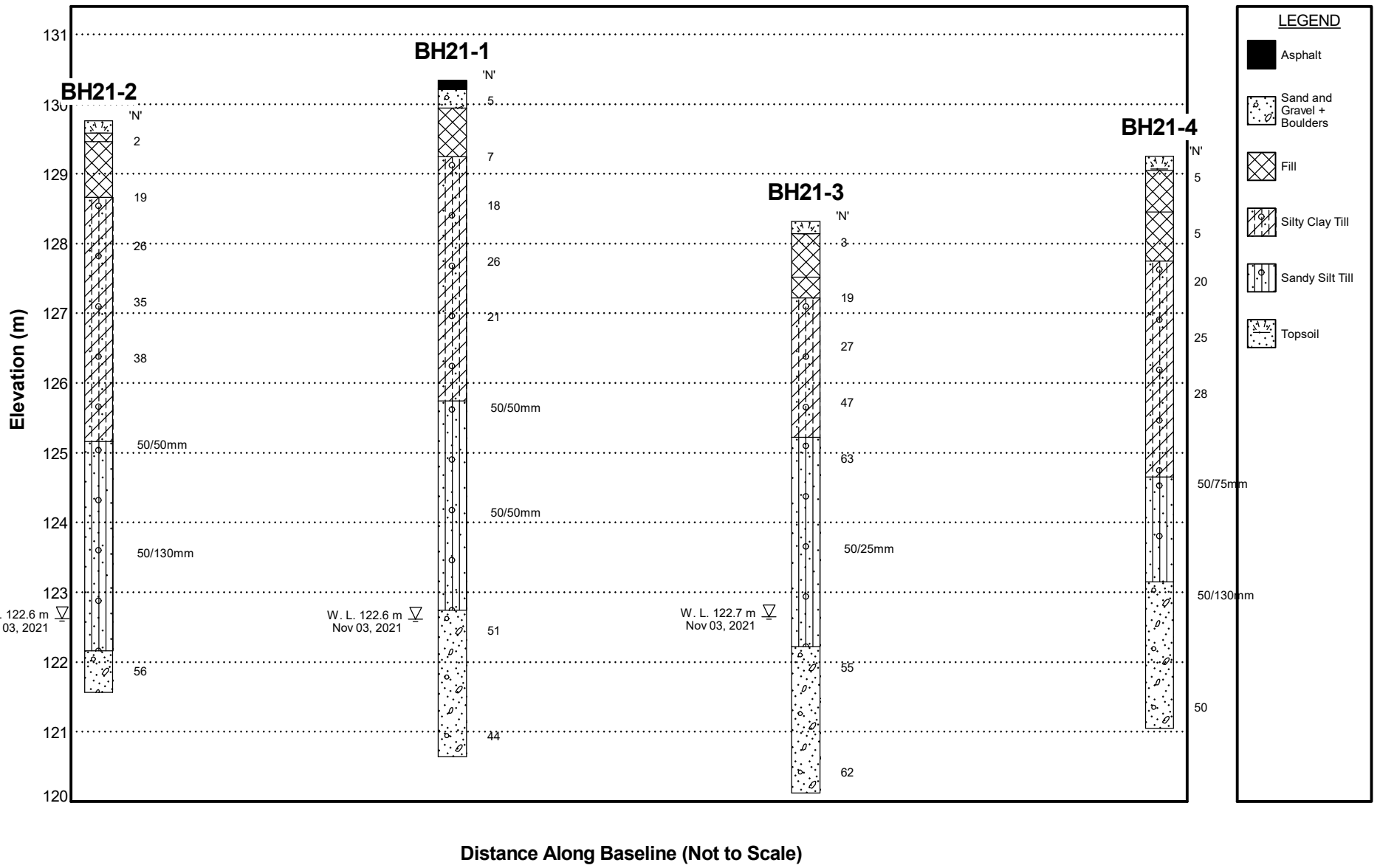
METHANE AND GRAIN SIZE DISTRIBUTION (%)

	GR	SA	SI	CL
3	26	53	18	

DS SOIL LOG 21-347-100-GEO COPY.GPJ DS.GDT 21-11-29

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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



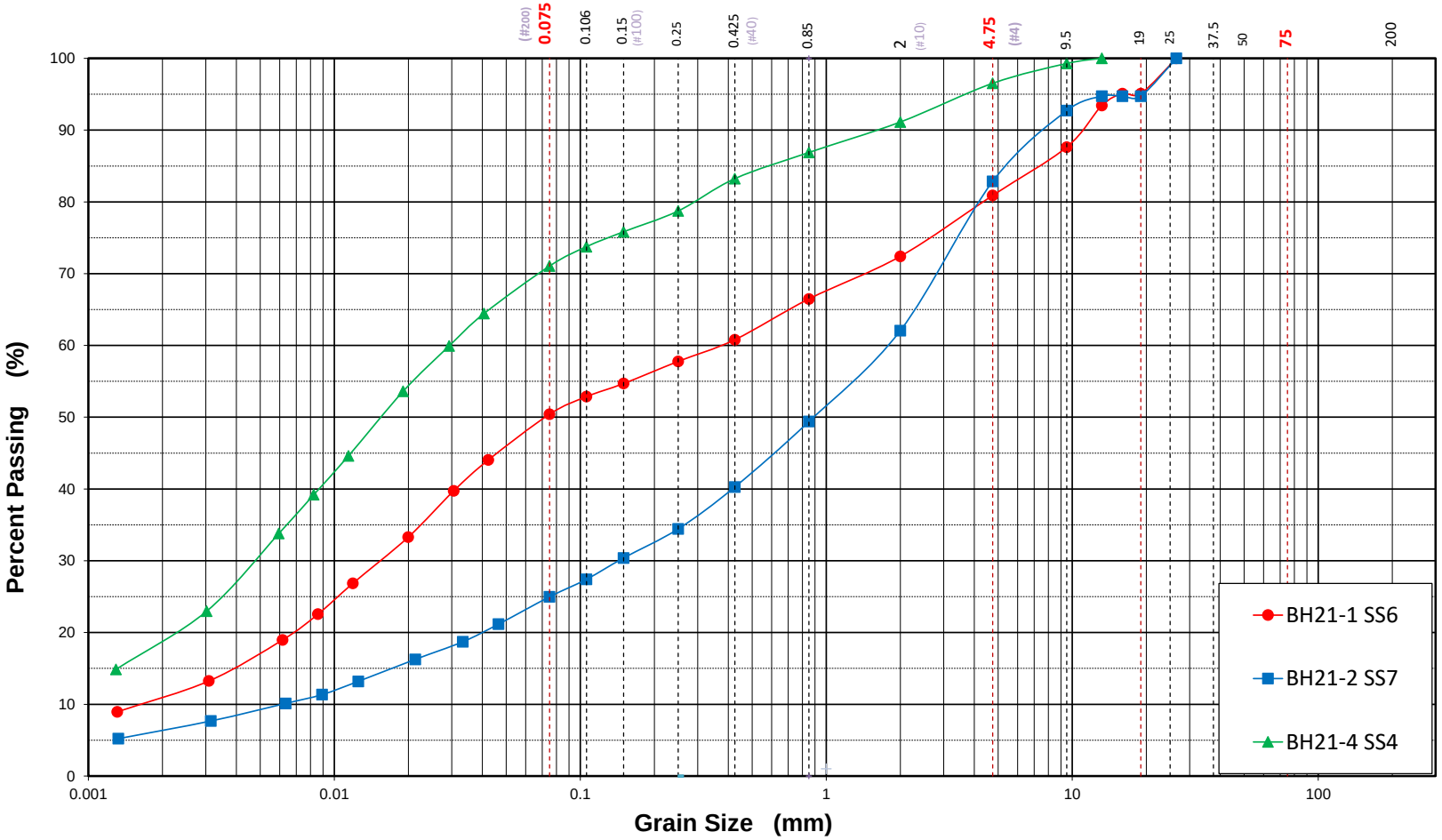
DS FENCE (M) 21-347-100-GEO COPY.GPJ DS.GDT 21-11-2

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Generalized Sub-surface Profile

DRAWING NO.	6
JOB NO.	21-347-100
DATE	November, 2021

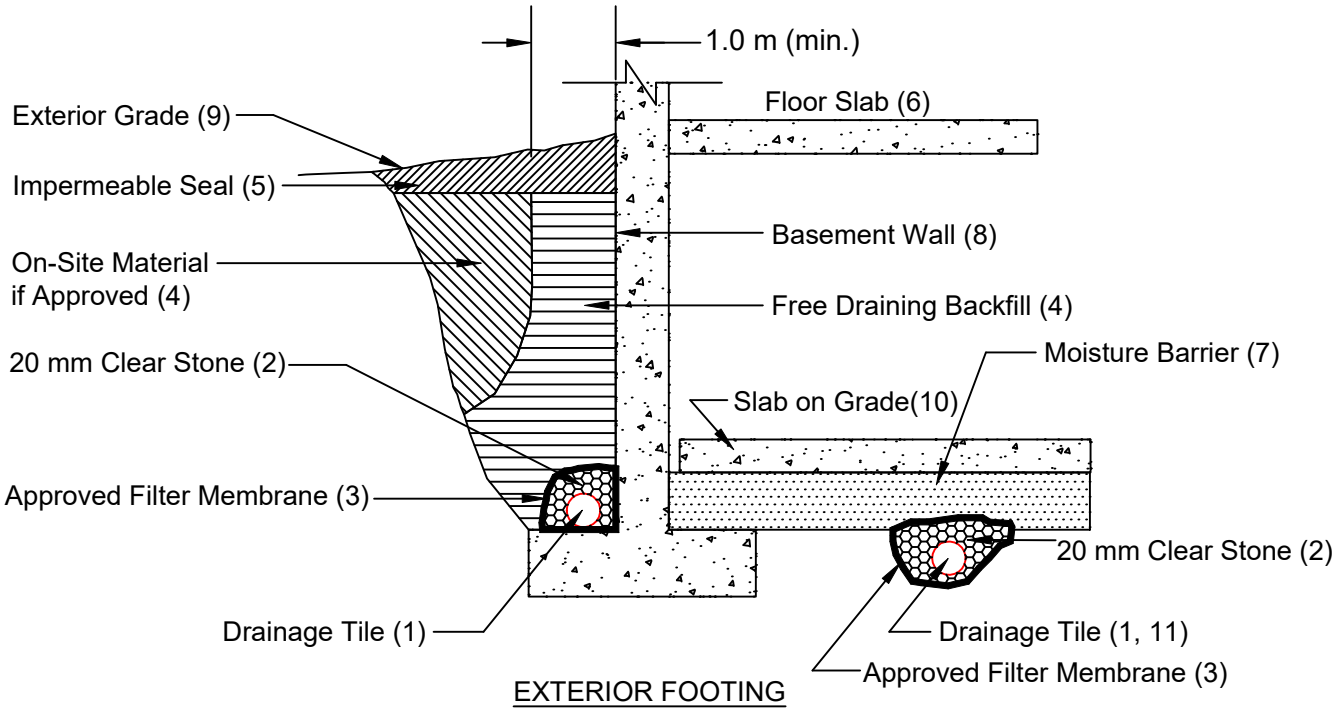
Particle Size Distribution (ASTM-D421/D422)



Silt and Clay		Sand			Gravel		Cobble +
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse	

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Project	**Geotechnical Investigation**	Project No	**21-347-100**
Location	**1354 Bronte Road, Oakville**	Date	**Oct-14-2021**
Client	**Eaglewood Communities Inc.**	Figure No	7



EXTERIOR FOOTING

Notes

1. Drainage tile to consist of 100 mm (4") diameter weeping tile or equivalent perforated pipe leading to a positive sump or outlet.
2. 20 mm (3/4") clear stone - 150 mm (6") top and side of drain. If drain is not on footing, place100 mm (4 inches) of stone below drain .
3. Wrap the clear stone with an approved filter membrane (Terrafix 270R or equivalent).
4. Free Draining backfill - OPSS Granular B or equivalent compacted to the specified density. Do not use heavy compaction equipment within 450 mm (18") of the wall. Use hand controlled light compaction equipment within 1.8 m (6') of wall. The minimum width of the Granular 'B' backfill must be 1.0 m.
5. Impermeable backfill seal - compacted clay, clayey silt or equivalent. If original soil is free-draining, seal may be omitted. Maximum thickness of seal to be 0.5 m.
6. Do not backfill until wall is supported by basement and floor slabs or adequate bracing.
7. Moisture barrier to be at least 200 mm (8") of compacted clear 20 mm (3/4") stone or equivalent free draining material. A vapour barrier may be required for specialty floors.
8. Basement wall to be damp proofed /water proofed.
9. Exterior grade to slope away from building.
10. Slab on grade should not be structurally connected to the wall or footing.
11. Underfloor drain invert to be at least 300 mm (12") below underside of floor slab.
12. Drainage tile placed in parallel rows 6 to 8 m (20 to 25') centers one way. Place drain on 100 mm (4") clear stone with 150 mm (6") of clear stone on top and sides. Enclose stone with filter fabric as noted in (3).
13. The entire subgrade to be sealed with approved filter fabric (Terrafix 270R or equivalent) if non-cohesive (sandy) soils below ground water table encountered.
14. Do not connect the underfloor drains to perimeter drains.
15. Review the geotechnical report for specific details.

DRAINAGE AND BACKFILL RECOMMENDATIONS
Basement with Underfloor Drainage

(not to scale)